

# 2020

Proxy Statement and Notice of  
Annual Meeting of Stockholders





Dear Fellow Stockholders and Clients,

MarketAxess achieved important milestones in our growth strategy in 2019 as a record number of institutions and dealers turned to our global network to access liquidity through our award-winning technology. This expanding client engagement drove our eleventh consecutive year of record trading volume, revenue and earnings.

As I write, the market environment is significantly different than the one that prevailed for much of 2019. The COVID-19 outbreak continues to disrupt our lives and markets remain unsettled by the economic outlook. For those who must stay engaged with trading and shepherd their firms through these markets, volatile conditions have brought home the importance of electronic liquidity and the all-to-all marketplace in keeping markets functioning. Evidence suggests that the evolution of market structure in 2019 and previous years has helped make global credit markets more resilient.

Our 2019 performance reflects the credit market's steadily growing commitment to electronic trading and an evolving market structure. MarketAxess recorded broad-based gains in trading volume across all our core products last year, resulting in a 17% increase in revenue and an 18% percent increase in diluted earnings per share. To put these results in longer term perspective, our revenue grew at a 14% compound annual growth rate from 2014 to 2019, while diluted earnings per share increased at a 22% rate in that period. Our long-term record of growth led to one of the most important milestones of 2019 — the addition of MarketAxess to the S&P 500 Index of the largest companies listed on U.S. exchanges, a distinction achieved just a year before we mark the 20-year anniversary of our company's founding.

Driving our 2019 performance was a combination of existing clients' stepped-up activity on MarketAxess and the addition of new clients. We ended 2019 with over 1,700 client firms active on MarketAxess, up 12% from the end of 2018. Nearly half of the total active clients — 825 — were international firms. Notably, European client volumes were up 38% last year, and global emerging markets volume rose 29%. More than 1,000 active firms on our platform now trade three or more of our core products, evidence of our important role in their trading activities.

Leaning into our growth strategy, we continued to invest in new client solutions in 2019. These included:

- Further investment in trading automation to promote trading efficiency and expand trading opportunity. We supported a significant expansion of dealer and alternative market-maker use of algorithmic trading in 2019, and developed auto-execution trading tools for investors. In both cases, trading automation is benefiting from our investment in Composite+, our AI-based, real-time bond pricing solution.
- The acquisition of LiquidityEdge™, which gives MarketAxess a strong position in Treasury trading just as that market is expecting a wave of issuance associated with economic stimulus programs. Importantly, LiquidityEdge, now branded MarketAxess Rates, enables our clients to efficiently hedge their trades in credit markets.
- The launch of Live Markets, our live order book for active and newly issued corporate bonds. We are building a robust streaming liquidity solution that we believe will be of substantial value to clients.
- Development of our portfolio trading protocol, creating a highly efficient path for institutional investors to market and transact large, customized, fixed-income portfolios with competitive pricing and industry-leading analytics.

Among 2019's most positive outcomes was the 44% year-on-year increase in volume on Open Trading™, our all-to-all marketplace. Institutional investor clients increased their activity on Open Trading as both suppliers of liquidity as well as takers of liquidity. Dealers have stepped up their involvement as well, tapping Open Trading to source liquidity, manage risks and make more efficient use of their balance sheets. Our clients' sustained, growing support for the all-to-all marketplace has matched the vision we had when we launched Open Trading in 2013.

Worth noting is that Open Trading had significant gains in volume during March of this year, when liquidity was stretched and serious dislocation was evident in key sectors of the credit market. The percentage of MarketAxess credit volume executed on Open Trading in March 2020 was 35%, up significantly from the 27% of total volume in 2019. Without the open market — with its large, diverse pool of different types of participants — there surely would be more risk and volatility in credit markets, not less.

Another index of change is the demand that MarketAxess experienced in March for remote access from clients who were homebound due to COVID-19 mitigation measures, lacking their usual office and desk support. In March, our client service teams arranged remote, secure access to our Web-enabled technology for over 10,000 individual users to help them stay engaged with the market.

I would like to thank the MarketAxess team for all they did in 2019 for our clients and stockholders, and for their focus and diligence in this year's COVID-19 outbreak. Like our clients, our staff have made an additional effort as they work from home in order to protect the health and well-being of themselves, their colleagues, their families and their communities.

Our employees' dedication to helping clients stay connected with markets in a difficult period rings true with our Company's purpose as described in our 2019 Sustainability Report, our first, which is available on our website at [www.marketaxess.com/about-us/sustainability](http://www.marketaxess.com/about-us/sustainability). Simply expressed, our purpose is to open global markets to create more opportunities for the companies, institutions and individuals who depend on them. Every day, we focus on making sure our clients can access the liquidity they need to be successful. In that effort, we prize collaboration with our clients and with our colleagues to bring the best solutions to the market.

In pursuing our objectives, MarketAxess has benefited immensely over the years from the leadership of our Board of Directors. In 2019, the Board added three new directors, each of whom brings unique experience and expertise to our strategy. They are Nancy Altobello, former Global Vice Chair – Talent at EY; Justin Gmelich, a former Partner and Global Head of Credit for Goldman Sachs, and Richard Prager, former Senior Managing Director and Global Head of Trading and Liquidity at BlackRock.

We look to the rest of 2020 and the years ahead more confident than ever during our 20-year history in the continued opportunity to deliver significant value to our clients and our stockholders. On behalf of everyone at MarketAxess, I wish you all a safe and healthy 2020.

Sincerely,

A handwritten signature in black ink that reads "Richard M. McVey". The signature is written in a cursive style with a large, stylized initial 'R'.

Richard M. McVey  
Chairman of the Board and Chief Executive Officer  
April 29, 2020





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

April 29, 2020

TO THE STOCKHOLDERS OF MARKETAXESS HOLDINGS INC.:

You are invited to attend the 2020 Annual Meeting of Stockholders (the "Annual Meeting") of MarketAxess Holdings Inc. (the "Company") scheduled for Wednesday, June 10, 2020 at 10:00 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/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020). 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 given 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 Securities and Exchange Commission 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 29, 2020, we expect to mail to our stockholders a Notice containing instructions on how to access our Proxy Statement and Annual Report on Form 10-K for the year ended December 31, 2019 and vote online. 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 enclosed 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 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.

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

Sincerely,

A handwritten signature in blue ink that reads 'Richard M. McVey'.

Richard M. McVey  
*Chairman and Chief Executive Officer*

[THIS PAGE INTENTIONALLY LEFT BLANK]

# NOTICE OF 2020 ANNUAL MEETING OF STOCKHOLDERS

Attend the Annual Meeting at:

[www.virtualshareholdermeeting.com/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020)

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 enclosed envelope. Alternatively, you may be able to submit your proxy by touch-tone phone as indicated on the proxy card.

## TO THE STOCKHOLDERS OF MARKETAXESS HOLDINGS INC.:

NOTICE IS HEREBY GIVEN that the 2020 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 10, 2020, at 10:00 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/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020). 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 12 nominees named in the attached Proxy Statement as members of the Company's Board of Directors for terms expiring at the 2021 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, 2020;
3. hold an advisory vote to approve the compensation of the Company's named executive officers as disclosed in the attached Proxy Statement;
4. vote to approve the adoption of the MarketAxess Holdings Inc. 2020 Equity Incentive Plan;
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 13, 2020. 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 13, 2020. 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 proxy card; (2) sign and return a paper proxy card; or (3) vote during the Annual Meeting at [www.virtualshareholdermeeting.com/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020).

By Order of the Board of Directors,



**Scott Pintoff**

General Counsel and Corporate Secretary

New York, New York

April 29, 2019



### BY INTERNET

Visit 24/7

[www.proxyvote.com](http://www.proxyvote.com)



### BY PHONE

Call 1-800-690-6903

in the U.S. or Canada to vote your shares



### BY MAIL

Cast your ballot, sign your proxy card and return



### PARTICIPATE IN THE ANNUAL MEETING

Vote during the Annual Meeting at [www.virtualshareholdermeeting.com/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020)

[THIS PAGE INTENTIONALLY LEFT BLANK]

# TABLE OF CONTENTS

<b>PROXY SUMMARY</b>	<b>1</b>	<b>REPORT OF THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS</b>	<b>24</b>
Annual Meeting Information	1		
Voting Items	1	<b>SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT</b>	<b>25</b>
How to Vote	1		
<b>PROPOSAL 1 — ELECTION OF DIRECTORS</b>	<b>2</b>	<b>EXECUTIVE OFFICERS</b>	<b>27</b>
Your vote	2		
Qualifications for director nominees	2	<b>A LETTER FROM OUR COMPENSATION COMMITTEE</b>	<b>29</b>
Summary of Director Qualifications	3		
Director diversity	3	<b>COMPENSATION DISCUSSION AND ANALYSIS</b>	<b>30</b>
Director Information	4	Addressing the 2019 Say-on-Pay Vote	30
		Business and Financial Performance	33
<b>CORPORATE GOVERNANCE AND BOARD MATTERS</b>	<b>10</b>	How We Make Compensation Decisions	36
Director independence and tenure	10	How We Determine Pay Levels	40
How nominees to our Board are selected	10	Elements of Executive Compensation	47
Board Diversity Policy	10	Employee Cash Incentive Plan – 2019	50
Board leadership structure	11	Non-Qualified Deferred Cash Plan – 2019 Contributions	51
Board committees	11	Changes to the Employee Cash Incentive Plan – 2020	51
Meetings and attendance	12	Annual Equity Awards	51
Board involvement in risk oversight	13	Flex Share Program	52
Board evaluations, succession planning and talent management	14	2019 Annual Equity Awards for 2018 Performance	53
Code of Conduct, Code of Ethics and other governance documents	15	2019 Performance Share Metrics and Payout	54
Communicating with our Board members	15	2020 Annual Equity Awards for 2019 Performance	55
Director compensation	15	Special Multi-Year and Other Equity-based Awards	57
Certain Relationships and Related Party Transactions	18	CEO Awards	57
		Other NEO Special Multi-Year Awards	61
<b>CORPORATE SOCIAL RESPONSIBILITY</b>	<b>20</b>	Additional Compensation Information	63
How MarketAxess Defines Sustainability	20		
Trading for Trees	21	<b>REPORT OF THE COMPENSATION COMMITTEE OF THE BOARD OF DIRECTORS</b>	<b>67</b>
<b>PROPOSAL 2 — RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM</b>	<b>22</b>		
Your vote	22		
Audit and other fees	23		

<b><u>EXECUTIVE COMPENSATION</u></b>	<b>68</b>	<b><u>PROPOSAL 4 - APPROVAL OF THE ADOPTION OF THE MARKETAXESS HOLDINGS INC. 2020 EQUITY INCENTIVE PLAN</u></b>	<b>86</b>
Summary compensation table	68		
Grants of plan-based awards	69		
Outstanding equity awards at fiscal year-end	70	<b><u>OTHER INFORMATION</u></b>	<b>99</b>
Option exercises and stock vested	71	General Information	99
Nonqualified deferred compensation	72	Solicitation of Proxies	100
Employment agreements and severance arrangements with our named executive officers	73	Voting	100
Potential termination or change in control payments and benefits	76	Availability of Certain Documents	103
Compensation Committee interlocks and insider participation	82	Other matters	103
		Stockholder proposals for 2021 Annual Meeting	103
<b><u>PROPOSAL 3 — ADVISORY VOTE ON EXECUTIVE COMPENSATION</u></b>	<b>83</b>	<b><u>APPENDIX: 2020 INCENTIVE PLAN</u></b>	<b>A-1</b>
<b><u>CEO PAY RATIO</u></b>	<b>84</b>		

# PROXY SUMMARY

This summary contains highlights about MarketAxess Holdings Inc. (“MarketAxess”, the “Company”, “we” or “our”) and the upcoming 2020 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 29, 2020. 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 10, 2020 meeting.

## Annual Meeting Information

Date and Time: Wednesday, June 10, 2020, at 10:00 a.m., Eastern Daylight Time  
Virtual Meeting: [www.virtualshareholdermeeting.com/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020)  
Record Date: Monday, April 13, 2020

Due to the emerging public health impact of the coronavirus outbreak (COVID-19) and to support the health and well-being of our stockholders and other participants at the Annual Meeting, the Annual Meeting will be held in virtual format only.

## Voting Items

The following table summarizes the items that we ask our stockholders to vote on 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 Directors	FOR	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, 2020	FOR	Majority of shares present and entitled to vote	22
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 present and entitled to vote	83
4. Approval of the adoption of the MarketAxess Holdings Inc. 2020 Equity Incentive Plan	FOR	Majority of shares present and entitled to vote	86

## 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: Cast your ballot, sign your proxy card and return.  
Via the Internet: To vote before the meeting, visit [www.proxyvote.com](http://www.proxyvote.com).  
To vote at the meeting, visit [www.virtualshareholdermeeting.com/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020). 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 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 5, 2019, except for Richard L. Prager and Justin G. Gmelich, who were appointed to the Board as of July 16, 2019 and October 15, 2019, respectively. The directors are nominated for a term that begins at the Annual Meeting and ends at the 2021 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.

## Your vote

---

If you sign the enclosed proxy card and return it to the Company, your proxy will be voted **FOR** all directors, for terms expiring at the 2021 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 majority of the votes cast by stockholders entitled to vote at the Annual Meeting is required for the election of each director. Abstentions 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 election of each of the following nominees:**

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

Each of these nominees is currently serving as a director on our Board, and each nominee has agreed to continue to serve on the Board if he or she 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 of endeavor related to the strategic running of our business; 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. He or she also needs to exhibit qualities of independence in thought

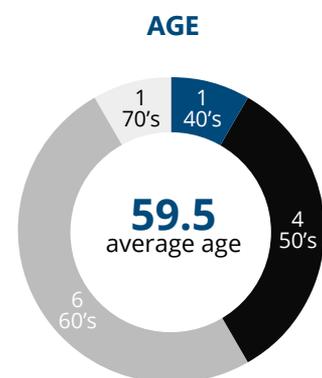
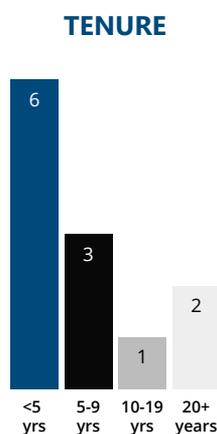
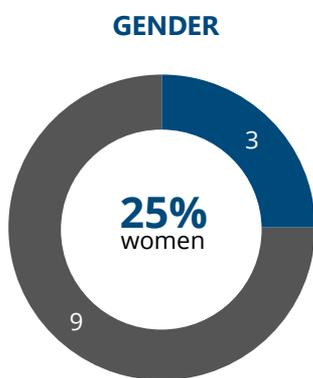
and action. A candidate should be committed first and foremost to the interests of the stockholders of the Company. The key experience, qualifications and skills each of our directors brings to the Board that are important in light of our business are included in their individual biographies below.

## Summary of Director Qualifications

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/ Cybersecurity	Mergers and Acquisitions	Audit	Risk Management	Other Public Company Board Experience	Talent Management
Richard M. McVey	•	•	•	•	•		•		•
Nancy Altobello	•		•		•	•	•	•	•
Steven L. Begleiter	•				•	•	•	•	•
Stephen P. Casper	•	•	•		•	•	•		•
Jane Chwick	•	•		•			•	•	•
Christopher R. Concannon	•	•	•	•	•		•	•	
William F. Cruger	•	•			•	•	•	•	
Justin G. Gmelich		•	•			•	•		•
Richard G. Ketchum	•	•	•				•	•	
Emily H. Portney	•				•	•	•	•	•
Richard L. Prager	•	•		•	•		•		•
John Steinhardt		•	•	•	•		•		•

## Director diversity



## 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 2021 Annual Meeting of Stockholders.

### Richard M. McVey

**Age:** 60

**Director since:** April 2000

**Chairman of the Board of Directors**

**Board Committees:**

- None

#### Qualifications and Career Highlights:

*Richard M. McVey* has been our Chief Executive Officer and Chairman of our Board of Directors since our inception. As an employee of J.P. Morgan & Co., one of our founding broker-dealers, Mr. McVey was instrumental in the founding of MarketAxess in April 2000. 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 IPO in 2004, and since that time, MarketAxess has been one of the fastest growing financial technology companies in the U.S. public markets, with industry leading total stockholder returns. 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 is a member of the U.S. Securities and Exchange Commission's ("SEC") Fixed Income Market Structure Advisory Committee, for which he chairs the Technology and Electronic Trading Sub-Committee. Mr. McVey serves on the Board of Directors of Miami (Ohio) University Foundation, as well as the Board of Trustees of Colby College. He previously served on the board of directors of 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.

### Nancy Altobello

**Age:** 62

**Director since:** April 2019

**Board Committees:**

- Audit (Chair)
- Compensation

#### 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 as a board member of MTS Systems Corporation and a trustee of the Fidelity Charitable board of trustees. Ms. Altobello received a B.S. in accounting from Fairfield University.

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:** 58**Director since:** April 2012**Board Committees:**

- Compensation (Chair)
- Investment

**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 WisdomTree Investments, Inc., Great Ajax Corp. and on the board of directors of certain portfolio companies of Flexpoint Ford, LLC. 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:** 70**Director since:** April 2004**Lead Independent Director****Board Committees:**

- Nominating and Governance

**Qualifications and Career Highlights:**

*Stephen P. Casper* is retired. Most recently, Mr. Casper was 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 has been a member of the Board of Directors of multiple fixed income hedge funds managed by KLS Diversified Asset Management since July 2012. 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:** 57

**Director since:** October 2013

**Board Committees:**

- Nominating and Governance
- Risk (Chair)

---

### 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 Voya Financial, Inc., People's United Financial, Inc., Essent Group and Thoughtworks, and also serves on the Executive Board of Trustees of the Queens College Foundation. 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.

## Christopher R. Concannon

**Age:** 52

**Director since:** January 2019

**Board Committees:**

- None

---

### Qualifications and Career Highlights:

*Christopher R. Concannon* has been our President and Chief Operating Officer since January 2019. Mr. Concannon previously served as President and Chief Operating Officer of Cboe Global Markets, Inc., one of the world's largest exchange holding companies, a position he was appointed to upon Cboe's acquisition of Bats Global Markets, Inc. in 2017. At Cboe, he was responsible for the company's transaction businesses, including global derivatives, U.S. and European equities, and global foreign exchange – as well as overseeing Cboe's technology, operations, risk, and marketing divisions. 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 and Bockius and the Securities and Exchange Commission. Mr. Concannon has 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.

**William F. Cruger****Age:** 61**Director since:** November 2013**Board Committees:**

- Audit
- Investment
- Nominating and Governance (Chair)

**Qualifications and Career Highlights:**

*William F. Cruger* was most recently Vice Chairman of Investment Banking at JPMorgan Chase & Co. 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 as a board member of People's United Financial, Inc. and Virtu Financial, Inc., and has previously served on the boards of Archipelago, Credittrade and Capital IQ. 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.

**Justin G. Gmelich****Age:** 51**Director since:** October 2019**Board Committees:**

- Audit

**Qualifications and Career Highlights:**

*Justin G. Gmelich* has been a Partner and Global Head of Markets with King Street Capital Management, a global investment management company, since January, 2020, where he is also a member of the Investment Committee. Prior to this, Mr. Gmelich was the Global Chief Operating Officer for Fixed Income, Commodities, and Currencies ("FICC") at Goldman Sachs from November 2017 to March 2019. Before being named COO of FICC, Mr. Gmelich was Global Head of Credit and Mortgage Trading at Goldman Sachs since March 2012. Additionally, while at Goldman Sachs, he was a member of the Firm's Management Committee, Firmwide Risk Committee, Securities Division Executive Committee, Securities Division Volcker Committee and the Global Recruiting Council. Earlier in his career, Mr. Gmelich was a vice president at Salomon Brothers from 1996 to 1998 and worked as an associate trader at Chase from 1995 to 1996. Mr. Gmelich serves as a trustee for Villanova University, where he chairs the Investment Committee, and serves on the boards of Teddy's Fund and Trinity Hall. Mr. Gmelich received a B.S. in Finance from Villanova University, an M.S. in Accounting/Taxation from the University of Southern California and an M.B.A. in Finance from Columbia University.

Mr. Gmelich brings to the Board a deep knowledge of fixed income market structure and valuable experience in electronic trading. Mr. Gmelich also provides key insight into the perspectives of our dealer customer base.

### Richard G. Ketchum

**Age:** 69

**Director since:** April 2017

**Board Committees:**

- Risk

---

**Qualifications and Career Highlights:**

*Richard G. Ketchum* is retired. Mr. Ketchum was 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 currently serves as Non-Executive Chairman of the board of directors of Och-Ziff Capital Management. He is also on the board of directors of GSS, a subsidiary of BNY Mellon. 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 H. Portney

**Age:** 48

**Director since:** October 2017

**Board Committees:**

- Audit
- Risk

---

**Qualifications and Career Highlights:**

*Emily H Portney* has been Head of Asset Servicing, Americas for BNY Mellon since October 2018. Prior to this role, Ms. Portney was Chief Financial Officer of Barclays International from September 2016 to September 2018. From April 2016 to August 2016, she served as North America Chief Financial Officer for Visa, Inc. Prior to that, from June 1993 to January 2016, Ms. Portney worked at JPMorgan Chase & Co., serving in various senior roles including Global Head of Clearing, Collateral Management, and Execution; Chief Financial Officer of Equities and Prime Services; and Chief Operating Officer of Futures and Options. Ms. Portney currently serves 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:** 60**Director since:** July 2019**Board Committees:**

- Compensation
- Risk

**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 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.

**John Steinhardt****Age:** 66**Director since:** April 2000**Board Committees:**

- Compensation
- Investment (Chair)

**Qualifications and Career Highlights:**

*John Steinhardt* is a founder, and has been a Managing Partner, Co-Chief Executive Officer and Co-Chief Investment Officer, of KLS Diversified Asset Management since July 2007. From July 2006 until July 2007, Mr. Steinhardt managed a private investment portfolio. Mr. Steinhardt was the founder, Chief Executive Officer and Chief Investment Officer of Spectrum Investment Group from January 2005 to July 2006. Until October 2004, Mr. Steinhardt was Head of North American Credit Markets for JPMorgan Chase & Co. and a member of the Management Committee of the Investment Banking Division of JPMorgan Chase & Co. Prior to the merger of J.P. Morgan & Co. and the Chase Manhattan Bank, Mr. Steinhardt was the Head of U.S. Securities at Chase Securities Inc. and a member of the Management Committee from 1996 to 2000. He currently serves on the board of directors of the 92nd Street Y and the board of trustees of the Central Park Conservancy. Mr. Steinhardt received a B.S. in economics from St. Lawrence University and an M.B.A. from Columbia University.

Mr. Steinhardt brings substantial leadership experience at a number of financial institutions and extensive experience in the financial markets that we serve. Mr. Steinhardt also has a deep knowledge and understanding of the requirements of operating in a highly regulated industry.

# CORPORATE GOVERNANCE AND BOARD MATTERS

## Director independence and tenure

---

The Board of Directors has determined that each of our current directors, other than Messrs. McVey, our Chief Executive Officer, and Concannon, our President and Chief Operating Officer, currently meet the independence requirements contained in the NASDAQ listing standards and applicable securities rules and regulations. None of these 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.

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, has 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 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.

## 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 on our corporate website at [www.marketaxess.com](http://www.marketaxess.com).

The Nominating and Corporate Governance Committee will give due consideration to candidates recommended by stockholders. 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*. However, just because a recommended individual meets the minimum qualification standards does not imply that the Nominating and Corporate Governance Committee will necessarily nominate the person so 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 diversity policy

---

The Company recognizes and embraces the benefits of having a diverse Board to enhance the quality of its performance. The Company's Board Diversity Statement 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, diversity is considered from a number of aspects, including but not limited to 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 contribution that the selected candidates will bring to the Board, having due regard for the benefits of diversity.

## Board leadership structure

---

Our Chief Executive Officer (“CEO”) also serves as the Chairman of the Board (the “*Chairman*”), and we have a Lead Independent Director who is responsible, among other things, for consulting with the 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 Chairman and the non-employee directors. We believe that this structure is appropriate for the Company because it allows one person to speak for and lead the Company and the Board, while also providing for effective oversight by an independent Board through a Lead Independent Director. Our CEO, as the individual with primary responsibility for managing the Company’s strategic direction and day-to-day operations, is in the best position to provide Board leadership that is aligned with our stockholders’ interests, as well as the Company’s needs. Our overall corporate governance policies and practices, combined with the strength of our independent directors, minimize any potential conflicts that may result from combining the roles of CEO and Chairman.

Mr. Casper has been appointed by our independent directors to serve as our Lead Independent Director. Our Corporate Governance Guidelines provide that 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.

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 Committee, Investment Committee, Nominating and Corporate Governance Committee, and Risk Committee are comprised entirely of, and are chaired by, independent directors. Independent oversight of our 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 CEO’s 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 Ms. Altobello (Chair), Mr. Cruger, Mr. Gmelich and Ms. Portney.

The Board of Directors has determined that each member of the Audit Committee is an independent director in accordance with NASDAQ listing standards. 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 Committee***

The Compensation Committee of the Board of Directors 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 compensation philosophy, strategy, program design and administrative practices. The compensation programs to be reviewed and approved by the Compensation Committee consist of all forms of compensation, including salaries, cash incentives, stock options and other stock-based awards and benefits. The Compensation Committee is also responsible for oversight of the Company's talent management processes, including succession planning for key roles, reviewing the Company's diversity and inclusion programs, and reviewing the Company's corporate culture and learning and development programs. The Compensation Committee currently consists of Mr. Begleiter (Chair), Ms. Altobello, Mr. Prager and Mr. Steinhardt. 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. The Compensation Committee may form subcommittees and delegate authority to such subcommittees or individuals as it deems appropriate.

### ***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 also oversees the annual review of the performance of the Board of Directors, each director and each committee. The Nominating and Corporate Governance Committee currently consists of Mr. Cruger (Chair), Mr. Casper 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 and regulatory risk. The Risk Committee currently consists of Ms. Chwick (Chair), Mr. Ketchum, Ms. Portney and Mr. Prager.

### ***Investment Committee***

The Investment Committee assists the Board in monitoring whether the Company has adopted and adheres to a rational and prudent investment and capital management policy; whether management's investment and capital management actions are consistent with attainment of the Company's investment policy, financial objectives and business goals; the Company's compliance with legal and regulatory requirements pertaining to investment and capital management; the competence, performance and compensation of the Company's external money managers; and such other matters as the Board or Investment Committee deems appropriate. The Investment Committee currently consists of Messrs. Steinhardt (Chair), Begleiter and Cruger.

## Meetings and attendance

---

The following table sets forth chairs and membership structure of the Board and each standing Board committee as of April 29, 2020, and the number of Board and Board committee meetings held during 2019.



(1) In addition, the Audit and Risk Committees held one joint meeting in 2019.

The non-management directors met in executive session without management directors or employees at each of the meetings of the Board during 2019. We expect each director to attend each meeting of the full Board and of the committees on which he or she serves and to attend the annual meeting of stockholders. All directors attended at least 75% of the meetings of the full Board and the meetings of the committees on which they served, and nine of ten directors attended our 2019 annual meeting of stockholders (not counting Messrs. Gmelich and Prager, who were not directors at the time of our 2019 annual meeting).

## Board involvement in risk oversight

The Company's management is responsible for defining the various risks facing the Company, formulating risk management policies and procedures, and managing the Company's risk exposures on a day-to-day basis. The Board's responsibility is to monitor the Company's risk management processes 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.

The Board of Directors monitors management's responsibility for risk oversight through regular reports from management to the Risk and Audit Committees and the full Board. Furthermore, the Risk and Audit Committees report on the matters discussed at the committee level to the full Board. The Risk and Audit Committees and the full Board focus on the material risks facing the Company, including strategic, operational, market, technology and cyber-security, credit, liquidity, legal and regulatory risks, to assess whether management has reasonable controls in place to address these risks. In addition, the Compensation Committee is charged with reviewing and discussing with management whether the Company's compensation arrangements are consistent with effective controls and sound risk management. 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 the Risk and Audit Committees. 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.

The Company's Global Management Team assists management's efforts to assess and manage risk. The Global Management Team is chaired by the CEO and is comprised of the Company's senior managers with global oversight. 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 Chief Risk Officer regularly prepares updates and reports for the Global Management Team, Risk Committee, Audit Committee and the Board of Directors.

We have assembled a cross-functional team, which includes several of our executive officers, for continuously monitoring the impact of the COVID-19 outbreak on our employee base and business operations. The Board is overseeing this risk management initiative, working closely with management during these events to maintain information flow and timely review of issues arising from the pandemic.

### Board evaluations, succession planning and talent management

---

Each year, the members of the Board of Directors conduct a confidential written assessment of their performance that is reviewed and summarized by the Company's independent compensation consultant. Each director also conducts a confidential oral assessment of the Board's performance with our lead independent director. As part of the evaluation process, the Board reviews its overall composition, including director tenure, board leadership structure, diversity 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.

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 succession 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 CEO 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 CEO 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. DeLise, our Chief Financial Officer. 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](http://www.marketaxess.com). We intend to satisfy any disclosure obligations regarding waivers of or amendments to our Code of Conduct and Code of Ethics for the CEO and Senior Financial Officers by posting such information on our website at [www.marketaxess.com](http://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, Investment 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

---

Although our Board of Directors has not adopted a formal process for stockholder communications with the Board, 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 CEO and Chairman of the Board 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, 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](http://www.marketaxess.com) under the heading *Investor Relations — Corporate Governance*, by clicking the *Confidential Ethics Web Form* link.

## Director compensation

---

Our Compensation Committee has retained the services of Grahall LLC ("*Grahall*") as its independent compensation consultant for purposes of advising on non-employee director compensation. Grahall reports directly to the Compensation Committee and conducts an annual review of director compensation levels and a bi-annual review of director pay structure and practices, and in each event, shares the results of those reviews with the Compensation Committee. The Compensation Committee then submits any proposed changes in pay level or program structure of our non-employee director compensation to the full Board for its consideration, and if appropriate, approval.

Grahall reviews and recommends compensation structure and adjustments based on the board compensation of the following:

- Proxy peer group (see Compensation Discussion and Analysis – *How We Determine Pay Levels – Peer Group*);
- ISS peer group (updated by ISS annually); and
- Industry data sources, including the National Association of Corporate Directors.

## CORPORATE GOVERNANCE AND BOARD MATTERS

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

In 2019, we made the following changes to our Director compensation program as recommended by Grahall:

- The Board member cash retainer was increased from \$80,000 to \$85,000 per year;
- The Lead Independent Director's retainer was increased from \$40,000 to \$45,000;
- The Nominating and Corporate Governance Committee Chair's retainer was increased from \$12,000 to \$15,000; and
- The Nominating and Corporate Governance Committee members' retainer was increased from \$5,000 to \$7,500.

These changes were effective July 1, 2019. They were made to better align Directors' compensation with the above-referenced market data provided by Grahall. The director pay recommendations resulted in pay levels just below the 50<sup>th</sup> percentile of board compensation for our proxy and ISS peers.

A summary of the structure of our Director pay program that is in effect as of July 2019 is as follows:

Director Compensation Pay Structure - Effective July 2019				
	Cash Board Retainer (\$)	Cash Chair Retainer (\$)	Cash Committee Retainer (\$)	Restricted Stock (\$)
Annual Retainer – All	85,000	—	—	115,000
Audit Committee	—	25,000	12,500	—
Compensation Committee	—	20,000	7,500	—
Governance / Nominating Committee	—	15,000	7,500	—
Investment Committee	—	10,000	2,500	—
Risk Committee	—	20,000	7,500	—
Lead Independent Director (1)	—	20,000	—	25,000

(1) The Lead Independent Director can elect to receive his retainer in cash or in a combination of cash and equity.

In July 2019, we granted 324 shares of restricted stock to each non-employee director. The shares are scheduled to vest over the duration of the non-employee directors' service year: one-half of the award vested on November 30, 2019 and the balance is scheduled to vest on May 31, 2020. The number of shares of restricted stock granted was determined on the grant date by dividing the equity grant value of \$115,000 by \$354.53, 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 2012 Incentive Plan and we anticipate that awards will be made under the MarketAxess Holdings Inc. 2020 Equity Incentive Plan going forward if the plan is approved by our stockholders at the Annual Meeting. See *Proposal 4 – Approval of the Adoption of the MarketAxess Holdings Inc. 2020 Equity Incentive Plan*.

Below is a summary of the amount and form of actual compensation received by each non-employee director in 2019:

Director Compensation for Fiscal 2019				
Name	Fees Earned or Paid in Cash (1)	Stock Awards (\$)(2)(5)	All Other Compensation (\$)(3)	Total(\$)
Stephen P. Casper, Lead Independent Director	123,750	127,699	699	252,148
Nancy Altobello	73,472	123,666	188	197,326
Steven L. Begleiter	91,431	108,880	596	200,907
Jane Chwick	108,750	108,880	596	218,226
William F. Cruger	109,931	108,880	596	219,407
David G. Gomach (4)	45,208	—	431	45,639
Justin Gmelich	20,706	72,659	—	93,365
Carlos M. Hernandez (4)	35,521	—	2,000	37,521
Richard Ketchum	90,000	108,880	596	199,476
Emily Portney	97,153	108,880	596	206,629
Richard Prager	45,969	96,782	147	142,898
John Steinhardt	112,500	108,880	596	221,976
James J. Sullivan (4)	38,750	—	431	39,181

- (1) The amounts represent Board, Committee, Committee Chair and Lead Independent Director retainers. In 2019, the Lead Independent Director elected to receive \$25,000 of his retainer in cash and \$20,000 in restricted stock.
- (2) The amounts represent the aggregate grant date fair value of stock awards granted by the Company in 2019, computed in accordance with FASB ASC Topic 718. For further information on how we account for stock-based compensation, see Note 10 to the consolidated financial statement included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019. Mr. Casper received additional shares for his role as Lead Independent Director. Ms. Altobello and Messrs. Gmelich and Prager received a prorated amount of shares (368, 208, and 288, respectively) based on their length of service in 2019. Messrs. Gomach, Hernandez, and Sullivan did not stand for reelection in 2019 and therefore did not receive a new equity award.
- (3) Represents accrued dividends on restricted stock.
- (4) Messrs. Gomach, Hernandez and Sullivan did not stand for re-election at the 2019 annual meeting.
- (5) The table below sets forth information regarding the aggregate number of stock awards outstanding at the end of fiscal year 2019 for each non-employee director, including unvested stock awards granted in fiscal year 2019 and, in relation to Messrs. Begleiter and Cruger and Ms. Chwick, RSUs for which the director previously elected to defer receipt. There are no stock option awards granted in fiscal year 2019 that were outstanding at fiscal year end.

Equity Awards Outstanding	
	Aggregate Number of Stock Awards Outstanding at Fiscal Year End (#)
Stephen P. Casper, Lead Independent Director	380
Nancy Altobello	368
Steven L. Begleiter	842
Jane Chwick	1,296
William F. Cruger	1,296
Justin Gmelich	208
Richard Ketchum	324
Emily Portney	324
Richard Prager	288
John Steinhardt	324

**Share Ownership & 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 four times the annual base cash retainer payable to a director, or \$340,000. As of April 2020, the holding requirement was equal to 998 shares, calculated using a price of \$340.67 per share, which was the average of the daily closing price of our Common Stock for the twelve-month period ended on March 31, 2020. 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 restricted stock units, 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, and must hold no less than 50% of the total number of shares granted for service until they retire from the Board. 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.

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	Multiple of Cash Retainer	
		Requirement	Current Holdings
Stephen P. Casper, Lead Independent Director	April 2004	4x	140x
Nancy Altobello	April 2019	4x	1x
Steven L. Begleiter	April 2012	4x	35x
Jane Chwick	October 2013	4x	23x
William F. Cruger	November 2013	4x	23x
Justin G. Gmelich	October 2019	4x	1x
Richard Ketchum	April 2017	4x	6x
Emily Portney	October 2017	4x	5x
Richard Prager	July 2019	4x	5x
John Steinhardt	April 2000	4x	88x

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

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

**Certain Relationships and Related Party Transactions****Review and approval of related party transactions**

Our related parties 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, transactions that are determined to be directly or indirectly material to a related party are disclosed in this Proxy Statement. In addition, the Audit Committee reviews and, if appropriate, approves and ratifies any related party transaction that is required to be disclosed.

Though not considered related party 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 or dealer agreement that governs their access to, and activity on, our electronic trading platforms. These agreements were each 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.

# CORPORATE SOCIAL RESPONSIBILITY

MarketAxess is committed to integrating sustainability into our everyday actions to help create long-term value for our stockholders and the communities in which we operate. We aim to operate the company responsibly while managing risks and using our resources wisely. The Company's environmental, social and governance strategy and initiatives are overseen by the Board's Nominating and Corporate Governance Committee. We have also established a Corporate Social Responsibility Committee (the "CSR Committee") comprised of members of senior management. As further described in the Company's 2019 Sustainability Report, MarketAxess demonstrated its CSR commitment in 2019 by practicing sustainability, advocating volunteerism and philanthropy and actively partnering with our employees, clients and partners on environmental, social and governance initiatives. Our 2019 Sustainability Report, the Company's first, can be found on our website at [www.marketaxess.com/about-us/sustainability](http://www.marketaxess.com/about-us/sustainability).

We believe that our growing role in making the global credit markets work better for society and the economy brings with it the obligation to be a responsible corporate citizen. MarketAxess' vision of corporate citizenship has four pillars:



- **An enduring commitment to high standards of governance.** We believe the true character of a company is demonstrated through the integrity and sense of fairness it brings to the management of its business every day. In making business decisions, we strive to take into account the interests of all our stakeholders—clients, employees, investors and business partners.
- **Helping communities become more resilient.** We believe our responsibilities extend beyond our business to the world's communities. We focus on supporting projects that promote access to economic opportunity, education and housing. Encouraging our volunteer activities for everyone at MarketAxess, as well as offering financial support to select non-profit organizations, are important parts of our community engagement.
- **Prioritizing a strong, diverse workforce.** Our people are our backbone. We are committed to making substantial progress in how we recognize and value the experiences that make each of us unique, from our recruitment processes to each employee's daily work. MarketAxess recognizes that we can always do more to make our company a rewarding place to work for all.
- **Adopting sound sustainability practices across our business operations.** Climate change and safeguarding the environment are critical issues for every business. As a global electronic trading network, our environmental impact is primarily in our facilities and energy usage. That's why we're taking a disciplined look at our operations' impact on energy consumption and conservation, water use, GHG emissions, and waste, including minimizing plastic and facilitating recycling.

## How MarketAxess Defines Sustainability

We define sustainability as a business' commitment to advancing economic prosperity while improving the world in which we operate. Our commitment to sustainability and corporate responsibility is in line with our goal of applying

our ingenuity, innovative technology and electronic network to make global credit markets work better for the people who depend on them. In pursuing this commitment, we embrace our responsibility as a corporate citizen to ensure that our global activities positively impact our communities and our environment.

## Trading for Trees

---

Green Bonds are fixed income instruments designed to fund projects that have positive environmental and/or climate benefits. MarketAxess recorded a 119% increase in Green Bond trading in 2019 as its clients' sustainable fixed-income strategies continue to grow. The 2019 total equals a 15% share of trading in these issues, ranking MarketAxess as the largest Green Bond marketplace. To support clients' sustainable investing strategies, MarketAxess is partnering with the charitable organization One Tree Planted on a trading incentive program. Through the "Trading for Trees" program, 5 trees will be planted for every \$1 million of Green Bond trades executed on the MarketAxess platform. Based on historical trading activity, MarketAxess expects the Trading for Trees program to be able to plant over 100,000 trees in 2020.

# 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, 2020 and to audit the Company’s internal control over financial reporting as of December 31, 2020, 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. 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. During 2019, PwC signed an amendment to the data agreement which expanded the number of PwC entities that are entitled to the bond pricing data. Accordingly, the aggregate annual revenue to the Company from the data agreement increased from \$235,000 to \$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, 2020. Approval of this proposal requires the affirmative vote of the holders of a majority of the shares present in person or represented by proxy and entitled to vote on the proposal.



### 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, 2020.**

## 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 set forth in our Annual Report on Form 10-K for the years ended December 31, 2019 and 2018 and the audit of our broker-dealer subsidiaries' 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 Chief Financial Officer 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.

Immediately following the completion of 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), as soon as possible, 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.

Immediately following the completion of 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, 2019 and 2018.

<b>Fee Category</b>	<b>2019</b>	<b>2018</b>
Audit Fees(1)	\$ 2,261,404	\$ 1,712,650
All Other Fees(2)	4,838	5,197
<b>Total</b>	<b>\$ 2,266,242</b>	<b>\$ 1,717,847</b>

(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 controls over financial reporting) and the audit of our broker-dealer subsidiaries' annual financial statements.

(2) 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 Ms. Altobello (Chair), Mr. Cruger, Mr. Gmelich and Ms. Portney. 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 2019, 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 2019, the Audit Committee conducted a private session with the independent registered public accounting firm, without the presence of management. The Audit Committee also had one joint meeting with the Risk Committee during 2019.

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, 2019 which are included in the Company's 2019 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 have 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, 2019, for filing with the SEC.

Submitted by the Audit Committee of the  
Board of Directors:

Nancy Altobello — Chair  
William F. Cruger  
Justin G. Gmelich  
Emily H. Portney

# 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 13, 2020 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, (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 13, 2020 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 Securities Exchange Act of 1934, as amended, and includes voting and investment power with respect to shares. The percentage of beneficial ownership is based on 37,504,756 shares of Common Stock outstanding at the close of business on April 13, 2020. 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 he, she or it 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
<b>5% Stockholders</b>		
The Vanguard Group (1)	3,992,666	10.65%
BlackRock, Inc. (2)	3,273,146	8.73%
Baillie Gifford & Co (3)	3,021,606	8.06%
<b>Named Executive Officers and Directors</b>		
Richard M. McVey (4)	846,384	2.24%
Nancy Altobello (5)	368	*
Steven Begleiter (6)	8,135	*
Stephen P. Casper (7)	56,375	*
Jane Chwick (8)	4,667	*
Christopher Concannon (9)	23,001	*
William F. Cruger (10)	4,654	*
Justin Gmelich (11)	208	*
Richard G. Ketchum (12)	1,522	*
Emily H. Portney (13)	1,259	*
Richard Prager (14)	1,288	*
John Steinhardt (15)	22,036	*
Antonio L. DeLise (16)	22,597	*
Kevin McPherson (17)	85,344	*
Scott Pintoff (18)	4,817	*
Christophe Roupie (19)	12,834	*
Nicholas Themelis (20)	48,791	*
All Executive Officers and Directors as a Group (17 persons) (21)	1,144,280	—

\* Less than 1%.

- (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 12, 2020. 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 February 5, 2020. The principal business address of BlackRock, Inc. is 55 East 52nd Street, New York, NY 10055.

- (3) Information regarding the number of shares beneficially owned by Baillie Gifford & Co was obtained from a Schedule 13G filed by Baillie Gifford & Co with the SEC on February 14, 2020. The principal business address of Baillie Gifford & Co is Calton Square, 1 Greenside Row, Edinburgh EH1 3AN, Scotland, UK.
- (4) Consists of (i) 585,134 shares of Common Stock owned individually; (ii) 2,000 shares of Common Stock owned by immediate family members; (iii) 52,477 shares of unvested restricted stock; and (iv) 206,773 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) 163,159 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days or (ii) 8,902 restricted stock units that are unvested; (iii) 304,431 deferred restricted stock units or (iv) 4,647 performance shares.
- (5) Consists of (i) 184 shares of Common Stock owned individually; and (ii) 184 shares of unvested restricted stock.
- (6) Consists of (i) 7,973 shares of Common Stock owned individually; and (ii) 162 shares of unvested restricted stock. Does not include 518 deferred restricted stock units.
- (7) Consists of (i) 13,377 shares of Common Stock owned individually; (ii) 42,808 shares held indirectly in a trust for which Mr. Casper's spouse is the trustee; and (iii) 190 shares of unvested restricted stock.
- (8) Consists of (i) 4,505 shares of Common Stock owned individually; and (ii) 162 shares of unvested restricted stock. Does not include 972 deferred restricted stock units.
- (9) Consists of (i) 1,056 shares of Common Stock owned individually; and (ii) 21,945 shares of unvested restricted stock. Does not include (i) 76,868 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days, (ii) 23,095 restricted stock units that are unvested and (iii) 3,031 performance shares.
- (10) Consists of (i) 4,492 shares of Common Stock owned individually; and (ii) 162 shares of unvested restricted stock. Does not include 972 deferred restricted stock units.
- (11) Consists of 208 shares of unvested restricted stock.
- (12) Consists of (i) 1,360 shares of Common Stock owned individually; and (ii) 162 shares of unvested restricted stock.
- (13) Consists of (i) 1,097 shares of Common Stock owned individually; and (ii) 162 shares of unvested restricted stock.
- (14) Consists of (i) 144 shares of Common Stock owned individually; (ii) 1,000 shares beneficially owned by Mr. Prager by trust; and (iii) 144 shares of unvested restricted stock.
- (15) Consists of (i) 21,874 shares of Common Stock owned individually; and (ii) 162 shares of unvested restricted stock.
- (16) Consists of (i) 6,972 shares of Common Stock; (ii) 4,744 shares of unvested restricted stock; and (iii) 10,881 shares of Common Stock issuable pursuant to stock options that are or become exercisable within 60 days. Does not include (i) 8,060 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 4,548 restricted stock units that are unvested; (iii) 20,083 deferred restricted stock units or (iv) 741 performance shares.
- (17) Consists of (i) 67,230 shares of Common Stock; and (ii) 6,920 shares of unvested restricted stock. Does not include (i) 11,194 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 4,742 restricted stock units that are unvested or (iii) 808 performance shares.
- (18) Consists of (i) 3,968 shares of Common Stock; and (ii) 849 shares of unvested restricted stock. Does not include (i) 3,522 restricted stock units that are unvested or (ii) 606 performance shares.
- (19) Consists of (i) 3,727 shares of Common Stock; and (ii) 9,107 shares of unvested restricted stock. Does not include 651 performance shares.
- (20) Consists of (i) 24,081 shares of Common Stock owned in joint tenancy with his spouse; (ii) 7,448 shares of unvested restricted stock; and (iii) 17,262 shares of Common Stock issuable pursuant to stock options that are or become exercisable within 60 days. Does not include (i) 13,433 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 6,663 restricted stock units that are unvested or (iii) 943 performance shares.

# EXECUTIVE OFFICERS

Set forth below is information concerning our executive officers as of April 13, 2020.

Name	Age	Position
Richard M. McVey	60	Chief Executive Officer and Chairman of the Board of Directors
Christopher R. Concannon	52	President and Chief Operating Officer
Antonio L. DeLise	58	Chief Financial Officer
Kevin McPherson	49	Global Head of Sales
Scott Pintoff	49	General Counsel and Corporate Secretary
Christophe Roupie	54	Head of Europe and Asia
Nicholas Themelis	56	Chief Information Officer

*Richard M. McVey* has been Chief Executive Officer and Chairman of our Board of Directors since our inception. See *Proposal 1 — Election of Directors — Director information* for a discussion of Mr. McVey's business experience.

*Christopher R. Concannon* has been President and Chief Operating Officer, and 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.

*Antonio L. DeLise* has been Chief Financial Officer since March 2010. From July 2006 until March 2010, Mr. DeLise was the Company's Head of Finance and Accounting, where he was responsible for financial regulatory compliance and oversight of all controllership and accounting functions. Prior to joining us, Mr. DeLise was Chief Financial Officer of PubliCard, Inc., a designer of smart card solutions for educational and corporate sites, from April 1995 to July 2006. Mr. DeLise also served as Chief Executive Officer of PubliCard from August 2002 to July 2006, President of PubliCard from February 2002 to July 2006, and a director of PubliCard from July 2001 to July 2006. Prior to PubliCard, Mr. DeLise was employed as a senior manager with the firm of Arthur Andersen LLP from July 1983 through March 1995. Mr. DeLise received a B.S. in accounting from Fairfield University, from which he graduated magna cum laude.

*Kevin 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.

*Scott Pintoff* has been General Counsel and Corporate Secretary since February 2014. Prior to joining us, 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 their IPO, all major acquisitions and implementation of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the related rules of the SEC (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.

## EXECUTIVE OFFICERS

*Christophe Roupie* has been Head of Europe and Asia since March 2017. Prior to joining us, 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.

*Nicholas Themelis* has been Chief Information Officer since March 2005. From June 2004 through February 2005, Mr. Themelis was the Company's Head of Technology and Product Delivery. From March 2004 to June 2004, Mr. Themelis was the Company's Head of Product Delivery. Prior to joining us, Mr. Themelis was a Principal at Promontory Group, an investment and advisory firm focused on the financial services sector, from November 2003 to March 2004. From March 2001 to August 2003, Mr. Themelis was a Managing Director, Chief Information Officer for North America and Global Head of Fixed-Income Technology at Barclays Capital. From March 2000 to March 2001, Mr. Themelis was the Chief Technology Officer and a member of the board of directors of AuthentiDate Holdings Corp., a start-up focused on developing leading-edge content and encryption technology. Prior to his tenure at AuthentiDate, Mr. Themelis spent nine years with Lehman Brothers, ultimately as Senior Vice President and Global Head of the E-Commerce Technology Group.

# A LETTER FROM OUR COMPENSATION COMMITTEE

## Dear Fellow Stockholders,

---

As members of MarketAxess' 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. We recognize that the results of our 2019 say-on-pay vote were a signal that some of you wanted us to take a new approach to certain aspects of our executive compensation program. We were determined to understand your perspectives and committed to making constructive changes in response to your feedback.

***We gathered your views during an outreach effort that included our lead independent director and members of management.*** This effort involved offering to hold meetings with stockholders representing over 64% of the Company's outstanding common stock. We had robust discussions in which we listened to your views and shared our perspectives. We also heard your support for many of our current pay practices, and we therefore targeted changes to the program that would be meaningful to you.

***Based on those discussions, we brought a fresh eye to the compensation program and are implementing a number of changes.*** For example, in 2020, we will:

- Further emphasize pay-for-performance by directly linking 50% of each named executive officers' annual target cash incentive award to the Company's Adjusted Operating Income (as defined below) goal;
- Require that 50% of the annual equity award to named executive officers be performance based;
- Use a three-year measurement period for annual equity award performance share awards instead of the one-year period we have used in the past;
- Annual equity award performance share awards will be based on different operational metrics than annual cash incentives; and
- Refrain from granting special equity awards to executives other than in connection with a new hiring or retention effort. Grants of any special awards will be based on metrics other than stock price. As with our current practice, a portion of any special multi-year award will be attributed to, and reduce, the executive's compensation in future years.

***We believe these changes, which are further described on pages 31-32 of this proxy statement, are consistent with your input and our strategic goals.*** While your views were not uniformly aligned, many of them followed common themes that were consistent with our corporate strategy and our desire to further ensure alignment of our executives' interests with those of our stockholders. We worked hard to implement changes that we believe are in the best interests of our stockholders as a group and allow us to motivate our executive team to meet their performance goals without taking undue risk. We believe MarketAxess' outreach effort was productive and we intend to continue this dialogue every year.

***The Board also approved a number of changes to the composition, leadership and remit of our Committee since last year's proxy statement, and the Committee updated its charter.*** As part of this refreshment, Richard Prager and Nancy Altobello joined the Committee and, effective as of January 2020, Steve Begleiter assumed the role of Committee Chair. The Board also tasked the Committee with oversight of the Company's talent management process and management succession planning, which is reflected in the Committee's updated charter.

Our 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 Committee of the Board of Directors:

Steven L. Begleiter – Chair  
Nancy Altobello  
Richard L. Prager  
John Steinhardt

# 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 our CEO, CFO and our three other mostly highly compensated executive officers (collectively, our Named Executive Officers (“NEOs”). For fiscal year 2019, our NEOs and their respective titles were as follows:

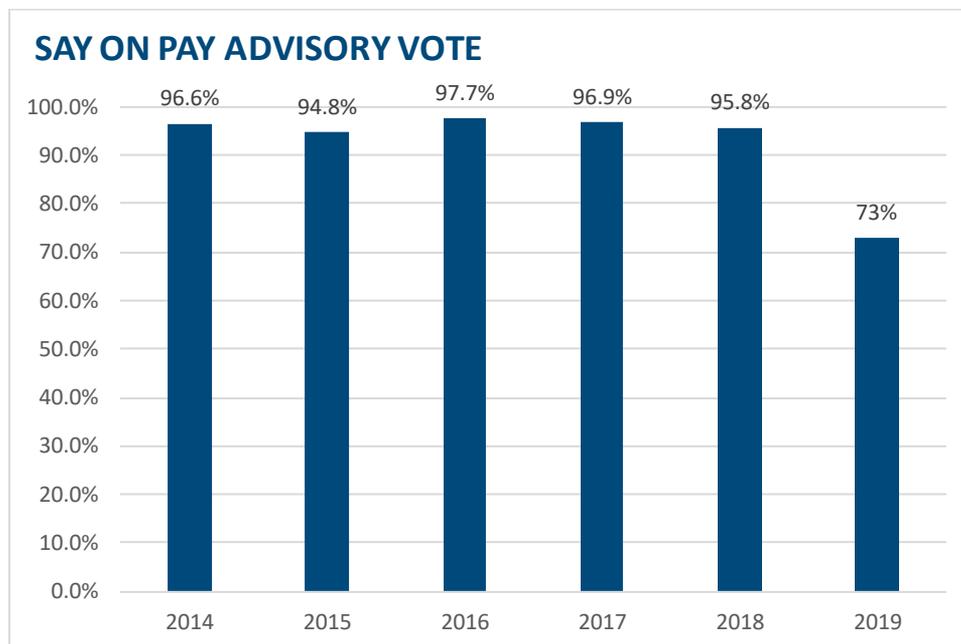
Name	Title
Richard M. McVey	Chairman of the Board, Chief Executive Officer (“CEO”)
Christopher R. Concannon	President and Chief Operating Officer (“President”)
Antonio L. DeLise	Chief Financial Officer (“CFO”)
Kevin McPherson	Global Head of Sales (“Head of Sales”)
Nicholas Themelis	Chief Information Officer (“CIO”)

Please note that the decisions and resulting payments described in this CD&A were made in the normal course in early 2020, prior to the full extent of the COVID-19 outbreak becoming known. The Compensation Committee will consider the business and financial impact of the COVID-19 outbreak on the Company, our stockholders and our employees in evaluating 2020 performance in early 2021.

## Addressing the 2019 Say-on-Pay Vote

### *Say-on-Pay Support*

Our annual say-on-pay vote (“Say-on-Pay”) is one of our opportunities to receive feedback from stockholders regarding our executive compensation program. We were disappointed in the results of Say-on-Pay at our 2019 Annual Meeting of Stockholders (the “2019 Meeting”). At the 2019 Meeting, approximately 73% of the votes cast approved the Say-on-Pay proposal, which was a significant decline from the previous five annual meetings.



Following the 2019 Meeting, we therefore actively reached out to our stockholders to better understand concerns regarding our executive compensation program. Our Compensation Committee considered this feedback, as well as the vote result from the 2019 Meeting, in determining how we could improve our executive compensation program while retaining the key elements of the program that have been highly successful for both our executives and our stockholders for many years.

**2019 Stockholder Engagement and Changes for 2020**

Since the 2019 Meeting, we reached out to stockholders who collectively represented over 64% of our outstanding common stock. We were able to meet with seven stockholders holding more than 29% percent of our outstanding common stock. The others either indicated that a meeting would not be necessary, or they did not respond. Our lead independent director participated in all but one of the stockholder meetings we conducted following the 2019 Meeting. While we specifically requested feedback regarding our executive compensation program, most of the meetings also covered a variety of corporate social responsibility matters. Stockholder feedback was relayed directly to the Board of Directors.

During our meetings with stockholders, we heard strong support for the performance of the Company, our CEO and senior management team, appreciation of our outreach efforts, and acknowledgement of the historical alignment of pay-for-performance. Stockholders also generally reacted positively to our recent refreshment of the Board and new corporate social responsibility initiatives.

Most of the stockholders with whom we spoke indicated that they did not believe it was necessary to make wholesale changes to our compensation program, but all had suggestions as to how we could better align our compensation programs with standard market practices and stockholder expectations. Below we summarize what we heard, and how we responded to those concerns.

What We Heard	How We Responded
<b>Special Equity Awards</b>	
Special stock awards should not be a regular component of an executive's compensation and those granted should be based on operational metrics as opposed to stock price hurdles.	Special awards will be used for exceptional purposes only, such as for new hires or the retention of key executives. When granted, we will use meaningful metrics other than stock price to ensure alignment of the executive's interests with those of our stockholders. With the exception of some new hire awards, we will continue to attribute a portion of any special awards to the executive's compensation over the term of the award, thereby reducing the amount paid to the recipient on a dollar-for-dollar basis over the three to five-year period following the award. An award with this attribution is referred to as a multi-year award in this CD&A.
<b>Annual Cash Incentive Awards</b>	
Performance metrics for annual cash incentives are not sufficiently tied to operational goals.	Beginning with performance year 2020, we are further emphasizing pay-for-performance by directly linking 50% of each NEO's target cash incentive to the Company's Adjusted Operating Income goal.
<b>Disclosure of Individual Performance Goals</b>	
More transparency is needed as to how individual incentive compensation decisions are determined.	Effective with the 2020 performance year, we will directly tie 50% of each NEO's target annual cash incentive award to the executive's delivery against individual goals and key strategic initiatives for the Company. We will provide relevant disclosure in next year's proxy statement.

<b>Annual Equity Awards</b>	
At least 50% of a NEO's annual equity award should be delivered in the form of performance shares	50% of the NEOs' awards that were granted in 2020 in relation to the executive's 2019 performance were granted as performance shares and future awards will continue to be granted with at least 50% performance shares.
Long-term incentives should be based on different operational metrics than annual incentives.	Annual equity performance share awards for NEOs granted in 2020 are, and going forward will be, based on a combination of operating margin and market share metrics, rather than predominantly relying on Adjusted Operating Income (which is the metric we are using for 2020 annual cash incentives).
Long-term incentives should be based on metrics that measure performance over periods of more than one year.	We discontinued the use of the one-year performance measure for annual equity performance share awards and replaced it with a three-year measure beginning with the performance shares awarded in 2020.

**Actions in 2019**

We took the following actions and implemented the following changes in performance year 2019:

- Annual Cash Incentive Pool Accrual** – In 2019, we increased the percentage of our annual Adjusted Operating Income allocated to the pool for the annual cash incentive awards payable to our employees, including our NEOs. This modification aligned our NEOs' compensation with our 2019 financial plan, which included continued investment to support the Company's growth and new initiatives. We defined Adjusted Operating Income as GAAP pre-tax operating income before payment of cash incentive compensation. The Company generated \$287.5 million of Adjusted Operating Income in 2019, which was above our 2019 internal target Adjusted Operating Income goal of \$269.6 million. Accordingly, the accruals under our cash incentive plan were higher than budgeted (see *Annual Cash Incentive Awards* below).
- Annual Equity Award Performance Share Metrics** – The Performance Share Adjusted Operating Income target for our 2019 annual equity award performance shares was adjusted to align with our 2019 financial plan. We defined Performance Share Adjusted Operating Income as GAAP pre-tax operating income before performance share expense. The Company exceeded its Performance Share Adjusted Operating Income target range; and, accordingly, the performance shares settled at 138.12% of the targeted award amounts (see *Long-Term Incentives – Annual and Special Equity-based Awards* below).

- **CEO Pay Mix** – With the CEO’s support, the Compensation Committee substituted our CEO’s annual cash incentive opportunity for 2019 with a commensurately larger equity award. This decision was made to allow for additional funding of cash bonus payments for employees across the organization.
- **Committee Refreshment** – As part of the Board’s effort to refresh the Compensation Committee, Mr. Prager was appointed to the Compensation Committee in July 2019.

### **Program Design Changes and Other Actions in 2020**

We implemented the following changes for performance year 2020:

- **Annual Cash Incentive Pool Accrual** – For 2020, we decreased the percentage of annual Adjusted Operating Income allocated to the pool for the Company’s annual cash incentive awards. Despite the decrease in the allocation rate percentage, the target payout for 2020 is higher than in previous years (due to the expected increase in Adjusted Operating Income). This will provide for our expected growth in global staff (see *Annual Cash Incentive Awards* below).
- **NEO’s Annual Cash Incentive Compensation Program** – Beginning with performance year 2020, 50% of the NEO’s targeted annual cash incentive will be tied to the Company’s Adjusted Operating Income performance for the fiscal year and 50% will be tied to the executive’s delivery against individual goals and key strategic initiatives for the Company (see *Changes to the Employee Cash Incentive Plan – 2020*).
- **Annual Equity Award Performance Share Metrics** – The performance shares granted in January 2020, representing 50% of our NEOs’ annual equity award in relation to 2019 performance, were awarded with a three-year performance period based on a combination of operating margin and market share metrics. The performance targets for 2020 were aligned with our new 2020 financial plan. Performance targets for years two and three will be based off of previous years’ actual results (see *2020 Annual Equity Awards for 2019 Performance* below).
- **Annual Equity Award Performance Share Vesting** – The performance shares granted in January 2020 will cliff-vest on the third anniversary of the grant based on the performance levels achieved over the three year period.
- **New Compensation Consultant**–For fiscal year 2020, the Compensation Committee retained FW Cook as its independent compensation consultant to assess the Company’s executive compensation programs and help the Compensation Committee determine appropriate, competitive compensation for its executive officers.
- **Continued Committee Refreshment** – In January 2020, the Chair of the Compensation Committee was rotated to Mr. Begleiter, and Ms. Altobello joined the Compensation Committee. In addition, the Compensation Committee updated its charter.

## Business and Financial Performance

---

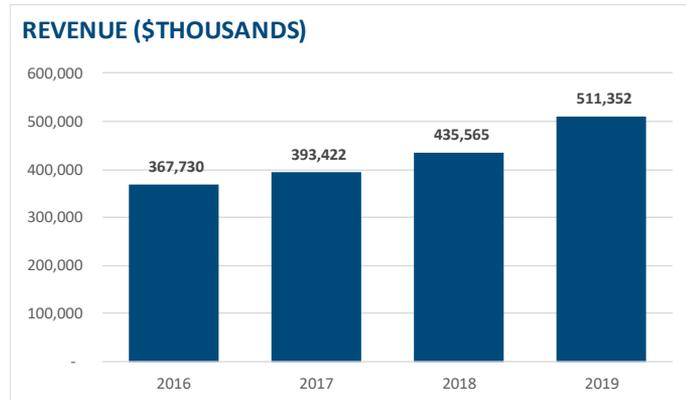
### **MarketAxess 2019 Performance**

Performance year 2019 marked our 11<sup>th</sup> consecutive year of record financials. We delivered record revenue and earnings in 2019 despite a market environment that is not normally favorable for our business. The 2019 results reflect strength in all four of our core credit products, with record volume and revenue in U.S. high-grade, U.S. high-yield, emerging market corporate and sovereign bonds, and European credit. Our results also reflect the investments we have made in new and enhanced technology and our global staff. We continued to invest in new platform functionalities such as Live Markets, portfolio trading and auto-execution. We also supplemented our senior management team with several senior hires, including our President and Chief Operating Officer, Chief Risk Officer and Chief Technology Officer. We completed the acquisition of LiquidityEdge, which provided us with an entry into rates and will support the future expansion of the Company’s hedging capabilities for its clients.

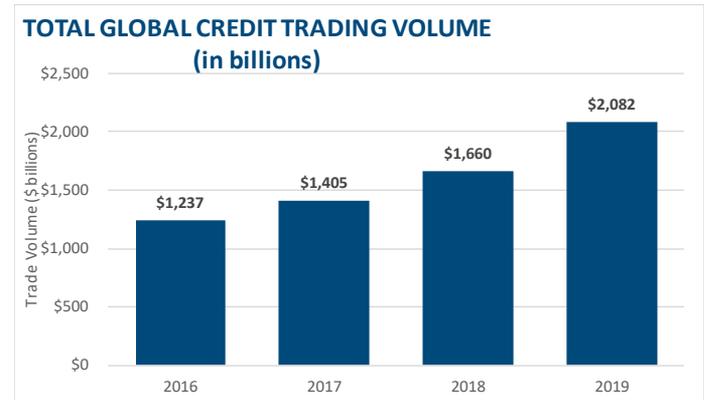
## COMPENSATION DISCUSSION AND ANALYSIS

Our performance in key metrics include:

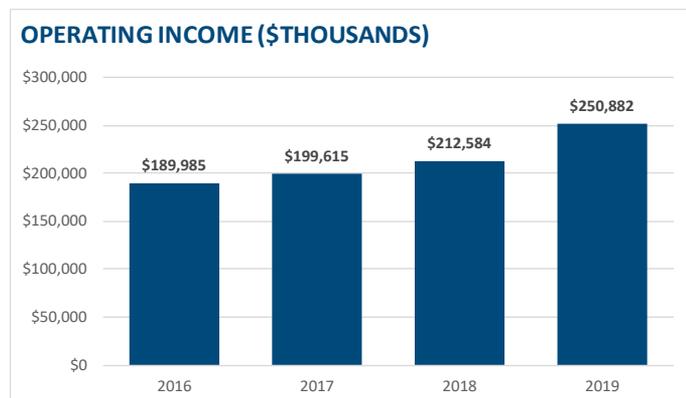
**Revenue:** This was our 11<sup>th</sup> consecutive year of record revenue with our core four products producing record revenues. Total revenues exceeded \$511 million, up 17% from 2018. Commission revenues were almost \$464 million, up 19% from 2018.



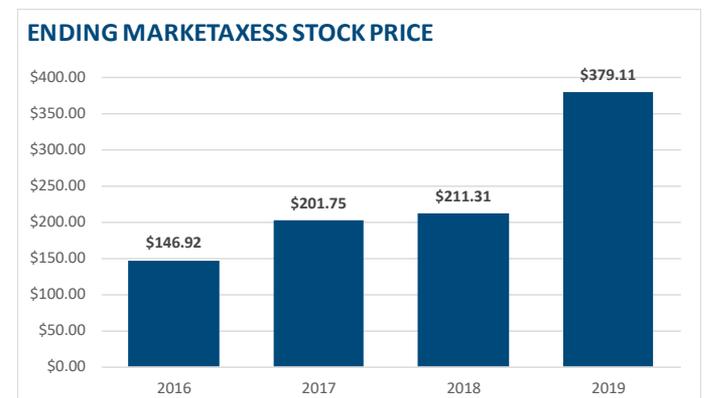
**Volume Growth:** We delivered credit trading volumes of \$2.1 trillion, up 25% from 2018. This included record volumes in all four of our core products. We delivered record estimated U.S. high-grade and U.S. high-yield market share of 19% and 10.4%, respectively. We have 1,721 active global institutional clients, up almost 12% from 2018. Our 830 active international institutional clients increased almost 12% from 2018, representing almost 30% of our trading volume in 2019.



**Earnings Growth:** This was our 11<sup>th</sup> consecutive year of record operating income. Operating income of almost \$251 million was up 17% from 2018. Diluted earnings per share of \$5.40 was up over 18% as compared to 2018.



**Stock Price and Capital Returns:** In addition to a 79% increase in stock price, we increased our annual dividend from \$1.68 to \$2.04 per share, or 21%, and returned over \$93 million of capital to stockholders through our stock buyback and dividend programs.



### Relative Performance

For 2019, we evaluated our year-over-year financial growth as compared to our Peer Group (as defined below under *How We Determine Pay Levels – Peer Group*). For the period ending December 31, 2019, our operating income growth outperformed all of our Peer Group. We ranked third in year-over-year revenue growth and fourth out of 17 in year-over-year EPS growth for the year ending December 31, 2019. We ranked second out of 17 peers in each of one-, three-, and five-year stock price growth.

Our share price growth as compared to the following indices for the one-, three-, and five-year periods ended December 31, 2019 was as follows:

	Share Price Growth						
	MKTX	Russell 1000		NASDAQ Comp.		S&P 500	
	Stock Return	Stock Return	Alpha	Stock Return	Alpha	Stock Return	Alpha
<b>1-year</b>	80.7%	9.0%	71.7%	35.2%	45.5%	31.5%	49.2%
<b>3-year</b>	163.9%	46.0%	117.9%	66.7%	97.3%	53.2%	110.8%
<b>5-year</b>	449.9%	65.0%	384.9%	89.5%	360.4%	73.9%	376.0%
<b>10-year</b>	3058.1%	340.0%	2718.1%	295.4%	2762.7%	256.7%	2801.5%

In 2019, we continued to deliver long-term value for our stockholders as evidenced by ranking 71<sup>st</sup> in five-year total stockholder return (“TSR”) (approximately 96<sup>th</sup> percentile) and 22<sup>nd</sup> in ten-year TSR (approximately 99<sup>th</sup> percentile) of all 2,296 U.S. public companies with over \$1 billion in market capitalization (as reported by FactSet).

### How 2019 Performance Affected Executive Compensation

A significant portion of each NEO’s compensation is dependent on our financial performance. The Company generated \$287.5 million of Adjusted Operating Income in 2019, which was above our 2019 internal target Adjusted Operating Income goal of \$269.6 million. Accordingly, the accrual under our cash incentive plan was higher than budgeted, resulting in higher cash incentive compensation for our NEOs. The Compensation Committee considered the Company’s relative outperformance in determining the size of the equity awards granted in January 2020 for 2019 performance.

## COMPENSATION DISCUSSION AND ANALYSIS

The chart below shows the change in base salary, total cash (which includes base salary and incentive cash) and Total Direct Compensation ("TDC") (which includes cash payments, annual equity awards made in relation to prior year performance and the annualized value of multi-year equity awards) for each NEO (see *Annual Cash Incentive Awards* and *Total Direct Compensation* below). The figures in the chart below differ from those shown in the Summary Compensation Table in *Executive Compensation*, as the Summary Compensation Table ("SCT") reflects the full grant date value of any multi-year performance equity award received by the NEOs in the year actually granted (as required by the SEC). Additionally, the SCT includes equity awards granted in January 2019 for 2018 performance.

	Base Salary			Total Cash Compensation			Total Direct Compensation		
	2019	2018	Change	2019	2018	Change	2019	2018	Change
	(\$ in thousands)								
Richard M. McVey, CEO	\$ 500	\$ 500	0%	\$ 500	\$ 2,390	(79)%	\$ 7,750	\$ 7,100	9%
Christopher R. Concannon, President (1)	500	—	—	2,000	—	—	5,250	—	—
Antonio L. DeLise, CFO	300	300	0%	1,175	1,150	2%	2,085	1,900	10%
Kevin McPherson, Head of Sales	300	300	0%	1,400	1,400	—	2,500	2,250	11%
Nicholas Themelis, CIO	300	300	0%	1,500	1,475	2%	2,800	2,500	12%

(1) Our President joined the Company in January 2019.

In addition, the Company satisfied the Performance Share Adjusted Operating Income (as defined below under *2019 Performance Share Metrics and Payout*) target range for the performance shares that were granted in January 2019. Accordingly, the performance shares settled at 138.12% of the targeted award amounts (see *Long-Term Incentives – Annual and Special Equity-based Awards* below).

## How We Make Compensation Decisions

### **Executive Compensation 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 and reward 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 represents 6% of our CEO's total compensation and no more than 14% of the other NEO's total compensation. 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.

To assess the financial impact of our compensation programs and ensure alignment with the interests of our stockholders, we focus on managing our aggregate compensation and benefits expense expressed as a percentage of our total annual revenues (“C&B Ratio”). We believe that monitoring this measure improves our overall profitability. The NEOs’ annual incentive payments are a component of aggregate compensation expense; therefore, we may reduce the NEOs’ incentives in order to meet our internal annual C&B ratio target and to ensure alignment with stockholder value creation. Additionally, the C&B Ratio provides a normalized efficiency measure by which we can compare our compensation structure to those maintained by our peers and other financial and technology industry companies. Since 2012, our C&B Ratio has been below 30%, which we believe is an appropriate target given our current revenues, employee base and strategic plans.

**Best Practices in Compensation Governance**

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
<ul style="list-style-type: none"> <li>√ Emphasis on performance-based compensation</li> <li>√ Use of clawbacks</li> <li>√ Stock ownership guidelines</li> <li>√ Use of long-term equity awards that align with stockholder interests</li> <li>√ Automatic reduction of severance payments subject to §280G excise tax</li> <li>√ Engage with investors</li> <li>√ Dividends and dividend equivalents on restricted stock and RSUs are paid only when the awards vest</li> <li>√ Engage independent compensation consultants</li> </ul>	<ul style="list-style-type: none"> <li>X No guaranteed bonuses except for new hires</li> <li>X No pension / SERP plans</li> <li>X No single-trigger change in control benefits</li> <li>X No §280G excise tax “Gross-Up” Benefits</li> <li>X No recycling of shares</li> <li>X No dividends on performance shares until earned</li> <li>X No "repricing" underwater options without stockholder approval</li> <li>X No hedging or pledging of MarketAxess stock</li> <li>X Limited perquisites and personal benefits</li> </ul>

**Role of the Compensation Committee**

**Compensation Committee Duties**

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, including equity holdings (both vested and unvested amounts) earned by each NEO;

## COMPENSATION DISCUSSION AND ANALYSIS

- consults with the compensation consultants and full Board regarding market and performance data when considering decisions concerning the structure and amount of our CEO's compensation; and
- 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](http://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.

### Tally Sheets

Our Compensation Committee reviews tally sheets prepared by management on an annual basis. The tally sheets set forth all components of our NEO's compensation, including base salary, annual incentive compensation, equity awards and holdings, as well as applicable Company performance. Our Compensation Committee uses these tally sheets to confirm that it has a full understanding of each NEO's comprehensive compensation package, and the tally sheets facilitate an analysis of each NEO's past wealth realization and future equity incentive opportunities. The tally sheets also include a sensitivity analysis of each NEO's total equity position in the Company, including forfeitable (due to vesting and/or clawback rights) and non-forfeitable equity at different Common Stock prices, in order to assist the Company's effort to retain and motivate our NEOs.

### Compensation Committee Discretion

The Compensation Committee retains the discretion to decrease or eliminate all forms of incentive awards based on its performance assessment, whether individual or Company-based.

### 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 2019, the Compensation Committee retained Grahall Partners LLC ("Grahall") as its independent compensation consultant. Representatives from Grahall attended Compensation Committee meetings, participated in executive sessions and communicated directly with the Compensation Committee. During 2019, Grahall provided the following services to the Compensation Committee:

- **Pay Analysis** – Reviewed and benchmarked competitive market pay levels and conducted retention analyses with respect to 2019 compensation for our NEOs;
- **Stock Ownership Guidelines** – Assisted the Compensation Committee in the oversight of our on-going stock ownership guidelines;
- **Executive Hire** – Assisted the CEO and the Compensation Committee in developing the compensation program for the Company's new President and Chief Operating Officer;
- **Peer Group Construction** – Reviewed and recommended changes to the Company's peer group composition (as discussed below in *Peer Group*);
- **Director Compensation** – Provided independent consulting services regarding non-executive director compensation; and
- **General Advice/Compliance** – Provided other general compensation-related recommendations and performed other services, including providing advice regarding regulatory and advisory compliance issues and the Company's usage of authorized shares (*i.e.*, "burn rate"), and other governance issues.

In October 2019, the Compensation Committee retained FW Cook (“FW Cook”), a national compensation consulting firm, as its compensation consultant for its executive compensation programs beginning with the 2020 compensation year. Grahall will continue to advise the Compensation Committee with regard to director compensation and non-executive employee compensation. FW Cook was selected after the Compensation Committee conducted a thorough review of proposals submitted by several nationally recognized compensation consultants. In 2019, FW Cook provided the following services to the Compensation Committee:

- **Program Review** – Reviewed the Company’s existing pay practices in light of the results of the 2019 advisory say-on-pay vote;
- **Executive Compensation Design** – Provided the Compensation Committee with executive compensation design alternatives after reviewing the feedback received from our stockholders;
- **Peer Group Construction** – Reviewed the Company’s peer group and recommended further changes for 2020;
- **General Advice** – Attended 2019 year-end Compensation Committee meetings and executive sessions and provided advice to the Compensation Committee and Compensation Committee Chair.

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

### **Compensation Risk Assessment**

The Compensation Committee is responsible for reviewing and assessing potential risk arising from the Company’s compensation policies and practices. In 2019, the Company performed a risk assessment of its compensation policies and practices to ascertain any potential material risks that may be created by the programs. Included in its assessment were 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 claw-back policy; and its stock ownership guidelines. The Company’s risk assessment 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:

- Significant use of equity compensation with long-term vesting (three to five years);
- Use of holding periods or cliff vesting for long-term equity awards;
- Strong compensation recoupment policy;
- 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 concurred with management 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 its independent consultant(s). 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 2019 peer group consisted of companies from across our general industry that are similar to the Company in terms of competitive positioning, financial size, operating characteristics, market sector or industry classification. The Company's independent compensation consultants engage with the Compensation Committee to review the peer group annually and periodically make changes.

In 2019, Grahall completed an annual review of the composition of our peer group. Factors considered in determining the peer group ("Peer Group") included:

- financial size – market cap and revenues, generally based on a methodology similar to the method used by Institutional Shareholder Services ("ISS") of +/- 2.5 times the Company's most recent annual revenues and +/- 5 times the Company's most recent market capitalization;
- 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 ISS in its annual review; 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.

Because several of our closest competitors are, or recently have been, private firms with unpublished compensation data, we rely on a broader base of financial services and technology companies to facilitate our review. While public peers may differ from us in terms of size (whether measured by market capitalization or annual revenues) and core business, these companies are the closest matches available to us in terms of a comparable business model. Each provides technology solutions to the financial markets, and some provide electronic trading platforms similar to ours, albeit in other asset classes.

For the 2019 compensation period, our Peer Group was comprised of the following firms:

2019 Peer Group						
US Based Peers	Symbol	Client Base	Products	Revenue (\$ in millions)	Operating Income (\$ in millions)	Market Cap (\$ in millions)(1)
ACI Worldwide	ACIW	Institutional and Retail	Payment Systems	\$ 1,258	\$ 123.8	\$ 2,608
Alliance Bernstein Holding	AB	Institutional and Retail	Various	\$ 3,518	\$ 823.4	\$ 1,666
BGC Partners	BGCP	Institutional	Various	\$ 2,104	\$ 138.1	\$ 820
Black Knight (2)	BKI	Data Processing for Financial Markets	Technology / Info	\$ 1,177	\$ 289.6	\$ 8,713
CBOE Holdings	CBOE	Institutional	Listed Options and Futures	\$ 2,496	\$ 537.2	\$ 9,738
Cohen & Steers	CNS	Institutional	Various	\$ 411	\$ 160.1	\$ 2,026
Envestnet	ENV	Wealth Management/Cloud Data	Technology / Info	\$ 900	\$ (16.1)	\$ 2,594
Factset	FDS	Institutional	Technology / Info	\$ 1,435	\$ 438.0	\$ 9,696
Fair Isaac (2)	FICO	Application Software for Financial Markets	Technology / Info	\$ 1,160	\$ 253.5	\$ 8,365
GAMCO Investors	GBL	Institutional and Retail	Various	\$ 312	\$ 118.0	\$ 273
Guidewire	GWRE	Institutional (P&C)	Technology / Info	\$ 720	\$ 1.5	\$ 6,265
Hercules Technology Growth Capital	HTGC	Institutional	Capital / Funding	\$ 268	\$ 143.3	\$ 782
Main Street Capital	MAIN	Middle Market, Small Companies	Capital / Funding	\$ 243	\$ 157.4	\$ 1,184
Morningstar	MORN	Institutional and Retail	Technology / Info	\$ 1,179	\$ 189.6	\$ 4,961
MSCI	MSCI	Various, including Institutional	Various	\$ 1,558	\$ 755.7	\$ 23,007
Tradeweb Markets	TW	Institutional and Retail	Various	\$ 776	\$ 189.8	\$ 9,585
Virtu Financial	VIRT	Institutional and Corporate	Various	\$ 1,530	\$ (116.0)	\$ 4,080
Virtus Investment Partners	VRTS	Institutional and Retail	Various	\$ 563	\$ 124.7	\$ 559
Wisdom Tree Investments	WETF	Institutional & 401(k) Providers	Various	\$ 268	\$ 53.5	\$ 355
<b>MarketAxess Holdings</b>	<b>MKTX</b>	<b>Institutional</b>	<b>Fixed Income</b>	<b>\$ 511</b>	<b>\$ 250.9</b>	<b>\$ 12,665</b>
			<b>MKTX Rank</b>	<b>15 of 20</b>	<b>7 of 20</b>	<b>2 of 20</b>
			<b>Median</b>	<b>\$ 1,160</b>	<b>\$ 157.0</b>	<b>\$ 2,608</b>
			<b>75th Percentile</b>	<b>\$ 1,483</b>	<b>\$ 272.0</b>	<b>\$ 8,539</b>
			<b>MKTX Percentile</b>	<b>25th</b>	<b>65th</b>	<b>95th</b>

(1) Market Capitalization estimated as reported close of business on April 1, 2020

(2) BKI and FICO were added to the peer group for use in 2020 (FNGN and OAK were acquired during 2019 and were removed as peers)

### Benchmarking – Importance and Process

Once the Peer Group review was completed, Grahall identified a broader group of companies for 2019 compensation benchmarking purposes, which was accomplished by reviewing the following:

- The group of financial services companies designated as our peer group by ISS for the 2019 compensation period;
- A broader group of financial services companies within S&P's Capital Markets, Diversified Financials and Consumer Finance sub-groups; and
- A broader group of S&P's technology companies within Software & Services and IT Services.

## COMPENSATION DISCUSSION AND ANALYSIS

Grahall also used leading industry compensation surveys for financial services and financial technology for benchmarking purposes.

The aggregate information developed by Grahall is used to prepare the recommended pay ranges for review and approval by the Compensation Committee. To minimize the impact of year-to-year data volatility, multiple years of data is used. In addition, variable annual incentives and equity awards may be averaged and/or annualized as appropriate to better estimate market pay level.

The Company's performance and C&B Ratio, as well as individual performance and contributions, role, knowledge and expertise, and the level of competition that exists within the market for a given position collectively impact how the NEO is paid vis-à-vis the recommended pay range.

It is important to note that the Company's upper quartile TSR over multiple years has resulted in our market capitalization being significantly higher than most of the companies in the Peer Group as well as the other comparator sets (e.g., more than three times the Peer Group median per the table above). From a benchmarking perspective, we note that Peer Group long-term incentive grant levels (and total compensation) will therefore be inherently lower than a performance-adjusted market rate for MarketAxess. While it would be helpful to introduce more peer companies with a comparable market capitalization, there are a limited number of such companies in our industry. Therefore, the differences in market capitalization should be kept in mind when selecting peer companies and interpreting the results of the benchmarking.

### **Individual Performance**

The Compensation Committee assesses the individual performance of the Company's NEOs in connection with the determination of each NEO's annual cash incentive award, annual equity award and Total Direct Compensation. In addition to the objectives that are specific to each NEO, we measure the performance of all of our NEOs against the following criteria that we believe are paramount to our success in a highly competitive market:

- **Innovation:** we are leading the 'electronification' of the corporate bond market, which is resulting in significant market structure changes. This market evolution requires our NEOs to be innovative as they help set the Company's direction and determine the role it plays in the financial markets;
- **Strategic decision making and execution:** we are a relatively flat organization with approximately 535 employees globally; therefore, our NEOs must have the ability to balance strategic decision making with tactical execution, and they must be able to effectively communicate with, and lead, broad teams of employees across all levels of the organization; and
- **Ability to deliver technology-driven market solutions:** we are a financial technology company whose NEOs must combine an expertise of the fixed-income securities market with the knowledge and ability to conceptualize, create, implement and deliver technology-driven market solutions.

As described above under *Program Design Changes and other Actions in 2020*, in 2020, the Company has adopted several changes to the design of the Company's executive compensation program that introduce objective performance criteria and target payouts tied to corporate results as well as individual contributions. In 2019, the Compensation Committee followed its past practice of individually assessing the performance of each NEO and making compensation decisions in light of such individual performance, the Company's outright and relative performance, and market data. In 2019, the Compensation Committee assessed the performance of our NEOs as follows:

2019 Performance	
NEO	Contributions
Richard M. McVey, CEO	<ul style="list-style-type: none"> <li>• Eleventh consecutive year of record revenues, operating income, EPS, and composite market share.</li> <li>• Leading corporate strategy discussions as Chairman of the Board and CEO.</li> <li>• Strengthening the leadership team and succession planning, including through the recruitment of Mr. Concannon and expanding the Company's other Talent Management initiatives including leadership development, corporate culture and recruiting.</li> <li>• Continuing track record of execution on key company growth strategies including international expansion, Open Trading, client and geographic expansion, and product market share gains.</li> <li>• Maintaining and growing valuable senior client relationships with fixed income investors, dealers and key stockholders.</li> <li>• In collaboration with the Board Nominating and Governance Committee, successful recruiting of three highly qualified new Non-Employee Directors: Nancy Altobello, Justin Gmelich, and Richard Prager</li> <li>• Industry leadership, including serving as Chair of the Technology and Electronic Trading sub-committee of the SEC's Fixed Income Market Structure Advisory Committee.</li> </ul>
Christopher R. Concannon, President	<ul style="list-style-type: none"> <li>• Contributed to record revenues, operating income, EPS, and composite market share.</li> <li>• Business expansion, including continued international expansion, the acquisition of LiquidityEdge resulting in asset class diversification, the joint venture with Virtu to promote transparency in the fixed income ETF space, and organic growth initiatives including new protocols and investment in trading automation.</li> <li>• Partnering with the CIO and CTO in the transformation of the technology organization to an Agile development structure that will increase the release of new functionality and drive more P&amp;L accountability and discipline across our business groups.</li> <li>• Leading the Company's self-clearing and settlements strategy in response to increased Open Trading volumes.</li> <li>• Serving as a clear second in command to the CEO by effectively collaborating with and leading the executive management team, partnering on strategic initiatives with our Non-Employee Directors, and collaborating and building relationships with investor and dealer clients, stockholders and analysts.</li> </ul>
Antonio L. DeLise, CFO	<ul style="list-style-type: none"> <li>• Providing analysis and decision making support for merger and acquisition opportunities, including the acquisition of LiquidityEdge, long-term financial and strategic planning, pricing, and premises.</li> <li>• Acting as primary liaison with stockholders and analysts, delivering clear and transparent messaging to the investment community and successfully increasing the sell-side coverage universe.</li> <li>• Providing leadership on strengthening the enterprise risk management framework and overall internal control environment.</li> <li>• Collaborating with the Chief Risk Officer to continue to evolve the Company's risk function across the Company's enterprise, systems, cyber security, market and competitive risks.</li> </ul>
Kevin McPherson, Sales	<ul style="list-style-type: none"> <li>• Record revenues and composite market share of the 11th consecutive year with record revenues in our four core products: high grade, high yield, emerging markets and Eurobonds.</li> <li>• Transformation of the sales organization resulting in senior level coverage for top clients and stronger and broader sales management from a regional perspective.</li> <li>• Partnering with some of the largest and most important global stakeholders in credit products, resulting in the delivery of value-added systems enhancements and trading protocols to the market.</li> </ul>
Nicholas Themelis, CIO	<ul style="list-style-type: none"> <li>• Sponsoring the Company's transition to an Agile development process, greater use of cloud computing, increased machine learning and microservices which will all increase the velocity of functionality delivered to our clients and result in more innovative trading solutions.</li> <li>• Delivering a variety of new data products including CP+, which has won three industry awards and is critical for new functionality and initiatives that are being built.</li> <li>• Further strengthening the bench strength within the technology and data leadership teams, including the hire of a Chief Technology Officer.</li> </ul>

***Pay for Performance Alignment – CEO’s Realized Compensation***

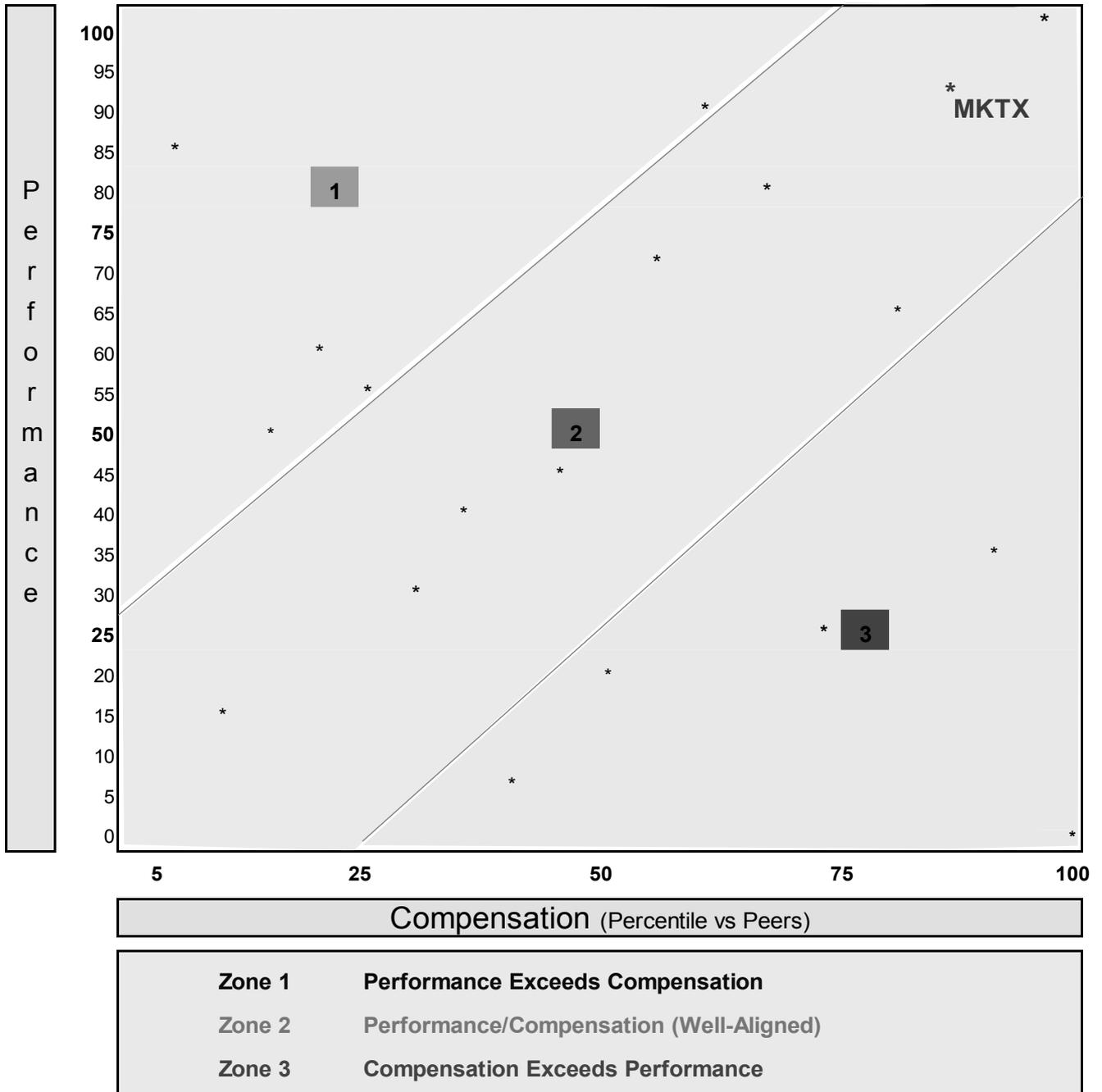
To assess our CEO’s pay-for-performance alignment, we reviewed all compensation realized (“*Realized Compensation*”) by our CEO relative to our TSR for the three-year period ended December 31, 2018 (the most recent period for which peer compensation data was available at the time of filing this proxy statement) against our 2018 peer group.

Realized Compensation was determined by adding the following elements together:

- Sum of three years’ base salary;
- Sum of three years’ actual annual incentive payments;
- Intrinsic (“in-the-money”) value of stock options awarded during the three-year period (using December 31, 2018 closing price);
- Value of three years’ restricted stock awards updated for December 31, 2018 closing price;
- Sum of all settled performance awards, to the extent settled, and granted share amounts, to the extent the performance awards are not settled, made during the three-year period, updated for December 31, 2018 closing price; and
- Any other payments or form of wealth received by the executive as reported in the compensation table for the applicable three-year period.

We believe the structure of our compensation program, which minimizes fixed costs and emphasizes appropriate performance leverage, has fairly and competitively compensated our NEOs, including our CEO, for our above market performance realized during this time period and has exhibited strong pay for performance alignment. The graph below compares the three-year Realized Compensation and the Company’s TSR against our 2018 peer group on a percentile basis and indicates that the Company’s performance was well-aligned with compensation for the period. Alignment is defined as the Company’s relative pay and relative performance percentiles amongst the peers that were within 25 percentile points of each other.

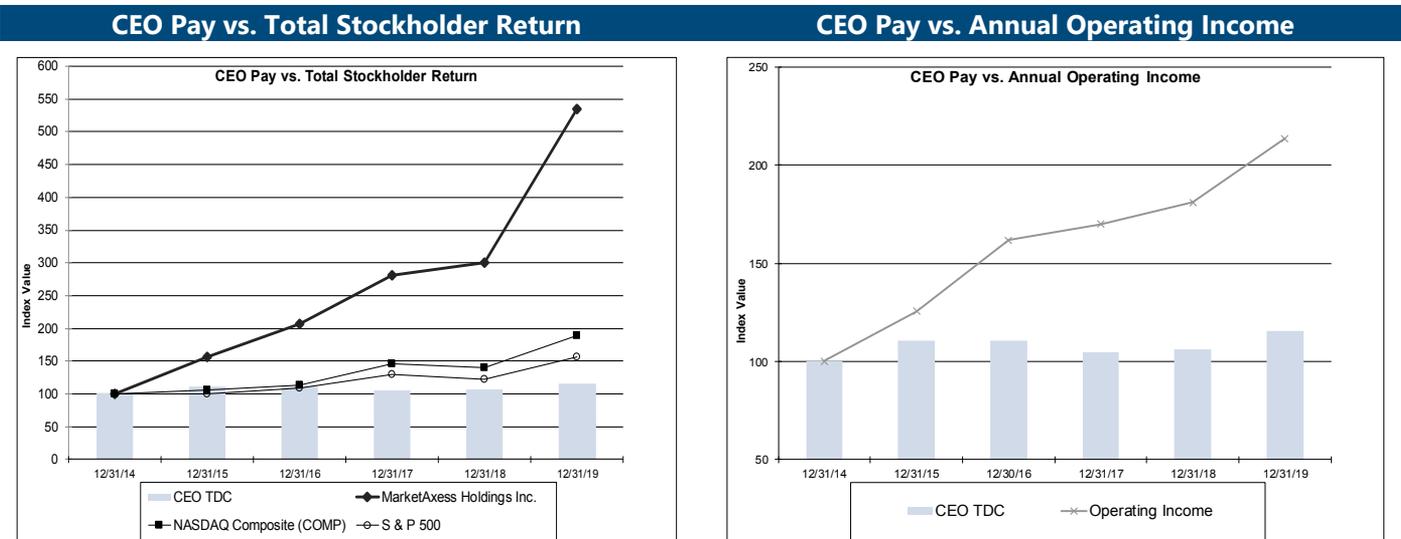
Relative Performance/Compensation 3 Year TSR (2016-2018)



Note: Omits ITG and FNGN, each of which were acquired prior to December 31, 2018, and Tradeweb which does not have 3 years of public performance data available

## COMPENSATION DISCUSSION AND ANALYSIS

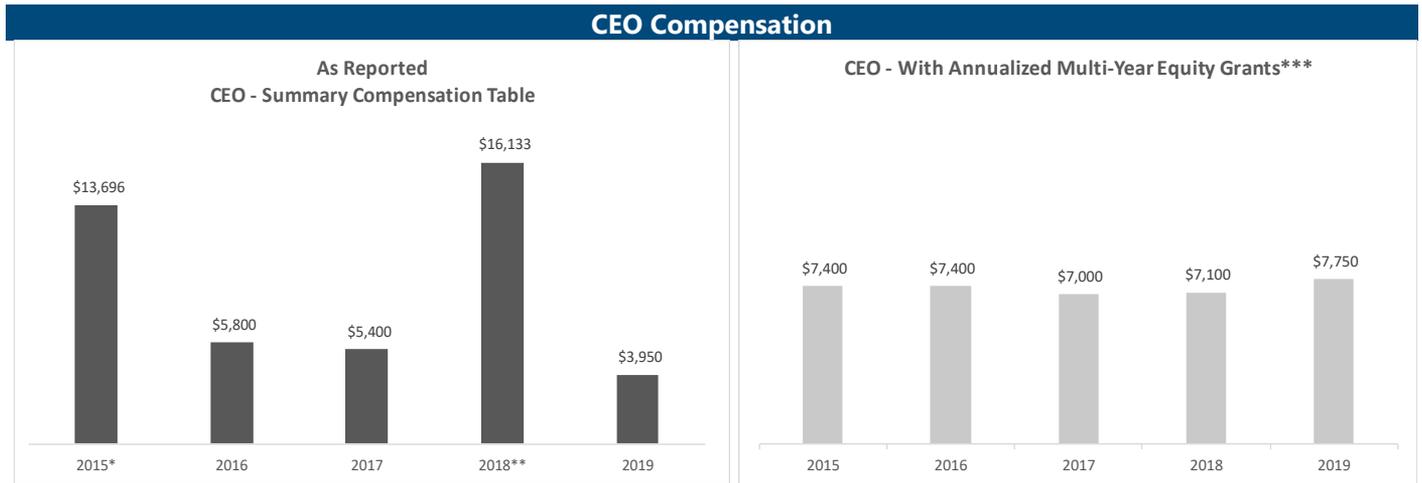
The charts below compare the CEO's TDC to the Company's Common Stock price appreciation, the performance of various indices and the Company's operating income for the five-year period ended December 31, 2019:



Calendar year 2014 is the baseline year. The measurement period begins with calendar year 2014.

As illustrated in the above graphs, the CEO's annual TDC has increased 16% in the aggregate during the five-year period ending December 31, 2019 (representing an approximately 2.95% compound annual growth rate "CAGR"). During this same period, the Company's operating income under U.S. generally accepted accounting principles (GAAP) has increased 113% (16.38% CAGR over 5 years) and TSR has increased 434% (39.8% CAGR over 5 years). The 5-year CAGR for the NASDAQ and S&P 500 for this period increased by 13.63% and 9.4%, respectively. In addition, over \$11.48 billion in stockholder value (as measured by increased market capitalization) has been created during the five-year period ended December 31, 2019.

We believe the CEO’s compensation has consistently reflected our pay for performance philosophy during this period. However, because the Summary Compensation Table requires multi-year equity awards to be reported in full in the year received, our use of such awards can make an NEO’s compensation appear to be volatile. The chart below illustrates and contrasts TDC levels for the CEO over the past 5 years as reported in the Summary Compensation Table (pursuant to SEC rules) versus the TDC calculated by the Company as a result of annualizing multi-year equity awards over the term of each award:



- \* Includes \$8 million performance equity grant that is spread over the five performance years from 2015 to 2019 (see *Use of Multi-Year Awards* below).
- \*\* Includes \$11 million performance equity award that is spread over 5 years (2 months for year-end 2018, 10 months for year-end 2023, and full-year for each year-end 2019 - 2022).
- \*\*\* Annualized Multi-Year Equity Grants spread the grant value of multi-year equity awards over the relevant performance/vesting period.

## Elements of Executive Compensation

The compensation structure for our NEOs is comprised of base salaries, annual cash incentive compensation under our 2009 Employee Performance Incentive Plan (the “Employee Cash Incentive Plan”) and various forms of equity which, for 2019, was granted under our 2012 Incentive Plan (as amended from time to time, the “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 special 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.

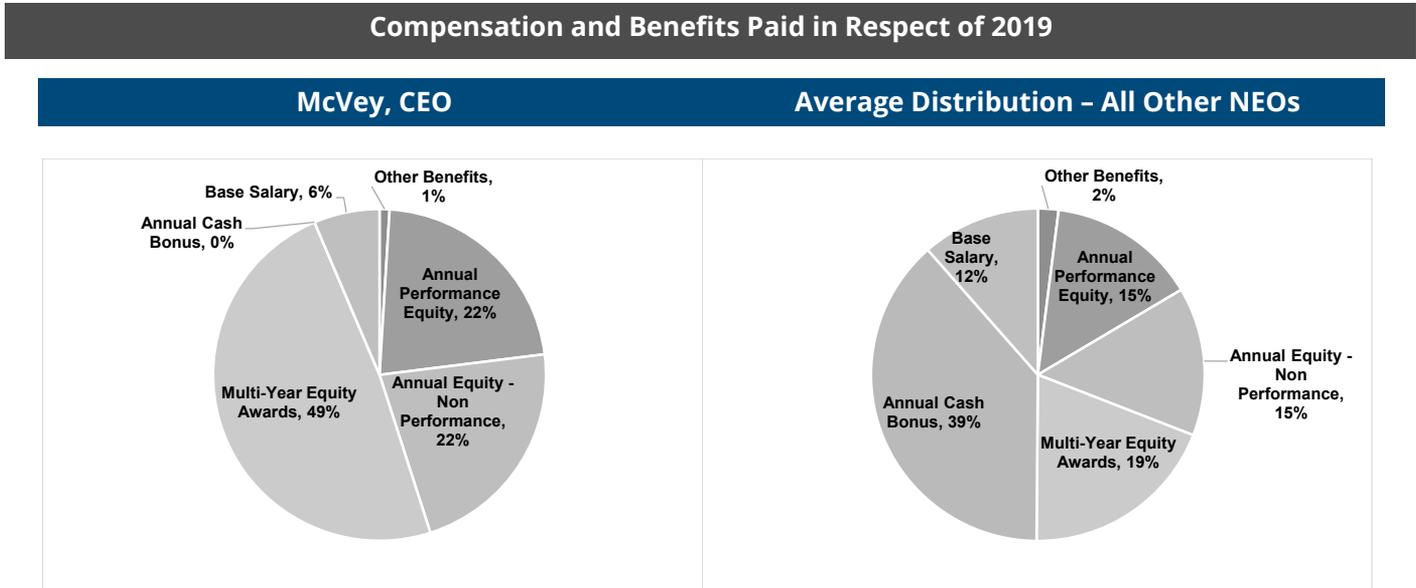
## COMPENSATION DISCUSSION AND ANALYSIS

NEOs also receive standard employee benefits.

Elements of Pay		
Component	Description	Purpose
<b>Base Salary</b>	Fixed pay based on role and responsibilities, experience and expertise, and individual performance	Provides a consistent minimum level of compensation that is paid throughout the year at a cost-effective level for the Company
<b>Annual Cash Bonus</b>	Variable cash payments based on achievement of annual corporate financial goals and individual performance	Rewards short-term performance in a framework that discourages excessive risk taking by limiting maximum award opportunities
<b>Annual Equity Awards</b>	Equity awards that vest over three or more years	Designed to tie compensation to stockholder value creation; rewards attainment of corporate and individual goals
<b>Multi-Year Equity Awards</b>	Performance awards that vest over four or more years, often with back-ended vesting	Serve as retention tools while aligning compensation to long-term stockholder value creation
<b>Other Benefits</b>	Include healthcare, life insurance, disability and retirement savings plans	Provide assistance with healthcare related costs and income protection in the event of disability as well as a base level of replacement pay upon retirement

**Pay Mix**

We believe that lower base salaries and higher levels of variable performance awards motivate our NEOs, facilitate the achievement of our growth objectives and promote decision-making that is aligned with our stockholders' interests. A lower base of fixed costs (including base salary) also allows us to better manage expenses, which helps improve profitability. We also 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 *Compensation Risk Assessment* above). An overview of the elements of pay provided to the CEO and, on average, to the other NEOs for fiscal year 2019 is as follows:



In 2019, all NEOs received over a third of their annual TDC in equity, which was intended to align each NEO's interests with the interests of our stockholders. Our CEO received the highest percentage of TDC (93%) in the form of equity compensation. This high concentration of equity for our CEO in 2019 was due to the substitution of his annual cash incentive opportunity with a larger equity award in order to provide for additional funding of cash bonuses for the general employee base. Given the CEO's support for this change in pay mix and his existing level of ownership of the Company's Common Stock, his other pay components and our strategic initiatives, we believe that the increase in his percentage of TDC in the form of equity was appropriate.

**Base Salary**

Base salary is the only fixed component of our NEO's total cash consideration and is intended to provide a minimum consistent level of compensation throughout the year. We avoid automatic base salary increases and target our NEO's base salaries below applicable median base pay levels to manage our fixed compensation costs and reinforce our pay-for-performance philosophy.

While most of the NEOs' base salaries were at or below the 25th percentile of base salaries reported by our Peer Group, we did not adjust base salaries in 2019. Instead, we provided our NEOs with the opportunity for higher compensation through improved variable and long-term incentive opportunities as described below. Our CEO's base salary has remained unchanged since 2011.

As detailed in *How 2019 Performance Affected Executive Compensation* above, base salaries for all NEOs were unchanged from the prior year.

**Annual Cash Incentive Awards**

A summary of cash incentives paid to our NEOs for 2019 and 2018 and a comparison to our key financial metrics for both years is set forth below:

<b>Cash Incentive Paid Compared to Financial Metrics</b>				
	<b>2019</b>	<b>2018</b>	<b>Change</b>	
Revenues (in millions)	\$ 511.4	\$ 435.6	17%	
Operating Income (in millions)	\$ 250.9	\$ 212.6	18%	
Diluted EPS	\$ 5.40	\$ 4.57	18%	
(in thousands)				
Richard M. McVey, CEO	\$ —	\$ 1,890	(100)%	
Christopher R. Concannon, President	\$ 1,500	\$ —	—	
Antonio L. DeLise, CFO	\$ 875	\$ 850	3%	
Kevin McPherson, Head of Sales	\$ 1,100	\$ 1,100	0%	
Nicholas Themelis, CIO	\$ 1,200	\$ 1,175	2%	

In connection with the commencement of our President's employment with the Company, and in consideration of his forgoing his year-end 2018 cash compensation that would have been payable to him by his previous employer, we awarded him a special \$1.5 million cash incentive for 2019, his first performance year with the Company.

**Employee Cash Incentive Plan – 2019**

The pool for the Employee Cash Incentive Plan for 2019 was accrued as a percentage of our Adjusted Operating Income. The Company sets an Adjusted Operating Income target each year. In 2019, our target Adjusted Operating Income was approximately \$270 million. At target, the bonus pool accrual would have been \$35 million.

As stated above, the Company must have positive Adjusted Operating Income for there to be an accrual for any particular performance year. For 2019, the accrual rate was 12.98% of Adjusted Operating Income.

Regardless of the accrual rate, the Compensation Committee ultimately has the right to override the formulaic result, thereby changing the actual amount paid. In past years, the Compensation Committee has only exercised downward discretion.

Due to the Company's out-performance in 2019, with achievement of \$287.5 million of Adjusted Operating Income, the total amount accrued under the Employee Cash Incentive Plan for 2019, based on the accrual rate, would have been over \$37 million. However, based on the Compensation Committee's review of the Company's financial performance, market data, staffing levels and C&B Ratio, the Compensation Committee exercised discretion downward and determined not to use the entire accrual. As a result, the payout was decreased to just over \$35.5 million.

<b>Actual Accrual Rate vs. Target and Previous Year</b>			
	<b>2019</b>	<b>2018</b>	
Target accrual rate	12.98%	12.57%	
Adjusted (actual) accrual rate	12.35%	12.52%	
Payout (in thousands)	\$ 35,513	\$	31,740

## Non-Qualified Deferred Cash Plan – 2019 Contributions

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 cash bonus. For the cash bonus paid in 2019 for 2018 performance, our CFO was the only NEO to participate in this plan. He deferred 75% of his \$850,000 cash incentive bonus paid in 2019, or \$637,500.

## Changes to the Employee Cash Incentive Plan – 2020

For purposes of funding the cash incentive pool for the 2020 performance year, the Company set the accrual rate slightly lower than in the previous year. The Compensation Committee considered expected headcount, market trends and forecasted operating margins, among other factors, in approving the accrual rate and incorporated the impact of the LiquidityEdge acquisition on those metrics. The table below shows the accrual rates for 2020 as compared to 2019:

Employee Cash Incentive Plan Accrual Rate - 2020			
Level of Adjusted Operating Income	2020 Budgeted Accrual Rate	2019 Budgeted Accrual Rate	2019 Adjusted Accrual Rate
Funding Rate	12.63%	12.98%	12.35%

Starting with performance year 2020, 50% of the target cash incentive for our executive officers will be directly linked to the Company's Adjusted Operating Income results and 50% will be based on the executive's delivery against individual goals and key strategic initiatives for the Company. The Compensation Committee believes that tying 50% of our executive officers' target cash incentive to the Company's Adjusted Operating Income is an appropriate percentage for performance year 2020 because it is the Company's first year using this methodology. The Compensation Committee intends to review the percentage linked to this measure in future years.

### ***Long-term Incentives – Annual and Special Equity-based Awards***

We grant equity awards to our NEOs annually as part of our on-going compensation program. In addition, special equity awards have traditionally been granted to our NEOs at the time of hire ("new hire" awards), and, for the CEO, upon renewal of his employment agreement.

## Annual Equity Awards

We grant annual equity awards on January 15 using the average closing price of our Common Stock for the ten consecutive trading days leading up to and including the date of grant. This helps to ensure that the timing of any award and the setting of the exercise price of a stock option will not be subject to manipulation. It also reduces the impact of any significant short-term swings in stock price. All annual equity awards vest over a minimum of three years, and the first vesting date is at least one year from the date of grant.

The value of the annual equity awarded to each NEO is considered by the Compensation Committee in determining TDC for each NEO. The amount awarded is based upon market data, the Company's desire for our NEOs to maintain appropriate upside leverage in our annual incentive program while managing risk, stock ownership guidelines, and our desire to retain our NEOs.

## COMPENSATION DISCUSSION AND ANALYSIS

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, we are providing an overview of all equity awards granted in January 2019 for 2018 performance. However, in calculating TDC for performance year 2019, we used the value of equity granted in January 2020 in recognition of performance during 2019. Accordingly, we have also included an overview of equity awards granted in 2020.

### Flex Share Program

---

Annual equity awards are made pursuant to our “Flex Share” program that permits our NEOs to have input into the form of their equity compensation, subject to a general framework and limitations imposed by the Compensation Committee. The Flex Share program allows the Company to deliver more individualized awards with greater perceived value to the NEOs without incurring additional expense to the Company.

For the awards granted in 2019, each annual equity award had a minimum requirement of 30% in the form of performance awards (40% for the CEO), with a maximum amount of 50% of the annual equity award allowed to be in the form of performance shares. Of the remainder of the annual award, 50% was awarded in the form of RSUs. NEOs then had the option to receive the other 50% in RSUs or stock options. For the awards granted in January 2019, stock options were granted at a ratio of one RSU to 3.63 stock options, based upon the relative accounting cost of each award component on the award date.

RSUs and stock options vest in three equal annual installments beginning a year after grant. Performance shares settle in the first quarter after the completion of the performance year, but vest in two equal annual installments on the second and third anniversaries of the grant.

RSU settlement 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”).

In response to stockholder feedback, 50% of the annual equity awards granted to our NEOs in January 2020 (as a result of 2019 performance) were granted as performance shares with a three-year performance period. The performance share awards will vest at the end of the three-year performance period. NEOs still have the choice of all RSUs or a combination of RSUs and stock options for the remaining 50% of their award, which is time-based and vests in equal installments on the first three anniversaries of the grant. The ratio of stock options to RSUs granted was 4.02 stock options to one RSU, based upon the relative accounting cost of each award component on the award date.

## 2019 Annual Equity Awards for 2018 Performance

The following chart shows the annual equity awards granted to our NEOs in January 2019 to reward their performance in 2018 and the value of any special multi-year awards included in their TDC for 2018 (see *Special Multi-Year and Other Special Equity-based Awards* below).

Equity Awarded in January 2019			
	Grant Value Jan 2019	Annualized Portion of Previously Granted Special Multi- Year Awards (\$ in thousands)	Total
Richard M. McVey, CEO	2,743	1,967	4,710
Christopher R. Concannon, President	—	—	—
Antonio L. DeLise, CFO	390	360	750
Kevin McPherson, Head of Sales	350	500	850
Nicholas Themelis, CIO	425	600	1,025

The annual equity value received by the NEOs was determined after (i) setting a target TDC for each NEO, (ii) subtracting out the base salary already paid and the targeted cash incentive, and (iii) subtracting the annualized value of their respective special multi-year grants (See *Special Multi-Year and other Equity Awards* below).

As a result of their elections under the Flex Share Program, the NEOs were granted the following awards as part of their annual equity award in January 2019:

Annual Equity Award - Share Election - January 2019						
	Total Value Granted (\$ in thousands)	Percentage Allocated as RSUs	RSUs Granted on Jan 15, 2019	Deferred	Percentage Allocated as Performance Shares	Performance Shares Granted on Jan 15, 2019
Richard M. McVey, CEO	\$ 2,743	60%	7,757	Yes	40%	5,171
Christopher R. Concannon, President	—					
Antonio L. DeLise, CFO	\$ 390	70%	1,287	No	30%	551
Kevin McPherson, Head of Sales	\$ 350	70%	1,113	No	30%	495
Nicholas Themelis, CIO	\$ 425	70%	1,402	No	30%	601

## 2019 Performance Share Metrics and Payout

The performance share awards granted in 2019 were designed to result in a 100% payout if the Company achieved targeted Performance Share Adjusted Operating Income. "Performance Share Adjusted Operating Income" means operating income excluding performance share expense and certain extraordinary, special, unusual or non-recurring expenses. This target range was set in the first quarter of 2019 for the 2019 performance year. The target range was set above the actual results achieved for performance year 2018. The performance share awards provided for a maximum payout of 150% of the Target award if the high-end of the target range was exceeded by at least 10% and the award would result in no payout if the Company did not achieve at least 80% of the low-end of the target range. Our actual Performance Share Adjusted Operating Income for 2019 was \$253.7 million, which resulted in a payout of 138.1%. The payout percentage was calculated in January 2020 after the end of the 2019 performance year. The table below shows the Performance Share Adjusted Operating Income goals and corresponding payout results:

Performance Share Metrics and Achievement - January 2019 Awards	
2019 Performance Share Adjusted Operating Income	
Goal	Performance Share Payout
Below \$188.574 million	0.0%
\$188.574 million (80%)	50.0%
Target of \$225.717 to \$235.717 million	100.0%
<b>Actual of \$253.688 million</b>	138.1%

In addition to Performance Share Adjusted Operating Income, the performance share awards granted in 2019 also took into account the Company's composite market share for 2019. In the event that the Company exceeded the designated composite market share thresholds, the payout of the performance shares could be increased up to (but not above) the 100% payout level. Composite market share growth targets were set in the first quarter of 2019 for the 2019 performance year based on our budget.

2019 Market Share Thresholds	
Target	Additional Percentage Points Earned
At or below 2018 Actual	0%
0.5%	+12.5%
1.0%	+25%
1.5%	+37.5%
2.0% or more	+50%

In order for the payout of the performance shares to be increased, however, the Company's Adjusted Operating Income must have been at least \$188.6 million. As stated above, for 2019, the Company exceeded its Adjusted Operating Income goal, and therefore there was no increase in payout attributed to the Company's composite market share.

The table below shows the adjustment to the performance shares upon settlement:

January 2019 Performance Share Awards - Granted and Settled				
	Performance Shares Granted in 2019 (in units)	Value on the Date of Grant (1) (\$ in thousands)	Settlement of Performance Shares in 2020 (in units)	Value of Grant on Date of Settlement (2) (\$ in thousands)
Richard M. McVey, CEO	5,171	1,090	7,142	2,514
Christopher R. Concannon, President	—	—	—	—
Antonio L. DeLise, CFO	551	116	761	268
Kevin McPherson, Head of Sales	495	104	684	241
Nicholas Themelis, CIO	601	127	830	292

(1) Based on the closing price on January 15, 2019 (Grant Date) of \$210.88

(2) Based on the closing price on January 29, 2019 (Settlement Date) of \$352.04

## 2020 Annual Equity Awards for 2019 Performance

In recognition of their performance for 2019 and the performance of the Company, the NEOs were granted the following annual equity awards in January 2020:

Annual Equity Award - Share Election - January 2020									
	Total Value Granted (\$ in thousands)	Percentage Allocated as RSUs	RSUs Granted on Jan 15, 2020	Deferred	Percentage Allocated as Stock Options	Stock Options Granted on Jan 15, 2020	Percentage Allocated as Performance Shares (1)	Performance Shares Granted on Jan 15, 2020	
Richard M. McVey, CEO	\$ 3,450	25%	2,324	Yes	25%	9,342	50%	4,647	
Christopher R. Concannon, President (2)	\$ 2,250	50%	3,031	No	—	—	50%	3,031	
Antonio L. DeLise, CFO	\$ 550	50%	741	No	—	—	50%	741	
Kevin McPherson, Head of Sales	\$ 600	50%	808	No	—	—	50%	808	
Nicholas Themelis, CIO	\$ 700	50%	943	No	—	—	50%	943	

(1) Fifty percent of the annual award value granted was granted in the form of performance shares with a three-year measurement period, as described below.

(2) In connection with his hire, the Company agreed to award the President an equity award for performance year 2019 of no less than \$1.5MM. As a result of his performance and contributions (as outlined above in *Individual Performance*), his equity performance award was \$2.25MM.

The following chart shows the annual equity awards granted to our NEOs in January 2020 for performance in 2019 and the value of any previously granted special multi-year awards included in their TDC for 2019. As with all special multi-year awards granted by the Company, a portion of the award is attributed to TDC in future years and reduces the annual awards on a dollar-for-dollar basis.

Equity Value Attributed to Year-End 2019 Compensation				
	Grant Value	Annualized Portion of Multi-Year Awards		Total Equity Value
	Jan-20	Previous Multi-Year Award	2018 Multi-Year Award	
(\$ in thousands)				
Richard M. McVey, CEO (1)	3,450	1,600	2,200	7,250
Christopher R. Concannon, President (2)	2,250	1,000	—	3,250
Antonio L. DeLise, CFO (3)	550	360	—	910
Kevin McPherson, Head of Sales (3)	600	500	—	1,100
Nicholas Themelis, CIO (3)	700	600	—	1,300

- (1) \$1.6 million represents the annual value of the multi-year performance award granted in January 2015; \$2,200 represents the value of a new multi-year performance retention award granted in November 2018 (see *Use of Multi-Year Awards* below)
- (2) \$1 million represents the annual value of the multi-year performance award granted in January 2019 in connection with the President's hire and the replacement of deferred equity awards that were forfeited by the President when he resigned from his previous employer.
- (3) Multi-year awards were granted in January 2016 and annual attribution began with 2015 year-end compensation.

As described above, in response to the feedback we received from our stockholders, the 2020 annual equity awards have the following features:

- Fifty percent of the NEOs' annual equity award was granted in the form of performance shares;
- The performance share metrics (operating margin and market share) are different than the metric used for the Company's cash incentive plan (Adjusted Operating Income), and each of the performance share metrics will have an equal weighting in determining performance;
- The performance shares have a three-year measurement period; and
- The performance shares will vest on the third-year anniversary of the grant.

## Special Multi-Year and Other Equity-based Awards

Special awards are not a regular part of the Company's compensation program for existing NEOs. In alignment with the feedback we received from our stockholders, we expect that the use of special multi-year and other special equity awards will be limited to circumstances such as the hiring of new executives or the retention of key executives.

We believe that, in certain circumstances, delivering an appropriate portion of an executive's equity as a multi-year performance-based equity award can be an effective method of providing an executive with a significant additional incentive to create long-term value for stockholders, while potentially reducing the accounting expense incurred by the Company over a multi-year period to the extent that our Common Stock price increases. We believe that performance multi-year awards create wealth creation and significant retention opportunities for our NEOs through both the number of shares earned and the potential of an increase in stock price without creating excessive risk within the compensation framework. In all cases, multi-year awards granted by the Company have been attributed to four 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 Company has granted special multi-year equity awards in the past for the following reasons:

- The vesting schedule requires the executive to hold the shares for a longer period of time, thereby increasing the retention value of the award;
- Multi-year awards save significant amounts of accounting expense when our stock price increases (when compared to same-sized annual awards);
- They provide additional incentive for participants because more shares are awarded at the time of grant than could be awarded in future years if the price of the Company's stock increases; and
- They further align the executive's interests with the interests of our stockholders.

## CEO Awards

### **CEO – 2015 Performance Award**

In January 2015, our CEO was awarded a special performance-based multi-year equity award in connection with the execution of a new employment agreement. The award was comprised of two separate performance components: (i) \$6 million in performance shares, and (ii) \$2 million in premium priced stock options ("*Premium Options*"). All performance targets for the three tranches of this award were met on or before March 2016. Notwithstanding that the performance targets were met in 2016, 50% of the shares delivered to the CEO in settlement of the performance shares did not vest until January 15, 2019 and the remainder did not vest until January 15, 2020.

The Premium Options vested in three tranches as follows:

Premium Options	
Vesting Date	Options Vested
January 15, 2018	39,933
January 15, 2019	39,972
January 15, 2020	40,076

The expiration date for all of the Premium Options is July 15, 2020.

**CEO – 2018 Performance Award**

In November 2018, the Compensation Committee determined it was desirable to extend the CEO's employment agreement for an additional five-year term in order to secure his employment. Consistent with past practice, the Company awarded him a special five-year performance award ("2018 Performance Award") with an aggregate \$11 million grant date fair value to incentivize and reward future stock price appreciation. The CEO was entering the final year of his then-current employment agreement and the Compensation Committee noted that a significant portion of the CEO's January 2015 award would vest in January 2019. The Compensation Committee considered the following factors in granting the award:

- **Multi-Year Award History:** The Compensation Committee considered its prior special multi-year awards to the CEO in 2011 and 2015 to have been a success as measured by the Company's financial results and stock performance in the years following the grant.
- **Design:** The Compensation Committee designed the 2018 Performance Award such that the aggregate \$11 million grant date fair value of the Award will be spread over five years of annual compensation and will reduce the amount of the variable pay, including equity, that the CEO will receive 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). For example, for 2018, the Committee deducted \$1.6 million from the CEO's annual equity award to reflect the attribution of the previous multi-year award granted to the CEO in January 2015, as well as \$367,000 to reflect the attribution of the 2018 Performance Award for a partial year (Nov – Dec 2018). For 2019, \$1.6 million and \$2.2 million of the CEO's compensation was attributed to his 2015 and 2018 performance awards, respectively, and his annual incentive opportunity for January 2020 was reduced by this amount.
- **Performance-Based Nature of Award:** The award was designed to be 100% performance based, entirely premium priced, and included a minimum consecutive number of trading days (20) before a stock price target can be satisfied. The premium priced performance targets were set at 125% and 135% of MarketAxess' closing stock price on the grant date. At the time the 2018 Performance Award was made in November 2018, the Company's stock price was \$206.22, which was 7% lower than its all-time high of \$222.28. With stock price hurdles at \$257.78 and \$278.40, the hurdles were set well above our stock's then all-time high.
- **Value Creation for Stockholders:** Given the award's premium pricing and the Company's approximate valuation of \$7.76 billion on the grant date, the award structure requires the Company's market capitalization to increase by \$1.94 billion before the CEO could satisfy the 125% hurdle and \$2.7 billion before he could satisfy the 135% hurdle. The Compensation Committee viewed these goals as providing significant value to stockholders before the CEO could realize any award value.
- **Five-year Cliff Vesting:** All stock options and performance shares earned pursuant to the 2018 Performance Award are subject to five-year cliff vesting. Specifically, the shares must maintain their value until 2023 for the CEO to receive the targeted (or greater) amounts. The CEO cannot dispose of either options or performance shares prior to the vesting date (November 8, 2023) to capitalize on any increase in the stock price, short term or otherwise. Likewise, in the event of a stock price decline, the CEO has no ability to sell the shares prior to November 2023. Finally, the CEO must remain as an employee or director throughout the vesting period, except in the event of certain involuntary terminations.
- **Short Option Term:** The premium priced stock options were designed to be highly performance oriented, as (i) they have only a five and half year term, and (ii) they must be exercised within six months of the vesting date in November 2023 or they will be forfeited. The purpose of this shortened term is intentional and multi-fold, to: (i) increase the award's leverage, (ii) reduce stockholder dilution, and (iii) require relatively stronger annual price appreciation in order to realize value.

The 2018 Performance Award was issued with a grant date fair value of \$11 million. The chart below shows how the grant value is spread over a 5-year attribution period:

2018 Multi-Year Performance Award		
	Value	Attribution
	(\$ in thousands)	
Total Award Value	11,000	—
Year-End 2018 (2 months)		367
Each Year-End 2019 – 2022		2,200
Year-End 2023 (10 months)		1,833

As discussed above, the 2018 Performance Award is contingent both upon the Company meeting certain stock price thresholds, as well as tenure requirements specific to the CEO. The performance thresholds are as follows:

2018 Multi-Year Performance Award Structure					
	Value	Tranche	Target	Target Share Price or Strike Price	Number of Units
	(\$ in thousands)			(in \$)	
Performance Shares	2,750	1	125% of FMV	257.78	17,942
Performance Shares	2,750	2	135% of FMV	278.40	19,800
Stock Options	2,750	3	125% of FMV	257.78	69,113
Stock Options	2,750	4	135% of FMV	278.40	79,411

The fair market value on the date of grant of the 2018 Performance Award was the closing price of the Company's Common Stock of \$206.22 ("FMV"). In order for the CEO to satisfy the stock price thresholds, the Company had to achieve an average price per share of common stock at 125% of FMV for the first tranche and 135% of FMV for the second tranche, calculated over twenty consecutive trading days (rounded to the nearest cent), during the performance period. Although the performance period ran from November 8, 2018 through November 8, 2023, the performance targets for the two tranches were met on or before May 17, 2019. Notwithstanding that the performance targets were met in 2019, 100% of the shares delivered to the CEO in settlement of the performance shares will not vest until November 8, 2023.

The stock options were granted with a strike price of 125% of FMV (third tranche) and 135% of FMV (fourth tranche). As premium priced stock options, these awards will provide value to the CEO only to the extent that the strike price is exceeded by the Company's share price on the date of exercise. The stock options vest and are fully exercisable on November 8, 2023. The term of both stock options ends on May 8, 2024.

The number of units for all tranches of these awards were determined by an outside advisor hired to run a Monte Carlo simulation.

As discussed above, these awards act as dollar for dollar offset against future equity awards. The chart below shows the amounts that will be deducted from the CEO's annual awards each year:

CEO - Annual Grant Value Offset					
Attribution Years	2015		2018		Total Offset to Annual Award
	Performance Award Value		Performance Award Value		
(\$ in thousands)					
Each Year 2015 – 2017	\$	1,600	\$	—	\$ 1,600
2018	\$	1,600	\$	367	\$ 1,967
2019	\$	1,600	\$	2,200	\$ 3,800

### **President and COO Award**

In connection with Mr. Concannon's hire as President and Chief Operating Officer in January 2019, he was granted a special award of \$11.75 million in equity (i) to replace the 2018 year-end equity compensation he forfeited from his prior employer in order to commence employment with the Company, (ii) to replace the unvested deferred compensation he forfeited from his prior employer, and (iii) as a sign-on award with the Company (the "President's Award").

The equity was structured as follows and awarded for the following reasons:

Award Type	Value	Vesting	Multi-Year Attribution	Rationale
Restricted Stock Units	\$5 million	3 equal installments on the first three anniversaries of the grant date	N/A	Off-set unvested, forfeited equity compensation from previous employer
Restricted Stock Units	\$1 million	Cliff vesting on the third anniversary from the grant date	N/A	In lieu of 2018 cash bonus payment from previous employer, in combination with a one-time 2019 special year-end cash incentive payment
Performance Equity	\$5 million	Cliff vesting on the fifth anniversary from the grant date	Reduces future annual equity awards due to President by \$1 million for each of compensation years 2019 through 2023	Off-set unvested, forfeited equity compensation from previous employer
Performance Equity	\$.75 million	Cliff vesting on the fifth anniversary from the grant date	N/A	In lieu of 2018 cash bonus payment from previous employer, in combination with a one-time 2019 special year-end cash incentive payment

As shown in the table above, \$5 million of the grant value is spread over a 5-year attribution period, thereby reducing the annual incentive to which the President may otherwise be entitled by \$1 million each year.

The performance portion of the President's Award was structured similarly to the CEO's 2018 Performance Award. The President's Award consisted of a grant of: (i) stock options with a grant date value of \$2.875 million as determined by an independent third party, and (ii) performance shares with a grant date value of \$2.875 million as determined by an independent third party. The performance of the President's Award is contingent both upon the Company meeting certain stock price thresholds, as well as tenure requirements specific to the President.

The fair market value on the date of grant of the President's Award was the closing price of the Company's Common Stock of \$218.30 ("PA FMV"). In order for the President to satisfy the stock price thresholds, the Company had to achieve an average price per share of common stock at 125% of PA FMV for the first tranche and 135% of PA FMV for the second tranche, calculated over twenty consecutive trading days (rounded to the nearest cent), during the performance period. Although the performance period ran from January 22, 2019 through January 22, 2024, the performance targets for the two tranches were met on or before June 10, 2019. Notwithstanding that the performance targets were met in 2019, 100% of the shares delivered to the President in settlement of the performance shares will not vest until January 22, 2024.

2019 Multi-Year Performance Award Structure					
	Value (\$ in thousands)	Tranche	Target	Target Share Price or Strike Price (in \$)	Number of Units
Performance Shares	1,437.5	1	125% of PA FMV	272.88	8,969
Performance Shares	1,437.5	2	135% of PA FMV	294.71	9,945
Stock Options	1,437.5	3	125% of PA FMV	272.88	35,679
Stock Options	1,437.5	4	135% of PA FMV	294.71	41,189

The stock options were granted with a strike price of 125% of PA FMV (third tranche) and 135% of PA FMV (fourth tranche). As premium priced stock options, these awards will provide value to the President only to the extent that the strike price is exceeded by the Company's share price on the date of exercise. The stock options vest and are fully exercisable on January 22, 2024. The term of both stock options ends on July 22, 2024.

## Other NEO Special Multi-Year Awards

On January 22, 2016, our CFO, Head of Sales, and CIO were granted multi-year awards valued at \$1.8 million, \$2.5 million and \$3.0 million, respectively, as of that date ("*NEO Multi-Year Awards*"). The NEO Multi-Year Awards were comprised of three components as follows:

- 40% of the award value was granted in the form of performance shares,
- 30% of the value was granted in the form of time-based RSUs, and
- 30% of the value was granted in at-the-money stock options, as shown below.

The NEO Multi-Year Awards were granted to provide additional performance incentives and promote the retention of these key executives. The performance element was designed to ensure that the NEO's interests are aligned with those of our stockholders, while the time-vested RSUs provide retention value. In contrast to our annual grants, which generally vest in 3 equal annual installments, 50% of the NEO Multi-Year Awards vested on January 31, 2020 and 50% is scheduled to vest on January 31, 2021, the 5<sup>th</sup> anniversary of the grant date.

## COMPENSATION DISCUSSION AND ANALYSIS

The total and annualized value, as well as the number of units received are summarized below:

Value of the NEO Multi-year Awards and Units Granted						
	Total Grant Value (\$ in thousands)	Annual Grant Value (Performance Years 2015 - 2019) (\$ in thousands)	Total Units Granted			Total Units Earned as of Year-End 2020 Performance Shares
			Performance Shares	RSUs	Stock Options	
Antonio L. DeLise, CFO	1,800	360	6,933	5,200	16,120	7,382
Kevin McPherson, Head of Sales	3,000	600	9,629	7,222	22,388	10,253
Nicholas Themelis, CIO	2,500	500	11,555	8,666	26,865	12,304

The exercise price of the stock options received by our CFO, Head of Sales, and CIO is \$103.30, the closing price of the Company's Common Stock on the date of award.

The performance shares are earned based on achieving aggregate operating income targets (as measured under GAAP) over three-year and four-year measurement periods ending December 31, 2018 and December 31, 2019. To achieve 100% of the target shares, certain aggregate operating income targets within a target range must be met. The level of performance and the corresponding level of payment are as follows:

Level	Aggregate Operating Income		Payout Percent
	Three-Year Cumulative (\$ in millions)	Four-Year Cumulative (\$ in millions)	
Threshold	527.9	740.2	50%
<b>Target Range – Low</b>	<b>589.6</b>	<b>852.2</b>	<b>100%</b>
<b>Target Range – High</b>	<b>611.2</b>	<b>892.4</b>	<b>100%</b>
<b>Actual Performance through Dec 31, 2019</b>	<b>619.9</b>		<b>106.48%</b>
Outperform	644.6	955.4	125%
Maximum	691.0	1,045.0	150%

Based on the four-year measurement period results, the payout percent increased to 106.48% (up from 106.1% at the end of the three-year measurement period), and the performance shares settled as follows after the conclusion of the 2019 performance year:

	Original Shares	Adjusted Shares at Year-End 2020
Antonio L. DeLise, CFO	6,933	7,382
Kevin McPherson, Head of Sales	9,629	10,253
Nicholas Themelis, CIO	11,555	12,304

The NEO Multi-Year Awards cover a five-year period. Accordingly, one-fifth of the grant date value of the NEO Multi-Year Award was attributed to our CFO's, Head of Sales', and CIO's compensation for performance years 2015 through 2019 and their annual incentive awards were reduced by the same amount

**Total Direct Compensation (TDC)**

Our compensation decisions for year-end 2019 were a balance between the Company's record financial results for the 11th consecutive year and its performance in light of its peers, individual performance, market data, and the impact and value of any long-term retention incentives previously awarded to each NEO. A summary of each NEO's 2019 TDC and relevant market data considered by the Compensation Committee can be found below:

2019 Compensation Decisions and Market Data						
	Base Salary		Cash Incentive / Bonus	Total Cash		
	Actual	Market Positioning	Actual	Actual	Market Positioning	
	(\$ in thousands)		(\$ in thousands)	(\$ in thousands)		
Richard M. McVey, CEO	500	At 25th	—	500	Below 25th	
Christopher R. Concannon, President	500	Above Median	1,500	2,000	At 75th	
Antonio L. DeLise, CFO	300	Below 25th	875	1,175	At 75th	
Kevin McPherson, Head of Sales	300	Below 25th	1,100	1,400	Above 75th	
Nicholas Themelis, CIO	300	Below 25th	1,200	1,500	Above 75th	

	Annual Equity Value Granted (1)	Residual Multi-Year Value (2)	TDC 2019	Market Positioning	TDC 2018	TDC Change 2019 vs. 2018
	(\$ in thousands)	(\$ in thousands)	(\$ in thousands)		(\$ in thousands)	
Richard M. McVey, CEO	3,450	3,800	7,750	Above Median	7,100	9%
Christopher R. Concannon, President	2,250	1,000	5,250	Above Median	—	—
Antonio L. DeLise, CFO	550	360	2,085	Above Median	1,900	10%
Kevin McPherson, Head of Sales	600	500	2,500	Above Median	2,250	11%
Nicholas Themelis, CIO	700	600	2,800	Above Median	2,500	12%

(1) Represents an annual equity award granted on January 15, 2020 for 2019 performance

(2) See discussion regarding special multi-year awards above

**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, our CEO is required to own not less than a number of shares of Common Stock equal in value to ten times his base salary using a price of \$340.67 per share, which was the average of the daily closing price of our Common Stock for the twelve-month period ending March 31, 2020. At his current base salary of \$500,000, our CEO's required ownership level is not less than 14,677 shares. Additionally, effective April 2016, for the remainder of the time our CEO holds this title and for the twelve months thereafter, 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 restricted stock units, 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

Except for the President, the Company's other NEOs are required to own not less than three times their base salary as in effect on such date. The President is required to own not less than five times his base salary. At their current base salaries, the President's required ownership is not less than 7,338 shares and the CFO's, Head of Sales', and CIO's required ownership is not less than 2,642 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		
	Requirement	Current Holdings
Richard M. McVey, CEO	10x	648x
Christopher R. Concannon, President	5x	31x
Antonio L. DeLise, CFO	3x	41x
Kevin McPherson, Sales	3x	90x
Nicholas Themelis, CIO	3x	44x

### ***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 31<sup>st</sup> of the respective performance year. The clawback provisions apply to all cash and equity incentive awards for our NEOs. In addition, the CEO's and President's employment agreements provide the Company with the right to recapture all compensation paid, whether in the form of cash, Common Stock or any other form of property, to the extent required by the Dodd-Frank Act and the Remuneration Code published by the U.K. Financial Conduct Authority.

### ***Prohibition of Employee and Director Hedging and Pledging***

The Company's anti-hedging and pledging policy applies to all Company "insiders" including directors, employees (including officers), consultants, representatives or independent contractors or other persons in a special relationship with the Company who know material nonpublic information about the Company, and certain persons related to such insiders. The policy prohibits these individuals 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 insiders 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.

### **Other Benefits**

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, 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 2019. 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.

### **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 the CEO and President that provide for severance payments and benefits in the event of the termination of their employment under certain circumstances. In addition, the terms of our annual equity grant award agreements with the CEO and President include accelerated vesting of their equity awards in the event of termination of their employment under certain circumstances or upon a change in control of the Company.

While the CEO's and President's employment agreements 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 agreement does provide 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 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.

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 the MarketAxess Severance Pay Plan (as amended effective November 21, 2016).

See below under *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 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 share-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. 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.

## COMPENSATION DISCUSSION AND ANALYSIS

Code Section 162(m) of the Internal Revenue Code of 1986, as amended (“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. named executive officers 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 COMMITTEE OF THE BOARD OF DIRECTORS

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 Committee of the  
Board of Directors:

Steven L. Begleiter — Chair  
Nancy Altobello  
Richard L. Prager  
John Steinhardt

# EXECUTIVE COMPENSATION

## Summary compensation table

The following table sets forth all compensation received during fiscal years 2017, 2018 and 2019 by our (i) Chief Executive Officer, (ii) President and Chief Operating Officer, (iii) Chief Financial Officer, (iv) Global Head of Sales and (v) Chief Information Officer. These executives are referred to as our "named executive officers" or "NEOs" elsewhere in this Proxy Statement.

2019 Summary Compensation Table								
Name and Principal Position	Year	Salary(\$)(1)	Bonus (\$)(2)	Stock	Option	Non- Equity	All Other	Total (\$)
				Awards (\$)(3)(4)	Awards (\$)(3)(4)	Incentive Plan Compensation (\$)(5)	Compensation (\$)(6)	
<b>Richard M. McVey</b> <i>Chief Executive Officer</i>	2019	500,000	—	2,715,708	—	—	7,000	3,222,708
	2018	500,000	1,890,000	7,590,245	6,399,840	—	7,000	16,625,183
	2017	500,000	—	2,266,198	982,681	1,890,000	7,000	5,862,636
<b>Christopher Concannon</b> <i>President and Chief Operating Officer</i>	2019	473,717	1,500,000	8,986,309	2,875,003	—	7,000	13,842,029
<b>Antonio L. DeLise</b> <i>Chief Financial Officer</i>	2019	300,000	875,000	386,473	—	—	7,000	1,568,473
	2018	300,000	850,000	337,809	—	—	7,000	1,507,328
	2017	300,000	800,000	232,218	113,080	800,000	7,000	1,471,371
<b>Kevin McPherson</b> <i>Global Head of Sales</i>	2019	300,000	1,100,000	346,942	—	—	7,000	1,753,942
	2018	300,000	1,100,000	347,762	—	—	7,000	1,769,824
	2017	300,000	—	152,009	—	1,175,000	7,000	1,667,737
<b>Nicholas Themelis</b> <i>Chief Information Officer</i>	2019	300,000	1,200,000	411,128	—	—	7,000	1,918,128
	2018	300,000	1,175,000	472,087	—	—	7,000	1,976,325
	2017	300,000	—	354,025	153,525	1,250,000	7,000	2,103,621

- (1) Mr. Concannon's salary represented a partial year of service for 2019.
- (2) For performance years 2019 and 2018, represents amounts earned under the Annual Cash Incentive Plan. Prior to the elimination of Section 162(m), the NEOs were paid under separate incentive plans. As explained in the CD&A and as determined by the Compensation Committee, Mr. McVey received additional equity in lieu of a cash incentive for performance year 2019 which is reflected in the Stock Awards column.
- (3) The amounts represent the aggregate grant date fair value of stock and option awards granted by the Company in 2017, 2018 and 2019, 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 10 to the consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on February 18, 2020. 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 named executive officers. The amounts reported for stock awards in 2017, 2018 and 2019 include performance shares. For 2019, the reported fair value of the performance shares is \$1,079,912, \$115,071, \$103,376 and \$125,513 for Messrs. McVey, DeLise, McPherson, and Themelis, respectively. The fair value of the performance shares is reported based on achievement of 100% of the target performance goals, which represents the probable outcome of the performance goals. If the Company achieves the maximum performance goals, then the fair value of the performance shares granted in 2019 would be \$1,619,867, \$172,606, \$155,064, and \$188,269 for Messrs. McVey, DeLise, McPherson, and Themelis, respectively.
- (4) In November 2018, in connection with an extension of his employment agreement, Mr. McVey was awarded an equity grant that consists of performance shares and performance-based stock options with an aggregate fair value of \$11,000,000. The performance criteria for this award was met, in full, in 2019. The award remains subject to time-based vesting conditions and will vest in full in November 2023. In January 2019, Mr. Concannon was awarded a hire-on equity grant that consists of performance shares and performance-based stock options with an aggregate fair value of \$5,750,000. The performance criteria for this award was met, in full, in 2019. The award remains subject to time-based vesting conditions and will vest in full in January 2024.
- (5) These amounts represent amounts earned prior to 2019 under the Company's incentive plan that was compliant with Rule 162(m) with respect to Messrs. McVey, McPherson and Themelis. This plan was discontinued with the passage of the Tax Cuts and Jobs Acts of 2017.
- (6) These amounts represent employer matching contributions to the Company's 401(k) defined contribution plan of \$7,000 to each NEO for each year reported.

## Grants of plan-based awards

The following table summarizes the grants of performance shares, performance awards, restricted stock units and stock options we made to the named executive officers in 2019, 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.

2019 Grants of Plan-Based Awards Table									
Name	Approval Date	Grant Date	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 (\$ / Sh)	Grant Date Fair Value of Stock and Option Awards (\$ (1))
			Threshold (#)	Target (#)	Maximum (#)	(#)	(#)		
Richard M. McVey	1/14/2019	1/15/2019	—	—	—	7,757	—	—	1,635,796
	1/14/2019	1/15/2019(2)	2,586	5,171	7,757	—	—	—	1,079,912
Christopher R. Concannon	1/4/2019	1/22/2019(3)	—	—	—	8,969	—	—	1,437,500
	1/4/2019	1/22/2019(3)	—	—	—	9,945	—	—	1,437,500
	1/4/2019	1/22/2019(4)	—	—	—	23,329	—	—	5,092,721
	1/4/2019	1/22/2019(4)	—	—	—	4,666	—	—	1,018,588
	1/4/2019	1/22/2019(5)	—	—	—	—	35,679	273	1,437,500
	1/4/2019	1/22/2019(5)	—	—	—	—	41,189	295	1,437,500
Antonio L. DeLise	1/14/2019	1/15/2019	—	—	—	1,287	—	—	271,403
	1/14/2019	1/15/2019(2)	276	551	827	—	—	—	115,071
Kevin McPherson	1/14/2019	1/15/2019	—	—	—	1,155	—	—	243,566
	1/14/2019	1/15/2019(2)	248	495	743	—	—	—	103,376
Nicholas Themelis	1/14/2019	1/15/2019	—	—	—	1,402	—	—	285,615
	1/14/2019	1/15/2019(2)	301	601	902	—	—	—	125,513

- (1) The value of a restricted stock unit is based on the fair value of such award, computed in accordance with FASB ASC Topic 718. The value of a performance share is based on the 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 10 to the consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.
- (2) Reflects the number of performance shares that would vest based on the level of achievement by the Company of Performance Share Adjusted Operating Income targets for the 2019 calendar year performance period. For each performance share earned, a participant would be awarded an equal number of shares of restricted stock that would vest and cease to be restricted stock in equal 50% installments on each of the second and third anniversaries of the date of grant of the applicable performance share, subject to the participant's continued service. For 2019, the pay-out achievement of the performance shares was 138% of target for all NEOs.
- (3) On January 22, 2019, Mr. Concannon received a performance share award. The fair market value ("FMV") on the date of grant was the closing price of the Company's Common Stock of \$238.97. To earn the Performance Shares, the Company must achieve an average price per share of common stock at 125% of FMV for the first tranche of 8,969 shares and 135% of FMV for the second tranche of 9,945 shares, calculated over twenty consecutive trading days (rounded to the nearest cent), during the performance period, which runs from January 22, 2019 through January 22, 2024. The performance was achieved in 2019. The award will vest in January 2024.
- (4) On January 22, 2019, Mr. Concannon received 23,329 restricted stock units that vest in three annual installments on the first three anniversaries of the grant date, subject to Mr. Concannon's continued employment with the Company through each vesting date, and 4,666 restricted stock units which will vest on the third anniversary of the grant date, subject Mr. Concannon's continued employment with the Company through such vesting date
- (5) On January 22, 2019, Mr. Concannon received performance-based stock options. The Stock Options were granted with a strike price of 125% of FMV and 135% of FMV. As premium priced stock options, these awards provide value to Mr. Concannon only to the extent that the strike price is exceeded by the Company's share price on the date of exercise. The Stock Options vest and are fully exercisable on January 22, 2024. The term of both Stock Options expires on July 22, 2024.

## Outstanding equity awards at fiscal year-end

The following table summarizes unexercised stock options, shares of restricted stock and restricted stock units that had not vested, and related information for each of our named executive officers, as of December 31, 2019. The market value of restricted stock awards and restricted stock units is based on the closing price of the Company's Common Stock on December 31, 2019 of \$379.11.

Outstanding Equity Awards - Year End 2019									
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	26,779		21.56	1/19/2021					
	77,639		88.25	7/15/2020					
	27,020		101.77	1/15/2022					
	16,425		156.85	1/15/2023					
	5,452		203.72	1/15/2024					
		40,076	88.25	7/15/2020					
		8,090	156.85	1/15/2023					
		10,585	203.72	1/15/2024					
		69,113	257.78	5/8/2024					
		79,411	278.40	5/8/2024					
					(3)	58,329	22,113,107		
				(4)	2,589	981,516			
				(4)	2,054	778,692			
				(5)	5,891	2,233,337			
				(5)	2,916	1,105,485			
				(6)	37,742	14,308,370			
				(8)	7,757	2,940,756			
				(9)			7,142		
							2,707,604		
Christopher R. Concannon		35,679	272.88	7/22/2024					
		41,189	294.71	7/22/2024					
					(10)	27,995	10,613,184		
					(11)	18,914	7,170,487		
Antonio L. DeLise	1,890		156.85	1/15/2023					
		16,120	103.30	1/22/2022					
		931	156.85	1/15/2023					
					(4)	241	91,366		
					(4)	237	89,849		
					(5)	582	220,642		
					(5)	714	270,685		
					(5)	5,200	1,971,372		
					(7)	7,382	2,798,590		
					(8)	1,287	487,915		
				(9)			761		
							288,503		
Kevin McPherson		22,388	103.30	1/22/2022					
					(4)	106	40,186		
					(4)	209	79,234		
					(5)	599	227,087		
					(5)	735	278,646		
					(5)	7,222	2,737,932		
					(7)	10,253	3,887,015		
					(8)	1,155	437,872		
					(9)			684	
							259,311		
Nicholas Themelis	2,566		156.85	1/15/2023					
		26,865	103.30	1/22/2022					
		1,264	156.85	1/15/2023					
					(4)	405	153,540		
					(4)	321	121,694		
					(5)	930	352,572		
					(5)	921	349,160		
					(5)	8,666	3,285,367		
					(7)	12,304	4,664,569		
					(8)	1,402	531,512		
				(9)			830		
							314,661		

(1) 40,076 stock options granted to Mr. McVey vested on January 15, 2020 and 8,090 stock options vested on January 31, 2020. Of the 10,585 stock options granted to Mr. McVey, 50% vested on January 31, 2020 and the remainder will vest on January 31, 2021. 69,113 and 79,411 stock options granted to Mr. McVey will vest in full on November 8, 2023. 5,679 and 41,189 stock options granted to Mr. Concannon will vest in full on January 22, 2024. 16,120 stock options for Mr. DeLise, 22,388 options for Mr. McPherson, and 26,865 stock options for Mr. Themelis vested 50% on January 31, 2020, with the remainder vesting on January 31, 2021. 8,090 stock options for Mr. McVey, 931 stock options for Mr. DeLise

and 1,264 stock options for Mr. Themelis vested on January 31, 2020. The stock options will also vest and become exercisable in the event of certain terminations of their employment. See *Executive Compensation — Potential termination or change in control payments and benefits* for additional information.

- (2) Each share of restricted stock and each restricted stock unit 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 employment through the vesting date, except that shares of restricted stock and restricted stock units will vest in the event of certain terminations of employment and, in certain circumstances, may vest upon a change in control. See *Executive Compensation — Potential termination or change in control payments and benefits* for additional information.
- (3) The shares vested on January 15, 2020.
- (4) These restricted shares and restricted stock units fully vested on January 31, 2020.
- (5) 50% vested on January 31, 2020 and the remainder will vest on January 31, 2021.
- (6) 37,742 shares for Mr. McVey outstanding as of December 31, 2019 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 vest in full on November 8, 2023.
- (7) 7,382 shares for Mr. DeLise, 10,253 shares for Mr. McPherson and 12,304 shares for Mr. Themelis outstanding as of December 31, 2019 represent 106.48% of their target unearned performance shares awarded on January 22, 2016 that settled in January 2019. 50% of the settled shares vested on January 31, 2020 and the remainder will vest on January 31, 2021.
- (8) For Mr. McVey, 2,637 RSUs vested on February 15, 2020 and 50% of the remainder will vest on each of January 31, 2021 and 2022. For Mr. DeLise, 437 RSUs vested on January 31, 2020 and 50% of the remainder will vest on each of January 31, 2021 and 2022. For Mr. McPherson, 392 RSUs vested on January 31, 2020 and 50% of the remainder will vest on each of January 31, 2021 and 2022. For Mr. Themelis, 476 RSUs vested on January 31, 2020 and 50% of the remainder will vest on each of January 31, 2021 and 2022.
- (9) The 7,142 shares for Mr. McVey, 761 shares for Mr. DeLise, 684 shares for Mr. McPherson and 830 shares for Mr. Themelis outstanding as of December 31, 2019 represent 138% of the target performance shares awarded on January 15, 2019 and reflect earned share amounts that settled in January 2020. The settled share amount will vest in two equal installments each on January 31, 2021 and 2022.
- (10) 7,931 shares for Mr. Concannon vested on January 22, 2020. 7,699 shares will vest on January 22, 2021 and 7,699 shares plus an additional award of 4,666 shares will vest on January 22, 2022.
- (11) 18,914 shares for Mr. Concannon outstanding as of December 31, 2019 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 vest in full on January 22, 2024.

## 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 named executive officers on an aggregated basis during 2019.

2019 Option Exercises and Stock Vesting				
Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise on Exercise	Value Realized on Exercise	Number of Shares Acquired on Vesting	Value Realized on Vesting
	(#)	(\$)(1)	(#)	(\$)(2)
Richard M. McVey	87,248	27,783,840	98,643	19,500,059
Christopher R. Concannon	—	—	—	—
Antonio L. DeLise	—	—	1,060	227,656
Kevin McPherson	—	—	693	148,836
Nicholas Themelis	—	—	2,924	627,987

(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.

## Nonqualified deferred compensation

All U.S.-based NEOs were eligible to elect to defer the settlement of the RSUs awarded in whole or in part (see *Long-term incentives — Annual and Special Equity-based Awards* above). The following table sets forth information with respect to vested RSUs held by Messrs. McVey and DeLise as of December 31, 2019, for which they have 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:

Name	Deferral Elections			
	Award / Deferral Date	Amount Deferred (#)	Re-deferral Date	Deferral Period (Years)
Richard M. McVey	1/14/2011	67,961	12/01/2015	10
	1/19/2011	119,565	12/01/2015	10
	1/13/2012	48,616	N/A (1)	5
	1/15/2013	44,882	N/A (1)	7
	1/15/2014	26,067	11/18/2019	separation of service
	1/15/2015	25,084	N/A (1)	5
	1/15/2016	9,033	—	5
	1/15/2017	6,222	—	separation of service
	1/15/2018	4,418	—	3
	1/15/2019	7,757	—	separation of service
	1/15/2020	2,324	—	separation of service
Antonio L. DeLise	1/13/2012	16,260	10/18/2016	10
	1/15/2014	3,028	N/A (2)	5
	1/15/2015	2,763	N/A (2)	4

(1) Mr. McVey did not elect to re-defer his January 2012 RSU award. In each of February 2018 and January 2019, he took receipt of 16,205 shares underlying the previously deferred RSUs, and in January 2020, he took receipt of 16,206 underlying shares. Mr. McVey did not elect to re-defer his January 2013 and January 2015 RSU awards. He will begin to take receipt of the underlying shares in February 2021.

(2) Mr. DeLise did not elect to re-defer his January 15, 2014 and 2015 RSU awards. He began to take receipt of the shares underlying the RSUs in February 2020.

In addition, for Mr. DeLise, the table below includes \$656,250 of the cash bonus paid to Mr. DeLise for performance for 2019 that he voluntarily deferred under our non-qualified deferred cash plan.

2019 Non-qualified Deferred Compensation Table					
Name	Executive Contributions in Last Fiscal Year (\$)(1)(2)	Registrant Contributions in Last Fiscal Year (\$)	Aggregate Earnings in Last Fiscal Year (\$)(3)(4)	Aggregate Withdrawals / Distributions (\$)	Aggregate Balance at Last Fiscal Year-End (\$)(5)
Richard M. McVey	1,446,602	—	52,773,859	3,417,310	129,476,098
Antonio L. DeLise	656,250	—	4,479,719	—	14,621,213
Kevin McPherson	—	—	—	—	—
Nicholas Themelis	—	—	—	—	—

(1) For Mr. McVey, reflects the market value of the Common Stock underlying 5,034 RSUs that vested on January 31, 2019 and 1,502 RSUs that vested on February 15, 2019 based on the closing price of our Common Stock on such dates of \$214.77 and \$229.51, respectively. In addition, it includes the value of amounts accrued and unpaid under dividend equivalent rights in 2016 through 2018 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 2016 through 2018 and will be paid when the applicable RSU vests.

- (2) For Mr. DeLise, his 2019 contribution consist of \$656,250 that he elected to defer under the voluntary non-qualified deferred cash plan, which is a portion of the cash bonus of \$875,000 reported in the Summary Compensation Table for 2019
- (3) Aggregate Earnings with respect to vested and undelivered RSUs includes 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, 2019 of \$379.11 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 2019 that were unpaid as of December 31, 2019. Additionally, Aggregate Earnings include the difference in value of shares of Common Stock underlying the RSUs deferred by Mr. DeLise in 2012, 2014 and 2015 and by Mr. McVey in 2011, 2013, 2014, 2015, 2016, 2017, and 2018 at Fiscal Year End 2019 versus Fiscal Year End 2018, 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.
- (4) Earnings of \$541,863 were added to Mr. DeLise's Aggregate Earnings for 2019 representing the returns he incurred through the non-qualified deferred cash plan.
- (5) The vested and undelivered RSUs were previously reported in the "Stock Awards" column of the Summary Compensation Table for fiscal years 2016, 2017, and 2018, in accordance with SEC rules. 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 2019 to any Aggregate Earnings for Fiscal Year 2019 and the Aggregate Balance at Last Fiscal Year-End as previously reported for year-end 2018 (\$78,672,947 for McVey and \$9,485,244 for Mr. DeLise).

## Employment agreements and severance arrangements with our named executive officers

---

### **Richard M. McVey Employment Agreement**

Effective November 8, 2018, Mr. McVey and the Company entered into an amendment to his employment agreement (the "*CEO Employment Agreement*") providing 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 CEO Employment Agreement provides that Mr. McVey will be employed by us as Chief Executive Officer and Chairman of the Board of Directors, and his employment may be terminated by him or by the Company at any time. Mr. McVey's annual base salary under the CEO Employment Agreement is a minimum of \$500,000 per year.

Under the CEO Employment Agreement, Mr. McVey is 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 CEO Employment Agreement provides for severance payments and benefits (subject to Mr. McVey's execution of a waiver and general release) if Mr. McVey's employment is terminated under various conditions. See below under *Executive Compensation — 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 CEO Employment Agreement provides 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 will 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 CEO Employment Agreement further provides that any award gains and annual incentive awards received by Mr. McVey are subject to potential claw-back under policies adopted by the Company to comply with applicable law, rules or other regulatory requirements.

## EXECUTIVE COMPENSATION

For purposes of the CEO Employment Agreement, "Cause" generally means 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 CEO Employment Agreement, "Good Reason" generally means:

- 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.

For purposes of the CEO Employment Agreement, "Change in Control" generally means:

- 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.

### ***Christopher Concannon Employment Agreement***

On January 7, 2019, the Company entered into an employment letter agreement (the "*President Employment Agreement*") with Christopher Concannon, pursuant to which Mr. Concannon became the Company's President and Chief Operating Officer.

The President Employment Agreement provides that Mr. Concannon will 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 President Employment Agreement, Mr. Concannon's minimum annual base salary is \$500,000 per year and he is 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 of the Board in its sole discretion (provided that the annual cash incentive for the 2019 calendar year will be no less than \$1.5 million; and provided further, that the annual equity award for the 2019 calendar year, to be awarded in 2020, will be in an amount equal to no less than \$1.5 million as of the award date, subject to Mr. Concannon's continued employment on

the grant date). The President Employment Agreement also entitled Mr. Concannon to receive certain equity awards (i) to replace the 2018 year-end equity compensation he forfeited from his prior employer in order to commence employment with the Company, (ii) to replace the unvested deferred compensation he forfeited from his prior employer, and (iii) as a sign-on award with the Company, which were granted in January 2019.

The President Employment Agreement provides that Mr. Concannon's employment may be terminated by him or by the Company at any time. The President 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 *Executive Compensation — potential termination or change in control payments and benefits* for a description of such payments and benefits.

For purposes of the President Employment Agreement, the terms "Cause Event", "Change in Control", and "Good Reason" generally have the same meaning as defined in the CEO Employment Agreement, except that Good Reason refers to Mr. Concannon no longer holding the title of President.

The President Employment Agreement provides 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 will 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 President Employment Agreement further provides that any award gains and annual incentive awards received by Mr. Concannon will be subject to potential claw-back under policies adopted by the Company to comply with applicable law, rules or other regulatory requirements.

In connection with entering into the President Employment Agreement, Mr. Concannon also executed a Proprietary Information and Non-Competition Agreement and the Company's standard form of Indemnification Agreement.

### **Severance Pay Plan**

Messrs. DeLise, McPherson and Themelis do not have employment agreements with us but are entitled to severance payments and benefits under the Company's Severance Pay Plan (the "*Severance Plan*") in the event their employment is terminated by us for any reason other than a termination for Cause. Effective November 2016, we amended our Severance Plan to provide certain executives, excluding the CEO but including our CFO, Head of Sales and CIO ("*Participating Executives*"), with enhanced benefits for a qualifying termination. The amended provision provides the Participating Executives with 52 weeks of continued base salary and healthcare coverage. In addition, they will receive a severance payment equal to one time the average of the annual full-year cash bonuses received by each respective participant for the three prior years. In consideration of eligibility, the Participating Executives agreed to provide us with not less than three months' prior written notice in the event of a voluntary termination.

"Cause" is generally defined in the Severance Plan as (i) an employee's act or omission resulting or intended to result in personal gain at our expense; (ii) an employee's misconduct; (iii) performance of duties by an employee in a manner we deem to be materially unsatisfactory; (iv) "cause" (or words of like import) as defined in an agreement between us and the employee; or (v) an employee's improper disclosure of proprietary or confidential information or trade secrets, or intellectual property that we are under a duty to protect.

The Company does not provide tax reimbursement to executives in the event of a Change of Control.

### **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 the CEO, and President and six months thereafter for the CFO, Head of Sales and CIO, and (iii) certain non-solicitation

## EXECUTIVE COMPENSATION

provisions that restrict their recruiting, soliciting or hiring our non-clerical employees or consultants, or soliciting any person or entity to terminate, cease, reduce or diminish their relationship with us, during their employment and for two years thereafter.

### Potential termination or change in control payments and benefits

Messrs. McVey and Concannon are entitled to certain payments and benefits pursuant to their employment agreements and other agreements entered into between us and him upon a termination of his employment in certain circumstances or in the event of a change in control of the Company. Messrs. DeLise, McPherson, and Themelis do not have employment agreements with us but are entitled to severance payments and benefits under the Severance Plan and pursuant to certain equity grants.

The following tables estimate the payments we would be obligated to make to each of our NEOs as a result of his 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, 2019. We have calculated these estimated payments to meet SEC disclosure requirements. The estimated payments are not necessarily indicative of the actual amounts any of our NEOs would receive in such circumstances. The table excludes (i) compensation amounts accrued through December 31, 2019 that would be paid in the normal course of continued employment, 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 \$379.11, the closing price on December 31, 2019. In addition, where applicable, the amounts listed for bonuses reflect the average of the actual amounts paid to the NEOs in the year following each of the performance years 2016 through 2018, since the hypothetical termination or Change in Control date is the last day of the fiscal year.

Payments and Benefits for Richard M. McVey, CEO								
	Base Salary (1) (\$)	Cash Bonus (2) (\$)	Health Benefits (3) (\$)	Restricted Stock Acceleration (4) (\$)	Performance Share Acceleration (5) (\$)	Restricted Stock Unit Acceleration (6) (\$)	Stock Option Acceleration (7) (\$)	Total (8) (\$)
Termination Without Cause or for Good Reason Outside a Change in Control Protection Period ("CCPP")	1,000,000	3,920,000	33,746	19,818,165	—	—	14,933,126	39,705,037
Termination i) Without Cause, ii) for Good Reason, and iii) for RSUs only due to Death or by the Company due to Disability, during a CCPP, but prior to a Change in Control	1,000,000	3,920,000	33,746	38,028,903	2,707,604	—	18,587,713	64,277,966
Termination i) Without Cause, ii) for Good Reason, and iii) for RSUs only due to Death or by the Company due to Disability, upon or within 24 months following a Change in Control	1,000,000	3,920,000	33,746	39,636,330	2,707,604	1,884,177	18,587,713	67,769,570
Award is not continued, assumed or has no new rights substituted upon a Change in Control (no termination)	—	—	—	39,636,330	2,707,604	1,884,177	—	44,228,111
Termination for Cause or Without Good Reason	—	—	—	—	—	—	—	—
Death, or by the Company due to Disability, outside of CCPP	500,000	1,960,000	22,497	39,636,330	2,707,604	2,412,466	15,847,027	63,085,924

- (1) The CEO Employment Agreement provides that Mr. McVey will receive continued payment of his base salary for 24 months following termination if (i) his employment is terminated outside of a Change in Control Protection Period (as defined below) for any reason other than his death, his voluntary resignation without Good Reason (including due to his providing a notice of non-extension of the term of the

agreement at least 90 days prior to the end of the term (a "Non-Extension Notice"), due to our providing a Non-Extension Notice, or by us as a result of his having a disability or for Cause (an "Enhanced Non-Change in Control Termination"), or (ii) he 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 three months prior to a "change in control event" within the meaning of Section 409A of the Code, or within 18 months after a Change in Control as defined in the agreement (such period a "Change in Control Protection Period" or "CCPP" and any such termination a "Change in Control Termination").

The CEO Employment Agreement provides that Mr. McVey will receive continued payment of his base salary for 12 months following termination if his employment is terminated outside of a Change in Control Protection Period due to his death, due to our providing a Non-Extension Notice, or by us as a result of his having a disability (a "Standard Non-Change in Control Termination").

- (2) The CEO Employment Agreement provides that Mr. McVey will receive an amount equal to two times his average annual cash bonus for the three years prior to termination (payable in 24 equal monthly installments) in the event of an Enhanced Non-Change in Control Termination or a Change in Control Termination.

The CEO Employment Agreement provides that Mr. McVey will receive an amount equal to his average annual cash bonus for the three years prior to termination (payable in 12 equal monthly installments) in the event of a Standard Non-Change in Control Termination.

- (3) The CEO Employment Agreement provides that we will pay the cost of continuation health coverage for up to 18 months (the maximum currently allowed under COBRA) following an Enhanced Non-Change in Control Termination or a Change in Control Termination. and 12 months following a Standard Non-Change in Control Termination. In both cases, the payments may be made through COBRA.
- (4) Pursuant to the annual Performance Share Agreements between us and Mr. McVey dated January 15, 2017 and January 2018 and the special award dated January 15, 2015:
- all unvested shares of restricted stock granted to Mr. McVey upon settlement of his performance shares (the "McVey Settlement Shares") will fully vest upon his death or disability
  - in the event of a termination of employment without Cause or for Good Reason, 50% of the unvested McVey Settlement Shares will fully vest; and
  - in the event of a Change in Control within three months following Mr. McVey's resignation for Good Reason, a termination without Cause within 24 months following a Change in Control, or if prior to a Change in Control it is determined that the McVey Settlement Shares will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans, all unvested McVey Settlement Shares will fully.
- (5) Pursuant to the CEO Annual Award between us and Mr. McVey dated January 15, 2019:
- in the event of termination of employment due to death or disability prior to the settlement dates (which occurred in the first fiscal quarter of 2020) (the "Settlement Dates"), under the CEO Annual Award, he would have been entitled to receive 50% of the shares of restricted stock that he would have received had he been employed on the Settlement Date, based on the actual achievement of the performance goal, which shares would have been fully vested on the Settlement; and
  - the Compensation Committee has discretion to determine the treatment of the performance shares upon a Change in Control occurring prior to the Settlement Date based on the likely level of achievement of the performance goal on the Settlement Date. For the purposes of the table above, we have assumed that the Compensation Committee would have granted Mr. McVey the number of shares of restricted stock that would have become fully vested upon a Change in Control based on actual performance.

Pursuant to the Performance Share Agreement between us and Mr. McVey dated November 8, 2018 that settled in 2019:

- all unvested shares granted to Mr. McVey upon settlement of his performance shares will fully vest upon his death or disability if such event occurs within 12 months prior to achieving the target performance level;
  - in the event of a termination of employment without Cause or for Good Reason other than during a Change in Control period, 50% of the unvested Settlement Shares will vest if such an event occurs within 12 months prior to achieving the target performance level; and
  - in the event of a termination of employment without Cause or for Good Reason during a Change in Control period or if the shares are not continued, assumed or new rights are not given, all unvested Settlement Shares will fully vest.
- (6) If, prior to a Change in Control, the Compensation Committee determines that the restricted stock units granted to Mr. McVey under the Restricted Stock Unit Agreements between us and him dated January 15, 2017 and January 15, 2018 will not be continued, assumed or have new rights substituted therefore, all unvested restricted stock units will fully vest upon the Change in Control. If such awards do not vest upon a Change in Control, then in the event of a termination of employment without Cause upon or within 24 months of a Change in Control, 100% of the restricted stock units granted to Mr. McVey will vest. 50% of the unvested shares of restricted stock units will vest upon his death or disability.
- (7) Pursuant to the Stock Option Agreements between us and Mr. McVey dated January 15, 2017 and 2018:
- in the event of termination of employment due to death or disability, 50% of the unvested portion of the option will become fully vested and exercisable;
  - in the event of termination of employment other than voluntary termination or termination for cause, the unvested portions of the options will become fully vested and exercisable.

Pursuant to the Stock Option Agreements between us and Mr. McVey dated November 8, 2018;

- 29,705 options will become fully vested and exercisable in the event of a termination without cause or for good reason;
- in the event of death or disability, 50% of the unvested portion of the option will become fully vested and exercisable.

## EXECUTIVE COMPENSATION

Payments and Benefits for Christopher R. Concannon, President & COO								
	Base Salary (1) (\$)	Cash Bonus (2) (\$)	Health Benefits (3) (\$)	Restricted Stock Acceleration (4) (\$)	Performance Share Acceleration (5) (\$)	Restricted Stock Unit Acceleration (6) (\$)	Stock Option Acceleration (7) (\$)	Total (8) (\$)
Termination Without Cause or for Good Reason Outside a Change in Control Protection Period ("CCPP")	1,000,000	4,500,000	33,746	3,585,243	—	10,613,184	7,266,532	26,998,705
Termination i) Without Cause, ii) for Good Reason, and iii) for RSUs only due to Death or by the Company due to Disability, upon or within 24 months following a Change in Control	1,000,000	4,500,000	33,746	7,170,487	—	10,613,184	7,266,532	30,583,949
Award is not continued, assumed or has no new rights substituted upon a Change in Control (no termination)	—	—	—	7,170,487	—	10,613,184	—	17,783,671
Termination for Cause or Without Good Reason	—	—	—	—	—	—	—	—
Death, or by the Company due to Disability, outside of CCPP	500,000	3,000,000	22,497	7,170,487	—	10,613,184	3,633,266	24,939,434

- (1) The President Employment Agreement provides that Mr. Concannon will receive continued payment of his base salary for 24 months following termination if (i) his employment is terminated outside of a Change in Control Protection Period (as defined below) for any reason other than his death, his voluntary resignation without Good Reason (including due to his providing a notice of non-extension of the term of the agreement at least 90 days prior to the end of the term (a "Non-Extension Notice")), due to our providing a Non-Extension Notice, or by us as a result of his having a disability or for Cause (an "Enhanced Non-Change in Control Termination"), or (ii) he 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 three months prior to a "change in control event" within the meaning of Section 409A of the Code, or within 18 months after a Change in Control as defined in the agreement (such period a "Change in Control Protection Period" or "CCPP" and any such termination a "Change in Control Termination").

The President Employment Agreement provides that Mr. Concannon will receive continued payment of his base salary for 12 months following termination if his employment is terminated outside of a Change in Control Protection Period due to his death, due to our providing a Non-Extension Notice, or by us as a result of his having a disability (a "Standard Non-Change in Control Termination").

- (2) The President Employment Agreement provides that Mr. Concannon will receive an amount equal to two times his average annual cash bonus for the three years prior to termination (payable in 24 equal monthly installments) in the event of an Enhanced Non-Change in Control Termination or a Change in Control Termination. In the event he has earned less than three years of annual cash bonuses, either a target cash bonus incentive will be used or the average of the bonuses already paid.

The President Employment Agreement provides that Mr. Concannon will receive an amount equal to his average annual cash bonus for the three years prior to termination (payable in 12 equal monthly installments) in the event of a Standard Non-Change in Control Termination.

- (3) The President Employment Agreement provides that we will pay the cost of continuation health coverage for up to 18 months (the maximum currently allowed under COBRA) following an Enhanced Non-Change in Control Termination or a Change in Control Termination. and 12 months following a Standard Non-Change in Control Termination. In both cases, the payments may be made through COBRA.
- (4) Pursuant to the annual Performance Share Agreement between us and Mr. Concannon dated January 22, 2019:
- all unvested shares of restricted stock granted to Mr. Concannon upon settlement of his performance shares (the "Concannon Settlement Shares") will fully vest upon his death or disability
  - in the event of a termination of employment without Cause or for Good Reason, 50% of the unvested Concannon Settlement Shares will fully vest; and
  - in the event of a Change in Control within three months following Mr. Concannon's resignation for Good Reason, a termination without Cause within 24 months following a Change in Control, or if prior to a Change in Control it is determined that the Concannon Settlement Shares will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans, all unvested Concannon Settlement Shares will fully.
- (5) All performance shares granted to Mr. Concannon settled prior to December 31, 2019.
- (6) If, prior to a Change in Control, the Compensation Committee determines that the restricted stock units granted to Mr. Concannon under the Restricted Stock Unit Agreements between us and him dated January 22, 2019 will not be continued, assumed or have new rights substituted therefore, all unvested restricted stock units will fully vest upon the Change in Control. If such awards do not vest upon a Change in Control, then in the event of a termination of employment without Cause upon or within 24 months of a Change in Control, 100% of the restricted stock units granted to Mr. Concannon will vest. 50% of the unvested shares of restricted stock units will vest upon his death or disability.

- (7) Pursuant the Stock Option Agreements between us and Mr. Concannon dated January 22, 2019, all options will become fully vested and exercisable in the event of a termination without cause or for good reason, and in the event of death or disability, 50% of the unvested portion of the option will become fully vested and exercisable.

Payments and Benefits for Antonio L. DeLise, CFO									
	Base Salary	Cash Bonus	Health Benefits	Restricted Stock Acceleration	Performance Share Acceleration	Restricted Stock Unit Acceleration	Stock Option Acceleration		Total (\$)
	(1) (\$)	(2) (\$)	(3) (\$)	(4) (\$)	(5)(6) (\$)	(7) (\$)	(8) (\$)		
Termination Without Cause	300,000	850,000	22,497	1,399,295	—	492,843	4,446,057		7,510,692
Termination Without Cause within 24 months following a Change in Control	300,000	850,000	22,497	3,110,598	288,503	1,834,134	4,652,981		11,058,713
Award is not continued, assumed or has no new rights substituted upon a Change in Control	—	—	—	3,110,598	288,503	1,834,134	4,652,981		9,886,216
Termination for Cause or Without Good Reason	—	—	—	—	—	—	—		—
Death/Disability	150,000	425,000	11,249	2,954,594	144,251	1,409,910	2,326,491		7,421,495

- (1) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. DeLise is entitled to 52 weeks of continued base salary upon a termination of his employment without Cause and 26 weeks of continued base salary in the event of death or disability.
- (2) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. DeLise is entitled to an amount equal to one times his average annual cash bonus for the three years prior to termination (payable as soon as practical) in the event of a termination of his employment Without Cause and 0.5 times his average annual cash bonus for the three years prior to termination in the event of death or disability.
- (3) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. DeLise is entitled to 52 weeks of continued healthcare coverage upon a termination of his employment without Cause.
- (4) Pursuant to the Performance Share Agreements between us and Mr. DeLise dated January 15, 2017 and January 15, 2018:
- 50% of the unvested shares of restricted stock granted to Mr. DeLise upon settlement of his performance shares (the "DeLise Settlement Shares") will fully vest upon his death or disability; and
  - in the event of a termination without Cause within 24 months following a Change in Control, or if prior to a Change in Control it is determined that the DeLise Settlement Shares will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans, all unvested DeLise Settlement Shares will fully vest. The table above assumes that the DeLise Settlement Shares would have become fully vested upon a Change in Control.
- (5) Pursuant to the Performance Award Agreement between us and Mr. DeLise dated January 15, 2019, in the event of termination of employment due to death or disability prior to the settlement date (which occurred in the first fiscal quarter of 2020) (the "Settlement Date"), then, on the Settlement Date, he would have been entitled to receive 50% of the shares of restricted stock that he would have actually received had he been employed on the Settlement Date. In addition, in the event of a Change in Control occurring prior to the Settlement Date, the Compensation Committee had discretion to determine the treatment of the performance shares based on the likely level of achievement of the performance goal on the Settlement Date. For the purposes of the table above, we have assumed that the Compensation Committee would have granted Mr. DeLise the actual number of shares of restricted stock that would have become fully vested upon a Change in Control based on actual performance.
- (6) If prior to a Change in Control, the Compensation Committee determines that the performance shares granted to Mr. DeLise under the Performance Award Agreement dated January 22, 2016 will not be continued, assumed or have new rights substituted therefore, all unvested shares will fully vest upon the Change in Control. If such awards do not vest upon a Change in Control, then in the event of a termination of employment without Cause upon or within 24 months of a Change in Control, all unvested shares will fully vest. In the event of a termination without cause, 50% of the award will vest. In the event of termination of employment due to death or disability, all unvested shares will vest. For purposes of the table above, we have assumed that the Compensation Committee granted Mr. DeLise the settled amount of shares of restricted stock.
- (7) If prior to a Change in Control, the Compensation Committee determines that the restricted stock units granted to Mr. DeLise under the Restricted Stock Unit Agreements between us and him dated each of January 15, 2017, 2018, and 2019 will not be continued, assumed or have new rights substituted therefore or in the event of a termination of employment without Cause upon or within 24 months of a Change of Control, all unvested restricted stock units will fully vest upon the Change in Control as will 50% of his January 22, 2016 grant. Twenty-five percent of the unvested restricted stock units from the January 22, 2016 grant will vest in the event of a termination without cause. Fifty percent of the unvested shares of restricted stock units will vest upon his death or disability.

## EXECUTIVE COMPENSATION

- (8) All unvested stock options pursuant to the Stock Option Agreement between Mr. DeLise and us dated January 22, 2016 will vest in the event of a termination without Cause or if the shares will not be continued, assumed or have new rights substituted in the event of a Change in Control. Fifty percent of the unvested stock options will vest upon his death or disability as will 50% percent of the unvested stock options from his agreement dated January 15, 2017.

Payments and Benefits for Kevin McPherson, Sales								
	Base Salary	Cash Bonus	Health Benefits	Restricted Stock Acceleration	Performance Share Acceleration	Restricted Stock Unit Acceleration	Stock Option Acceleration	Total
	(1) (\$)	(2) (\$)	(3) (\$)	(4) (\$)	(5)(6) (\$)	(7) (\$)	(8) (\$)	(9) (\$)
Termination Without Cause	300,000	1,191,667	22,497	1,943,507	—	684,483	6,174,834	10,316,988
Termination Without Cause within 24 months following a Change in Control	300,000	1,191,667	22,497	4,154,287	259,311	2,164,718	6,174,834	14,267,314
Award is not continued, assumed or has no new rights substituted upon a Change in Control	—	—	—	4,154,287	259,311	2,164,718	6,174,834	12,753,150
Termination for Cause or Without Good Reason	—	—	—	—	—	—	—	—
Death/Disability	150,000	595,833	11,249	4,020,651	129,656	1,766,842	3,087,417	9,761,648

- (1) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. McPherson is entitled to 52 weeks of continued base salary upon a termination of his employment without Cause and 26 weeks of continued base salary in the event of death or disability.
- (2) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. McPherson is entitled to an amount equal to one times his average annual cash bonus for the three years prior to termination (payable as soon as practical) in the event of a termination of his employment without Cause and 0.5 times his average annual cash bonus for the three years prior to termination in the event of death or disability.
- (3) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. McPherson is entitled to 52 weeks of continued healthcare coverage upon a termination of his employment without Cause.
- (4) Pursuant to the Performance Share Agreement between us and Mr. McPherson dated January 15, 2017 and January 15, 2018:
- 50% of the unvested shares of restricted stock granted to Mr. McPherson upon settlement of his performance shares (the "McPherson Settlement Shares") will fully vest upon his death or disability; and
  - in the event of a termination without Cause within 24 months following a Change in Control, or if prior to a Change in Control it is determined that the McPherson Settlement Shares will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans, all unvested McPherson Settlement Shares will fully vest. The table above assumes that the McPherson Settlement Shares would have become fully vested upon a Change in Control.
- (5) Pursuant to the Performance Award Agreement between us and Mr. McPherson dated January 15, 2019, in the event of termination of employment due to death or disability prior to the settlement date (which occurred in the first fiscal quarter of 2020) (the "Settlement Date"), then, on the Settlement Date, he would have been entitled to receive 50% of the shares of restricted stock that he would have actually received had he been employed on the Settlement Date. In addition, in the event of a Change in Control occurring prior to the Settlement Date, the Compensation Committee had discretion to determine the treatment of the performance shares based on the likely level of achievement of the performance goal on the Settlement Date. For the purposes of the table above, we have assumed that the Compensation Committee would have granted Mr. McPherson the actual number of shares of restricted stock that would have become fully vested upon a Change in Control based on actual performance.
- (6) If prior to a Change in Control, the Compensation Committee determines that the performance shares granted to Mr. McPherson under the Performance Award Agreement dated January 22, 2016 will not be continued, assumed or have new rights substituted therefore, all unvested shares will fully vest upon the Change in Control. If such awards do not vest upon a Change in Control, then in the event of a termination of employment without Cause upon or within 24 months of a Change in Control, all unvested shares will fully vest. In the event of a termination without cause, 50% of the award will vest. In the event of termination of employment due to death or disability, all unvested shares will vest. For purposes of the table above, we have assumed that the Compensation Committee granted Mr. McPherson the settled amount of shares of restricted stock.
- (7) If prior to a Change in Control, the Compensation Committee determines that the restricted stock units granted to Mr. McPherson under the Restricted Stock Unit Agreements between us and him dated each of January 15 2017, 2018, and 2019 will not be continued, assumed or have new rights substituted therefore or in the event of a termination of employment without Cause upon or within 24 months of a Change of Control, all unvested restricted stock units will fully vest upon the Change in Control as will 50% of his January 22, 2016 grant. Twenty-five percent of the unvested restricted stock units from the January 22, 2016 grant will vest in the event of a termination without cause. Fifty percent of the unvested shares of restricted stock units will vest upon his death or disability.

- (8) All unvested stock options pursuant to the Stock Option Agreement between Mr. McPherson and us dated January 22, 2016 will vest in the event of a termination without Cause or if the shares will not be continued, assumed or have new rights substituted in the event of a Change in Control. Fifty percent of the unvested stock options will vest upon his death or disability.

Payments and Benefits for Nicholas Themelis, CIO								
	Base Salary	Cash Bonus	Health Benefits	Restricted Stock Acceleration	Performance Share Acceleration	Restricted Stock Unit Acceleration	Stock Option Acceleration	Total
	(1) (\$)	(2) (\$)	(3) (\$)	(4) (\$)	(5)(6) (\$)	(7) (\$)	(8) (\$)	(\$)
Termination Without Cause	300,000	1,275,000	22,497	2,332,285	—	821,342	7,409,636	12,160,760
Termination Without Cause within 24 months following a Change in Control	300,000	1,275,000	22,497	5,170,681	314,661	2,645,050	7,690,572	17,418,461
Award is not continued, assumed or has no new rights substituted upon a Change in Control	—	—	—	5,170,681	314,661	2,645,050	7,690,572	15,820,964
Termination for Cause or Without Good Reason	—	—	—	—	—	—	—	—
Death/Disability	150,000	637,500	11,249	4,917,625	157,331	2,143,867	3,845,286	11,862,858

- (1) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. Themelis is entitled to 52 weeks of continued base salary upon a termination of his employment without Cause and 26 weeks of continued base salary in the event of death or disability.
- (2) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. Themelis is entitled to an amount equal to one times his average annual cash bonus for the three years prior to termination (payable as soon as practical) in the event of a termination of his employment without Cause and 0.5 times his average annual cash bonus for the three years prior to termination in the event of death or disability.
- (3) In accordance with the Severance Plan and subject to his execution of a separation agreement and release, as a Participating Executive, Mr. Themelis is entitled to 52 weeks of continued healthcare coverage upon a termination of his employment without Cause.
- (4) Pursuant to the Performance Share Agreements between us and Mr. Themelis dated January 15, 2017 and January 15, 2018:
- 50% of the unvested shares of restricted stock granted to Mr. Themelis upon settlement of his performance shares (the "Themelis Settlement Shares") will fully vest upon his death or disability; and
  - in the event of a termination without Cause within 24 months following a Change in Control, or if prior to a Change in Control it is determined that the Themelis Settlement Shares will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans, all unvested Themelis Settlement Shares will fully vest. The table above assumes that the Themelis Settlement Shares would have become fully vested upon a Change in Control.
- (5) Pursuant to the Performance Award Agreement between us and Mr. Themelis dated January 15, 2019, in the event of termination of employment due to death or disability prior to the settlement date (which occurred in the first fiscal quarter of 2020) (the "Settlement Date"), then, on the Settlement Date, he would have been entitled to receive 50% of the shares of restricted stock that he would have actually received had he been employed on the Settlement Date. In addition, in the event of a Change in Control occurring prior to the Settlement Date, the Compensation Committee had discretion to determine the treatment of the performance shares based on the likely level of achievement of the performance goal on the Settlement Date. For the purposes of the table above, we have assumed that the Compensation Committee would have granted Mr. Themelis the actual number of shares of restricted stock that would have become fully vested upon a Change in Control based on actual performance.
- (6) If prior to a Change in Control, the Compensation Committee determines that the performance shares granted to Mr. Themelis under the Performance Award Agreement dated January 22, 2016 will not be continued, assumed or have new rights substituted therefor, all unvested shares will fully vest upon the Change in Control. If such awards do not vest upon a Change in Control, then in the event of a termination of employment without Cause upon or within 24 months of a Change in Control, all unvested shares will fully vest. In the event of a termination without cause, 50% of the award will vest. In the event of termination of employment due to death or disability, all unvested shares will vest. For purposes of the table above, we have assumed that the Compensation Committee granted Mr. Themelis the settled amount of shares of restricted stock.
- (7) If prior to a Change in Control, the Compensation Committee determines that the restricted stock units granted to Mr. Themelis under the Restricted Stock Unit Agreements between us and him dated each of January 15, 2017, 2018, and 2019 will not be continued, assumed or have new rights substituted therefor or in the event of a termination of employment without Cause upon or within 24 months of a Change of Control, all unvested restricted stock units will fully vest upon the Change in Control as will 50% of his January 22, 2016 grant. Twenty-five percent of the unvested restricted stock units from the January 22, 2016 grant will vest in the event of a termination without cause. Fifty percent of the unvested shares of restricted stock units will vest upon his death or disability.

## EXECUTIVE COMPENSATION

- (8) All unvested stock options pursuant to the Stock Option Agreement between Mr. Themelis and us dated January 22, 2016 will vest in the event of a termination without Cause or if the shares will not be continued, assumed or have new rights substituted in the event of a Change in Control. Fifty percent of the unvested stock options will vest upon his death or disability as will 50% of the unvested stock options from his agreement dated January 15, 2017.

### Compensation Committee interlocks and insider participation

---

The Compensation Committee is composed of three independent directors. No member of the Compensation Committee is, or was during 2019, a current or former officer or employee of the Company or any of its subsidiaries. Additionally, during 2019, 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 Securities Exchange Act of 1934 (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 its named executive officers. This proposal, commonly known as a “Say-on-Pay” proposal, gives the Company’s stockholders the opportunity to express their views on the named executive officers’ compensation. We will include an advisory vote on executive compensation on an annual basis at least until the next shareholder advisory vote on the frequency of such votes.

As described in detail in the Compensation Discussion and Analysis above, the Company’s named executive officer compensation program is designed to attract, reward and retain the caliber of officers needed to ensure the Company’s continued growth and profitability. The primary objectives of the program are to:

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

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 named executive officer 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 named executive officers. 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 named executive officers aligns with the interests of its stockholders.

We urge stockholders to read the letter from the Compensation Committee found on page 29 which describes in the Compensation Committee’s responsiveness to our shareholders’ concerns about our executive compensation program. For more information about our executive compensation program, its continued evolution, and the ongoing link between pay and performance, please read the Compensation Discussion and Analysis this Proxy Statement. For these reasons, the Board recommends a vote in favor of the following resolution:

“RESOLVED, that the compensation paid to the Company’s named executive officers, as disclosed in the Company’s proxy statement for the 2020 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.”

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 named executive officer 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 named executive officers. The affirmative vote of the holders of a majority of the outstanding shares of Common Stock present in person or represented by proxy and entitled to vote is required to approve this Proposal 3.

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE “FOR” THE APPROVAL, ON AN ADVISORY BASIS, OF THE COMPENSATION OF THE COMPANY’S NAMED EXECUTIVE OFFICERS AS DISCLOSED IN THIS PROXY STATEMENT.**

# CEO PAY RATIO

The Company's compensation and benefits philosophy and the overall structure of our compensation and benefits programs are broadly consistent across the global organization, notwithstanding regional nuances. Our goal is to ensure that the compensation and benefits program of each employee reflects his or her specific role, responsibilities and contributions and is competitive for the employee's location based on the market data provided by our compensation consultants.

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 October 1, 2019. This employee population does not include approximately 12 employees of Liquidity Edge LLC, which we acquired on November 1, 2019.

## ***Consistently Applied Compensation Measure (CACM)***

Under the relevant rules, we were required to identify our median employee by use of a consistently applied compensation measure ("CACM"). We chose a CACM that closely approximates the annual total direct compensation of our employees and corresponds to how we disclose our CEO's compensation in the Summary Compensation Table ("Calculation"). In our Calculation, we included:

- Base salary, annualized for any partial year employees;
- Cash bonus paid in 2020 for 2019 results;
- Other payments including, but not limited to, severance payments, overtime and allowances;
- Value of equity awards granted in 2019, computed in accordance with FASB ASC Topic 718;
- Value of dividends and dividend equivalents accrued on unvested equity in 2019; and
- Company's contribution to a pension or retirement plan, including, but not limited to, a 401(k) defined contribution plan in the U.S.

We did not perform adjustments to the compensation paid to part-time employees to calculate what they would have been paid on a full-time basis.

## ***De Minimis Exception***

We did not include employees from the following countries as they represented, in aggregate, less than 5% of our employee population:

- Brazil – 4 employees
- France – 1 employee
- Hong Kong – 7 employees
- Singapore – 6 employees
- The Netherlands – 4 employees

***Methodology and Pay Ratio Outcome***

Using the above CACM and excluding the employees in the countries referenced above, we identified the median employee. Our median employee compensation was \$140,455 according to the Calculation. Based on the Calculation, the CEO's compensation in 2019 was \$3,844,232 and the median employee pay ratio was 27:1.

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.

# PROPOSAL 4 - APPROVAL OF THE ADOPTION OF THE MARKETAXESS HOLDINGS INC. 2020 EQUITY INCENTIVE PLAN

Under this Proposal No. 4, the Board is recommending that our stockholders approve the MarketAxess Holdings Inc. 2020 Equity Incentive Plan ("2020 Plan"), which was adopted, subject to stockholder approval, by the Board of Directors on April 21, 2020. The 2020 Plan is intended to replace our stockholder-approved 2012 Incentive Plan, as amended (the "2012 Plan"), and to implement, among other things, an increase of 2,500,000 new shares available for awards under the 2020 Plan.

If the 2020 Plan is approved by our stockholders, it will become effective as of the date of the Annual Meeting and no additional awards will be granted under the 2012 Plan. In the event that our stockholders do not approve this proposal, the 2020 Plan will not become effective, the 2012 Plan will continue to be effective in accordance with its terms and the Company will continue to grant awards under the 2012 Plan until there are no longer any shares available for grant. No awards have been or will be made under the 2020 Plan prior to its approval by stockholders at the Annual Meeting.

As described in the Compensation Discussion and Analysis above, the Compensation Committee of the Board of Directors has long maintained a strong pay- for-performance philosophy designed to, among other things: align and reward Company and individual performance and decision-making with long-term stockholder value creation; attract, reward and retain high caliber executives; and motivate high performance from our NEOs by offering greater incentives for superior performance and reduced awards for underperformance. The Compensation Committee believes that there is a strong link between our business strategy, the performance metrics in our annual and long-term incentive programs and the business results that drive stockholder value. To achieve our objectives, the Compensation Committee seeks to ensure that compensation is competitive and that a significant portion of pay is performance-based, with the majority of total pay being tied to performance and the only fixed compensation paid being base salary. If the 2020 Plan is approved, the Company will be able to continue to provide equity awards as part of its compensation program, which is necessary to successfully attract and retain the best possible candidates for positions of substantial responsibility within the Company and to ensure that compensation is competitive and has a direct link with performance. Moreover, awarding equity compensation aligns the interests of our NEOs with the interests of our stockholders and creates incentives to achieve annual corporate targets and longer term company objectives. The details and design elements of the 2020 Plan are set forth in "*Summary of the 2020 Plan*" below.

Providing equity and equity-based awards aligns employee compensation interests with the investment interests of our stockholders, and reduces cash compensation expense, permitting cash to be reinvested in our business or returned to our stockholders. Approval of the 2020 Plan will allow MarketAxess to continue to provide equity and equity-based awards to recruit and compensate its officers and other key employees beyond the time at which the shares reserved under the 2012 Plan would be depleted.

We are requesting approval of 2,500,000 shares for awards under the 2020 Plan. The new share request is incremental to the shares that remain available for grant under the 2012 Plan as of June 10, 2020 (being the effective date of the 2020 Plan) which will become available for grants of awards under the 2020 Plan. We refer to the aggregate number of shares available for awards under the 2020 Plan as the "share reserve." The share reserve will be reduced by one share for each share subject to an award under the 2020 Plan. In determining the number of shares to request under the 2020 Plan, we evaluated our share availability under the 2012 Plan, recent share usage, our historical annual equity award grant rate, our historical forfeiture rate and our estimates of the number of shares needed to attract new executive hires. We expect that the share reserve will allow us to continue to appropriately grant equity awards at reasonable and desirable levels for the term of the 2020 Plan; however, other than the annual grants to our non-employee directors, the amount of future awards is not currently known and will depend on various factors that cannot

be predicted, including, but not limited to, the price of our shares on future grant dates, the volatility of the stock and the types of awards that will be granted.

## Best market practices

---

The 2020 Plan has been designed consistent with the qualitative standards of proxy advisory firms and equity plan best practices. As a result, the 2020 Plan:

- provides that no award may vest earlier than the first anniversary of the date on which the award is granted, subject to certain exceptions as described below;
- does not provide for automatic acceleration of vesting of equity awards upon a change in control of the Company, also known as a “single-trigger acceleration;”
- provides that all stock options and stock appreciation rights have an exercise price equal to at least the fair market value of our common shares on the date the stock option or stock appreciation right is granted, except in certain situations in which we are assuming options or stock appreciation rights granted by another company that we are acquiring;
- does not permit the repricing of awards granted under the 2020 Plan, or the cancellation of “underwater” stock options in exchange for cash or other awards, unless approved by stockholders;
- provides that (i) no dividends or dividend equivalent rights will be paid or provided with respect to awards other than restricted stock and stock awards, and (ii) dividend equivalents accrued with respect to awards of restricted stock, restricted stock units and share awards, if any, may not be paid before the date such awards have vested;
- provides for meaningful limits on annual awards to non-employee directors;
- provides that shares of Common Stock that are withheld from an award of stock options or stock appreciation rights in payment of the exercise, base or purchase price or taxes, or are not issued or delivered as a result of the net settlement of a stock option or share-settled stock appreciation right, or are repurchased by the Company on the open market with the proceeds of a stock option, will not be returned to the 2020 Plan nor be available for future awards under the 2020 Plan;
- does not contain an annual “evergreen provision,” and therefore stockholder approval is required to increase the maximum number of shares that may be issued under the 2020 Plan; and
- does not provide for any tax gross-ups.

## Other key plan provisions

---

- The 2020 Plan has a ten-year term;
- The 2020 Plan provides for the following types of equity awards: stock options (both incentive stock options and nonqualified stock options), stock appreciation rights, restricted stock awards, restricted stock units and stock awards;
- 2,500,000 shares will be newly authorized for issuance pursuant to awards under the 2020 Plan;
- Shares that remain available for grant under the 2012 Plan as of June 10, 2020 may also be granted under the 2020 Plan;
- Any shares subject to outstanding awards under the 2012 Plan that are forfeited, cancelled or otherwise expire will roll over into the share reserve of the 2020 Plan;

## PROPOSAL 4 APPROVAL OF THE 2020 EQUITY INCENTIVE PLAN

- The share reserve will be reduced by one share for each share subject to an award under the 2020 Plan;
- The 2020 Plan will be administered by the Compensation Committee, or such other committee, or the full Board, as determined by the Board.

In addition, the 2020 Plan provides flexibility for design of performance-based awards following the repeal of the exemption for performance-based compensation under Section 162(m). The Compensation Committee aims to continue to retain flexibility to design compensation programs that are in the long-term best interests of MarketAxess and our stockholders, with deductibility of compensation being only one of a range of considerations taken into account.

### Key stockholder considerations

Stockholders should consider the following in determining whether to approve the 2020 Plan:

- *Our burn rate is reasonable.* As detailed in the table below, our three-year average unadjusted burn rate, which we define as the number of shares subject to time-based equity awards granted and performance-based equity awards earned in a fiscal year divided by the weighted average common shares outstanding for that fiscal year is 0.60%.

Fiscal Year	Options Granted	Full-Value Shares Granted	Total Granted (full-value shares unadjusted)*	Weighted Average # of Common Shares Outstanding	Burn Rate (unadjusted)
2019	82,474	205,795	288,269	37,083,439	0.78%
2018	168,217	67,273	235,490	36,958,000	0.64%
2017	54,838	82,856	137,694	36,864,000	0.37%

\* Total Granted = Options + (Adjusted Full-Value Shares)

- *Dilution.* Dilution is commonly measured by “overhang,” which generally refers to the amount of total potential dilution to current stockholders that could result from future issuance of the shares reserved under an equity compensation plan. The following table sets forth certain information as of December 31, 2019, unless otherwise noted, with respect to the Company’s equity compensation plans:

Stock Options/SARs Outstanding	550,591
Weighted-Average Exercise Price of Outstanding Stock Options/SARs	\$ 175.16
Weighted-Average Remaining Term of Outstanding Stock Options/SARS	2.8 years
Total Stock-Settled Full-Value Awards Outstanding	707,094
Remaining shares available for grant under the 2012 Plan*	93,946
Additional shares being requested under the 2020 Plan	2,500,000
Basic common shares outstanding as of December 31, 2019	37,935,984

\* For reference purposes, the remaining shares available for grant under the 2012 Plan is denoted as of fiscal year end. The number of shares to be rolled-over into the 2020 Plan will be equal to the actual number of shares which remain available for grant under the 2012 Plan as of the effective date of the 2020 Plan. Upon shareholder approval of the 2020 Plan, no further awards will be made under the 2012 Plan.

The total fully-diluted overhang as of December 31, 2019 would be 9.21%. In this context, fully-diluted overhang is calculated as the sum of grants outstanding and shares available for future awards (numerator) divided by the sum of the numerator and basic common shares outstanding, with all data effective as of December 31, 2019. Our Board believes that the proposed share reserve represents a reasonable amount of potential equity dilution to accommodate our long-term strategic and growth priorities.

- *Clawbacks.* Awards granted under the 2020 Plan may be subject to recoupment in accordance with Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (regarding recoupment of erroneously awarded compensation). Awards may also be subject to recoupment under the terms of the 2020 Plan for a period of one (1) year after the settlement of an award under the 2020 Plan or may be subject to clawback as described above in “*Incentive Compensation Clawback*” in the Compensation Discussion and Analysis.

## Summary of the 2020 Plan

---

The principal features of the 2020 Plan are summarized below. The summary does not purport to be a complete statement of the terms of the 2020 Plan and is qualified in its entirety by reference to the full text of the 2020 Plan, a copy of which is attached as an Appendix to this Proxy Statement.

### **Purpose**

The purpose of the 2020 Plan is to align the interests of eligible participants with our stockholders by providing incentive compensation tied to MarketAxess’s performance. The intent of the 2020 Plan is to advance MarketAxess’s interests and increase stockholder value by attracting, retaining and motivating key personnel.

### **Administration**

Pursuant to its terms, the 2020 Plan may be administered by the Compensation Committee of the Board, such other committee of the Board appointed by the Board to administer the Plan or the Board, as determined by the Board (such administrator of the 2020 Plan, the “Committee”). The Committee has the power and discretion necessary to administer the 2020 Plan, with such powers including, but not limited to, the authority to select persons to participate in the 2020 Plan, determine the form and substance of awards under the 2020 Plan, determine the conditions and restrictions, if any, subject to which such awards will be made, modify the terms of awards, accelerate the vesting of awards, and make determinations regarding a participant’s termination of employment or service for purposes of an award. The Committee’s determinations, interpretations and actions under the 2020 Plan are binding on the Company, the participants in the 2020 Plan and all other parties. It is anticipated that the 2020 Plan will be administered by our Compensation Committee, which solely consists of independent directors, as appointed by the Board from time to time. The Compensation Committee may delegate authority to a committee of executives in respect of awards to MarketAxess associates who are not our NEOs or subject to Section 16 under the Exchange Act, as permitted under the 2020 Plan and under applicable law.

### **Eligibility**

Any employee, officer, non-employee director, consultant or other personal service provider to the Company or any of its subsidiaries or affiliates can participate in the 2020 Plan, at the Committee's discretion. In its determination of eligible participants, the Committee may consider any and all factors it considers relevant or appropriate, and designation of a participant in any year does not require the Committee to designate that person to receive an award in any other year. As of the record date, approximately 541 employees, 7 officers, 10 non-employee directors, and 35 consultants or other personal service providers are eligible to participate in the Plan.

### **Awards**

The types of awards available under the 2020 Plan include stock options (both incentive and non-qualified), stock appreciation rights, restricted stock awards, restricted stock units, and stock awards. All awards granted to participants under the 2020 Plan will be represented by an award agreement. Awards granted under the 2020 Plan shall vest no earlier than the first anniversary of the date on which the award is granted; provided, that the following awards shall not be subject to the foregoing minimum vesting requirement: any (i) awards substituted or assumed in connection with corporate transactions, (ii) awards to non-employee directors that vest on the earlier of the first anniversary of the date of grant and the next annual meeting of stockholders which is at least 50 weeks after the immediately preceding year's annual meeting, (iii) shares of Common Stock delivered in lieu of fully vested cash obligations, and (iv) any additional awards the Committee may grant, up to a maximum of five percent (5%) of the share reserve, as adjusted in connection with corporate events or transactions; provided, further, that the Committee may in its discretion provide for accelerated exercisability or vesting of any award, including, without limitation, in cases of retirement, death, disability or a Change in Control, under an award agreement, or otherwise.

### **Stock Options**

A stock option grant entitles a participant to purchase a specified number of shares of Common Stock of the Company during a specified term (with a maximum term of 10 years) at an exercise price that will not be less than the fair market value of a Share as of the date of grant.

Subject to the minimum vesting requirements described above, the Committee will determine the requirements for vesting and exercisability of the stock options, which may be based on the continued employment or service of the participant with the Company for a specified time period, upon the attainment of performance goals or both. The stock options may terminate prior to the end of the term or vesting date upon termination of employment or service (or for any other reason), as determined by the Committee. No dividends or dividend-equivalent rights will be paid or granted with respect to stock options. Unless approved by the Company's stockholders, the Committee may not take any action with respect to a stock option that would be treated as a "repricing" under the then applicable rules, regulations or listing requirements of the stock exchange on which shares of Common Stock are listed, or that would result in the cancellation of "underwater" stock options in exchange for cash or other awards.

Stock options granted under the 2020 Plan are either non-qualified stock options or incentive stock options (with incentive stock options intended to meet the applicable requirements under the Code). Stock options are nontransferable except in limited circumstances.

### ***Stock Appreciation Rights***

A stock appreciation right ("SAR") granted under the 2020 Plan will give the participant a right to receive, upon exercise or other payment of the SAR, an amount in cash, shares of Common Stock or a combination of both equal to the excess of (a) the fair market value of a Share on the date of exercise over (b) the base price of the SAR that the Committee specified on the date of the grant. The base price of a SAR will not be less than the fair market value of a Share as of the date of grant. The right of exercise in connection with a SAR may be made by the participant or automatically upon a specified date or event. SARs are nontransferable, except in limited circumstances.

Subject to the minimum vesting requirements described above, the Committee will determine the requirements for vesting and exercisability of the SARs, which may be based on the continued employment or service of the participant with the Company for a specified time period or upon the attainment of specific performance goals. The SARs may be terminated prior to the end of the term (with a maximum term of 10 years) upon termination of employment or service, as determined by the Committee. No dividends or dividend equivalent rights will be paid or granted with respect to SARs. Unless approved by the Company's stockholders, the Committee may not take any action with respect to a SAR that would be treated as a "repricing" under the then applicable rules, regulations or listing requirements of the stock exchange on which shares of Common Stock are listed, or that would result in the cancellation of "underwater" SARs in exchange for cash or other awards.

### ***Restricted Stock Awards***

A restricted stock award is a grant of a specified number of shares of Common Stock to a participant, which restrictions will lapse upon the terms that the Committee determines at the time of grant. Subject to the minimum vesting requirements described above, the Committee will determine the requirements for the lapse of the restrictions for the restricted stock awards, which may be based on the continued employment or service of the participant with the Company over a specified time period, upon the attainment of performance goals, or both.

The participant will have the rights of a stockholder with respect to the shares granted under a restricted stock award, including the right to vote the shares and receive all dividends and other distributions with respect thereto, unless the Committee determines otherwise to the extent permitted under applicable law. If a participant has the right to receive dividends paid with respect to a restricted stock award, such dividends shall not be paid to the participant until the underlying award vests. Any shares granted under a restricted stock award are nontransferable, except in limited circumstances. A participant may make an election under Section 83(b) of the Code for tax planning purposes.

### ***Restricted Stock Units***

A restricted stock unit granted under the 2020 Plan will give the participant a right to receive, upon vesting and settlement of the restricted stock units (commonly known as RSUs), one Share per vested unit or an amount per vested unit equal to the fair market value of one Share as of the date of determination, or a combination thereof, at the discretion of the Committee. The Committee may grant RSUs together with dividend equivalent rights (which will not be paid until the award vests), and the holder of any RSUs will not have any rights as a stockholder, such as dividend or voting rights, until the shares of Common Stock underlying the RSUs are delivered.

Subject to the minimum vesting requirements described above, the Committee will determine the requirements for vesting and payment of the RSUs, which may be based on the continued employment or service of the participant with the Company for a specified time period and also upon the attainment of specific performance goals. RSUs will be forfeited if the vesting requirements are not satisfied. RSUs are nontransferable, except in limited circumstances.

### ***Stock Awards***

Stock awards may be granted to eligible participants under the 2020 Plan and consist of an award of shares of Common Stock. A stock award may be granted for past employment or service, in lieu of bonus or other cash compensation, as director's compensation or any other purpose as determined by the Committee. Subject to the minimum vesting requirements described above, the Committee will determine the requirements for the vesting and payment of the stock award, with the possibility that awards may be made with no vesting requirements. Upon receipt of the stock award, the participant will have all rights of a stockholder with respect to the shares of Common Stock, including the right to vote and receive dividends (which will not be paid until the award vests).

### ***Performance-Based Compensation***

All types of awards granted under the 2020 Plan may be granted with vesting, payment, lapse of restrictions and/or exercisability requirements that are subject to the attainment of specific performance goals. The Committee may adjust performance goals, or the manner of measurement thereof, as it deems appropriate. Performance goals to which an award is subject may include any of the following, or any other performance goal determined in the Committee's sole discretion: (1) enterprise value or value creation targets of the Company; (2) income or net income; operating income; net operating income or net operating income after tax; operating profit or net operating profit; (3) cash flow including, but not limited to, from operations or free cash flow; (4) bank debt or other long-term or short-term public or private debt or other similar financial obligations (which may be calculated net of cash balances and/or other offsets and adjustments); (5) net sales, revenues, net income or earnings before income tax or other exclusions of the Company; (6) operating margin; return on operating revenue or return on operating profit; (7) return measures (after tax or pre-tax), including return on capital employed, return on invested capital; return on equity, return on assets, return on net assets; (8) market capitalization, fair market value of the shares of the Common Stock, franchise value (net of debt), economic value added; (9) total stockholder return or growth in total stockholder return (with or without dividend reinvestment); (10) proprietary investment results; (11) estimated market share (whether based on FINRA TRACE volume or otherwise); (12) expense management/control or reduction (including without limitation, compensation and benefits expense); (13) customer satisfaction; (14) technological improvements/implementation, new product innovation; (15) collections and recoveries; (16) property/asset purchases; (17) litigation and regulatory resolution/implementation goals; (18) leases, contracts or financings (including renewals, overhead, savings, G&A and other expense control goals); (19) risk management/implementation; (20) development and implementation of strategic plans and/or organizational restructuring goals; (21) development and implementation of risk and crisis management programs; compliance requirements and compliance relief; productivity goals; workforce management and succession planning goals; (22) employee satisfaction or staff development; (23) formations of joint ventures or partnerships or the completion of other similar transactions intended to enhance the Company's revenue or profitability or to enhance its customer base; or (24) completion of a merger, acquisition or any transaction that results in the sale of all or substantially all of the stock or assets of the Company.

### ***Plan Amendments or Termination***

The Board may amend, modify, suspend or terminate the 2020 Plan, provided that if such amendment, modification, suspension or termination materially and adversely affects any award, the Company must obtain the affected participant's consent. Certain amendments or modifications of the 2020 Plan may also be subject to the approval of our stockholders as required by SEC and NASDAQ rules or applicable law.

### ***Termination of Service***

Awards under the 2020 Plan may be subject to reduction, cancellation or forfeiture upon termination of service or failure to meet applicable performance conditions or other vesting terms.

Under the 2020 Plan, unless an award agreement provides otherwise, if a participant's employment or service is terminated for cause, or if after termination the Committee determines that the participant engaged in an act that falls

within the definition of cause, or if after termination the participant engages in conduct that violates any continuing obligation of the participant with respect to the Company, the Company may cancel, forfeit and/or recoup any or all of that participant's outstanding awards. In addition, if the Committee makes the determination above, the Company may suspend the participant's right to exercise any stock option or stock appreciation right, receive any payment or vest in any award pending a determination of whether the act falls within the definition of cause (as defined in the 2020 Plan). If a participant voluntarily terminates employment or service in anticipation of an involuntary termination for cause, that shall be deemed a termination for cause.

The Company has the right to recoup any gain realized by the participant from the exercise, vesting or payment of any award if, within one year after such exercise, vesting or payment, the participant is terminated for cause, the Committee determines the participant is subject to recoupment due to a clawback policy or if after the participant's termination the Committee determines that the participant engaged in an act that falls within the definition of cause or materially violated any continuing obligation of the participant with respect to the Company.

### ***Change in Control***

Under the 2020 Plan, in the event of a change in control of the Company, as defined in the 2020 Plan, all outstanding awards shall either be (a) continued or assumed by the surviving company or its parent, or (b) substituted by the surviving company or its parent for awards, with substantially similar terms (with appropriate adjustments to the type of consideration payable upon settlement, including conversion into the right to receive securities, cash or a combination of both, and with appropriate adjustment of performance conditions or deemed achievement of such conditions (i) for any completed performance period, based on actual performance, or (ii) for any partial or future performance period, at the greater of the target level or actual performance, unless otherwise provided in an award agreement).

Only to the extent that outstanding awards are not continued, assumed or substituted upon or following a change in control, the Committee may, but is not obligated to, make adjustments to the terms and conditions of outstanding awards, including without limitation (i) acceleration of exercisability, vesting and/or payment immediately prior to, upon or following such event, (ii) upon written notice, provided that any outstanding stock option and stock appreciation right must be exercised during a period of time immediately prior to such event or other period (contingent upon the consummation of such event), and at the end of such period, such stock options and stock appreciation rights shall terminate to the extent not so exercised, and (iii) cancellation of all or any portion of outstanding awards for fair value (in the form of cash, shares, other property or any combination of such consideration), less any applicable exercise or base price.

Notwithstanding the foregoing, if a participant's employment or service is terminated upon or within twenty four (24) months following a change in control by the Company without cause or upon such other circumstances as determined by the Committee, the unvested portion (if any) of all outstanding awards held by the participant will immediately vest (and, to the extent applicable, become exercisable) and be paid in full upon such termination, with any performance conditions deemed achieved (i) for any completed performance period, based on actual performance, or (ii) for any partial or future performance period, at the greater of the target level or actual performance, unless otherwise provided in an award agreement.

### ***Assumption of Awards in Connection with an Acquisition***

The Committee may assume or substitute any previously granted awards of an employee, director or consultant of another corporation who becomes eligible by reason of a corporate transaction. The terms of the assumed award may vary from the terms and conditions otherwise required by the 2020 Plan if the Committee deems it necessary. The assumed awards will not reduce the total number of shares available for awards under the 2020 Plan.

## PROPOSAL 4 APPROVAL OF THE 2020 EQUITY INCENTIVE PLAN

### ***Shares Available***

2,500,000 shares of Common Stock are available for awards under the 2020 Plan.

In addition, awards may also be made under the 2020 Plan with respect to shares that, as of June 10, 2020, remain available for grant under the 2012 Plan, which was previously approved by our stockholders. We refer to the aggregate number of shares available for awards under the 2020 Plan as the “share reserve.” Upon the effective date of the 2020 Plan, no further awards will be granted under the 2012 Plan. Within the share reserve, a total of 1,000,000 shares of Common Stock are available for awards of incentive stock options.

If any award granted under the 2020 Plan or the 2012 Plan is cancelled, expired, forfeited, surrendered, settled by delivery of fewer shares than the number underlying the award (including as a result of withholding of shares of Common Stock in payment of taxes relating to restricted stock, restricted stock units or stock awards), or otherwise terminated without delivery of the shares to the participant, then such shares will be returned to the 2020 Plan and be available for future awards under the 2020 Plan. However, shares that are withheld from an award of stock options or stock appreciation rights in payment of the exercise, base or purchase price or taxes, or not issued or delivered as a result of the net settlement of an outstanding stock option or share-settled stock appreciation right, or repurchased by the Company on the open market with the proceeds of a stock option, will not be returned to the 2020 Plan nor be available for future awards under the 2020 Plan.

The share reserve will be reduced by one share for each Share subject to an award. If a Share that was subject to an award is returned to the share reserve, the share reserve will be credited with one share.

### ***Adjustments***

In the event of any recapitalization, reclassification, share dividend, extraordinary cash dividend, stock split, reverse stock split, merger, reorganization, consolidation, combination, spin-off or other similar corporate event or transaction affecting the shares of Common Stock of the Company, the Committee will make equitable adjustments to (i) the number and kind of shares or other securities available for awards and covered by outstanding awards, (ii) the exercise, base or purchase price, or other value determinations of outstanding awards, and/or (iii) any other terms of an award affected by the corporate event.

### ***Award Limits***

A non-employee director may not be granted during a calendar year awards that have a fair value that, when added to all other cash compensation received in respect of service as a member of the Board that year, exceeds \$600,000. The independent members of the Board may make exceptions to this limit for a non-executive chair of the Board.

## Tax consequences

---

### ***Incentive Stock Options***

An optionee recognizes no taxable income for regular income tax purposes as a result of the grant or exercise of an incentive stock option qualifying under Section 422 of the Code. Optionees who neither dispose of their shares within two years following the date the option was granted nor within one year following the exercise of the option normally will recognize a capital gain or loss equal to the difference, if any, between the sale price and the purchase price of the shares. If an optionee satisfies such holding periods upon a sale of the shares, the Company will not be entitled to any deduction for federal income tax purposes. If an optionee disposes of shares within two years after the date of grant or within one year after the date of exercise (a "disqualifying disposition"), the difference between the fair market value of the shares on the exercise date and the option exercise price (not to exceed the gain realized on the sale if the disposition is a transaction with respect to which a loss, if sustained, would be recognized) will be taxed as ordinary income at the time of disposition. Any gain in excess of that amount will be a capital gain. If a loss is recognized, there will be no ordinary income, and such loss will be a capital loss. Any ordinary income recognized by the optionee upon the disqualifying disposition of the shares generally should be deductible by the Company for federal income tax purposes, except to the extent such deduction is limited by applicable provisions of the Code.

The difference between the option exercise price and the fair market value of the shares on the exercise date is treated as an adjustment in computing the optionee's alternative minimum taxable income and may be subject to an alternative minimum tax which is paid if such tax exceeds the regular tax for the year. Special rules may apply with respect to certain subsequent sales of the shares in a disqualifying disposition, certain basis adjustments for purposes of computing the alternative minimum taxable income on a subsequent sale of the shares and certain tax credits which may arise with respect to optionees subject to the alternative minimum tax.

### ***Nonqualified Stock Options***

Options not designated or qualifying as incentive stock options will be nonqualified stock options having no special tax status. An optionee generally recognizes no taxable income as the result of the grant of such an option. Upon exercise of a nonqualified stock option, the optionee normally recognizes ordinary income equal to the amount by which the fair market value of the shares on such date exceeds the exercise price. If the optionee is an employee, such ordinary income generally is subject to withholding of income and employment taxes. Upon the sale of shares acquired by the exercise of a nonqualified stock option, any gain or loss, based on the difference between the sale price and the fair market value on the exercise date, will be taxed as capital gain or loss.

### ***Stock Appreciation Rights***

In general, no taxable income is reportable when SARs are granted to a participant. Upon exercise, the participant will recognize ordinary income in an amount equal to the fair market value of any cash or shares received. If the participant is an employee, such ordinary income generally is subject to withholding of income and employment taxes. Any additional gain or loss recognized upon any later disposition of the shares would be capital gain or loss.

### ***Restricted Stock Awards***

A participant acquiring restricted stock generally will recognize ordinary income equal to the fair market value of the shares on the vesting date. If the participant is an employee, such ordinary income generally is subject to withholding of income and employment taxes. The participant may elect, pursuant to Section 83(b) of the Code, to accelerate the ordinary income tax event to the date of acquisition by filing an election with the Internal Revenue Service no later than 30 days after the date the shares are acquired.

## PROPOSAL 4 APPROVAL OF THE 2020 EQUITY INCENTIVE PLAN

Upon the sale of shares acquired pursuant to a restricted stock award, any gain or loss, based on the difference between the sale price and the fair market value on the date the ordinary income tax event occurs, will be taxed as capital gain or loss.

### ***Restricted Stock Unit Awards***

There are no immediate tax consequences of receiving an award of RSUs. A participant who is awarded RSUs will be required to recognize ordinary income in an amount equal to the fair market value of shares issued to such participant at the end of the applicable vesting period or, if later, the settlement date elected by the Committee or a participant. If the participant is an employee, such ordinary income generally is subject to withholding of income and employment taxes. Any additional gain or loss recognized upon any later disposition of any shares received would be capital gain or loss.

### ***Stock Awards***

A participant acquiring unrestricted shares generally will recognize ordinary income equal to the fair market value of the shares on the grant date. If the participant is an employee, such ordinary income generally is subject to withholding of income and employment taxes. Upon the sale of unrestricted shares acquired pursuant to a stock award, any gain or loss, based on the difference between the sale price and the fair market value on the date the shares are granted, will be taxed as capital gain or loss.

### ***Section 409A***

Section 409A provides certain requirements for non-qualified deferred compensation arrangements with respect to an individual's deferral and distribution elections and permissible distribution events. Certain types of awards granted under the 2020 Plan may be subject to the requirements of Section 409A. It is intended that the 2020 Plan and all awards comply with, or be exempt from, the requirements of Section 409A. If an award is subject to and fails to satisfy the requirements of Section 409A, the recipient of that award may recognize ordinary income on the amounts deferred under the award, to the extent vested, which may be prior to when the compensation is actually or constructively received. Also, if an award that is subject to Section 409A fails to comply with Section 409A's provisions, Section 409A imposes an additional 20% federal income tax on compensation recognized as ordinary income, as well as interest on such deferred compensation.

### ***Tax Effect for the Company***

The Company generally will be entitled to a tax deduction in connection with an award under the 2020 Plan in an amount equal to the ordinary income realized by a participant and at the time the participant recognizes such income (for example, the exercise of a nonqualified stock option). Special rules limit the deductibility of compensation paid to our chief executive officer, chief financial officer and the other "covered employees" as determined under Section 162(m) and applicable guidance. Under Section 162(m), the annual compensation paid to any of these covered employees, including awards that MarketAxess grants pursuant to the 2020 Plan, whether performance-based or otherwise, will be subject to the \$1 million annual deduction limitation. Because of the elimination of the performance-based compensation exemption, it is possible that all or a portion of the compensation paid to covered employees in the form of equity grants under the 2020 Plan may not be deductible by the Company, to the extent that the annual deduction limitation is exceeded.

THE FOREGOING IS ONLY A SUMMARY OF THE EFFECT OF U.S. FEDERAL INCOME TAXATION UPON PARTICIPANTS AND THE COMPANY WITH RESPECT TO AWARDS UNDER THE 2020 PLAN. IT DOES NOT PURPORT TO BE COMPLETE AND DOES NOT DISCUSS THE IMPACT OF EMPLOYMENT OR OTHER TAX REQUIREMENTS, THE TAX CONSEQUENCES OF A PARTICIPANT'S DEATH, OR THE PROVISIONS OF THE INCOME TAX LAWS OF ANY MUNICIPALITY, STATE, OR FOREIGN COUNTRY IN WHICH THE PARTICIPANT MAY RESIDE.

## New plan benefits

The issuance of any awards under the 2020 Plan will be at the discretion of the Compensation Committee or the Board. In addition, the benefit of any awards granted under the 2020 Plan will depend on a number of factors, including the fair market value of Company shares on future dates, and actual Company performance against performance goals established with respect to performance awards, among other things. Therefore, other than the annual grants to our non-employee directors, it is not possible to determine the amount or form of any award that will be granted to any individual in the future. For information regarding awards granted to our NEOs under the 2012 Plan during the 2019 fiscal year, please refer to the "Summary compensation table" and these related tables under "Executive Compensation": "Grants of plan-based awards", "Outstanding equity awards at fiscal year end" and "Options exercises and stock vested".

The following table shows the anticipated amount of the annual equity grants in June for non-employee directors, as a group. The information that otherwise would have been required to be included in the table below for each of the Company's NEOs, for all of the Company's current executive officers as a group, and for all of the Company's employees (including all current officers who are not executive officers), as a group, respectively, is zero, due to any future awards to such individuals and groups being not determinable, as described above.

Name and Position or Group	Dollar Value of Restricted Stock (\$)(1)	Number of Shares of Restricted Stock(1)
Non-Executive Director Group	1,150,000	2,981

(1) The annual restricted stock award to be granted to each of the ten non-employee directors in June 2020 will cover that number of shares equal to \$115,000 divided by the average of the closing price of our Common Stock for the ten trading days up to and including the grant date. Beginning with the restricted stock awards to non-employee directors granted in 2020, such awards shall be granted promptly after the annual stockholder meeting and vest on May 31st of the following year. For purposes of estimating the number of shares to be subject to these restricted stock awards during 2020, the April 13, 2020 closing price per share of our Common Stock of \$385.79 has been used.

## Equity compensation plan information

The following table provides information regarding shares outstanding and available for issuance under our 2012 Incentive Plan as of December 31, 2019.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights <sup>(1)</sup> (a)	Weighted average exercise price of outstanding options, warrants and rights <sup>(1)</sup> (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plan approved by security holders	550,591	\$175.16	93,946
Equity compensation plans not approved by security holders	—	—	—
<b>Total</b>	<b>550,591</b>	<b>\$175.16</b>	<b>93,946</b>

## PROPOSAL 4 APPROVAL OF THE 2020 EQUITY INCENTIVE PLAN

(1) The total number of securities reported includes the maximum number of common shares, 19,356, that may be issued under performance share awards granted under our 2012 Incentive Plan. The nature of the awards is more particularly described in the Compensation Discussion and Analysis section of this proxy statement. The weighted-average exercise price in column (b) does not take these performance share awards into account. Based on historical data from 2015 through 2019, our best estimate of the number of common shares that will be issued under the performance share award grants is approximately 15,330.

### Additional information

---

For further discussion of our compensation program and the long-term incentive awards granted under our incentive plans, see the Compensation Discussion and Analysis and the discussion of "*Long-Term Incentives - Annual and Special Equity-based Awards*" therein.

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE APPROVAL OF THE COMPANY'S 2020 EQUITY INCENTIVE PLAN.**

# 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 10, 2020, at 10:00 a.m., Eastern Daylight Time, via live audio webcast at [www.virtualshareholdermeeting.com/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020).

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 37,504,756 shares entitled to be voted.

Due to the emerging public health impact of the coronavirus outbreak (COVID-19) and to support the health and well-being of our shareholders and other participants at the Annual Meeting, 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. It is our intention to resume in-person or hybrid in-person/virtual Annual Meetings in the future under normal circumstances.

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 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, 2020, (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) FOR the approval of the adoption of the MarketAxess Holdings Inc. 2020 Equity Incentive Plan, 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 the information under the heading *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 29, 2020, we expect to mail beneficial owners of our Common Stock a Notice of Internet Availability containing instructions on how to access our proxy materials, including this Proxy Statement and our Annual Report. The Notice of Internet Availability 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.

## OTHER INFORMATION

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 of Internet Availability.

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 of Internet Availability. 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 2019 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. In addition, with respect to Proposal 1 (the election of directors), you may, if you desire, indicate on the proxy card that you are not authorizing the designated individuals to vote your shares for one or more of the nominees.

### **Solicitation**

We will bear the entire cost of solicitation, including the preparation, assembly, printing and mailing of a Notice of Internet Availability of Proxy Materials, 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, 37,504,756 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 9, 2020 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.

### **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/MKTX2020](http://www.virtualshareholdermeeting.com/MKTX2020); 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 of Internet Availability of Proxy Materials 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.**

## OTHER INFORMATION

### ***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 of Internet Availability of Proxy Materials 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 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 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. Brokers do not have discretionary authority to vote for directors. Abstentions and 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 each of the other proposals listed in the Notice of Annual Meeting of Stockholders (Proposals 2, 3, and 4), if a quorum is present, the proposals will be decided by the affirmative vote of the holders of a majority of the shares 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 4 (approval of the adoption of the MarketAxess Holdings Inc. 2020 Equity Incentive Plan), therefore, broker non-votes will not be counted as shares present having voting power on Proposals 3 and 4 and will have no effect on the vote for these proposals.

## 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. 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](http://www.marketaxess.com) or the SEC’s website at [www.sec.gov](http://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, 2019, 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 2021 Annual Meeting

---

In order to be considered for inclusion in the Company’s proxy statement and proxy card relating to the 2021 Annual Meeting of Stockholders, any proposal by a stockholder submitted pursuant to Rule 14a-8 of the Securities Exchange Act of 1934, as amended, must be received by the Company at its principal executive offices in New York, New York, on or before December 30, 2020. In addition, under the Company’s bylaws, any proposal for consideration at the 2021 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 30, 2020 and the close of business on December 30, 2020 and is otherwise in compliance with the requirements set forth in the Company’s bylaws.

[THIS PAGE INTENTIONALLY LEFT BLANK]

# APPENDIX: 2020 INCENTIVE PLAN

## MARKETAXESS HOLDINGS INC. 2020 EQUITY INCENTIVE PLAN

### 1. Purpose.

The purpose of the MarketAxess Holdings Inc. 2020 Equity Incentive Plan is to further align the interests of eligible participants with those of the Company's stockholders by providing incentive compensation opportunities tied to the performance of the Company and its Common Stock. The Plan is intended to advance the interests of the Company and increase stockholder value by attracting, retaining and motivating key personnel upon whose judgment, initiative and effort the successful conduct of the Company's business is largely dependent.

2. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth below:

*"Affiliate"* means any Person directly or indirectly controlling, controlled by, or under common control with such other Person.

*"Award"* means an award of a Stock Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit, or Stock Award granted under the Plan.

*"Award Agreement"* means a notice or an agreement entered into between the Company and a Participant setting forth the terms and conditions of an Award granted to a Participant as provided in Section 15.2 hereof.

*"Beneficial Owner"* has the meaning ascribed to such term in Rule 13d-3 under the Exchange Act.

*"Board"* means the Board of Directors of the Company.

*"Cause"* has the meaning set forth in Section 13.2 hereof.

*"Change in Control"* has the meaning set forth in Section 11.4 hereof.

*"Code"* means the Internal Revenue Code of 1986, as amended.

*"Committee"* means (i) the Compensation Committee of the Board, (ii) such other committee of no fewer than two members of the Board who are appointed by the Board to administer the Plan or (iii) the Board, as determined by the Board.

*"Common Stock"* means the Company's common stock, par value \$0.003 per share.

*"Company"* means MarketAxess Holdings Inc., a Delaware corporation or any successor thereto.

*"Date of Grant"* means the date on which an Award under the Plan is granted by the Committee or such later date as the Committee may specify to be the effective date of an Award.

*"Disability"* means, unless otherwise provided in an Award Agreement, with respect to a Participant's termination of Service, a disability described in Treasury Regulations Section 1.409A-3(i)(4)(i)(A). A Disability shall only be deemed to occur at the time of the determination by the Committee of the Disability.

## APPENDIX: 2020 INCENTIVE PLAN

*"Effective Date"* has the meaning set forth in Section 17.1 hereof.

*"Eligible Person"* means any Person who is an officer, employee, Non-Employee Director, or any natural person who is a consultant or other personal service provider of the Company or any of its Subsidiaries.

*"Exchange Act"* means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder, as the same may be amended from time to time.

*"Fair Market Value"* means, as applied to a specific date, the price of a share of Common Stock that is based on the opening, closing, actual, high, low or average selling prices of a share of Common Stock reported on any established stock exchange or national market system including without limitation the New York Stock Exchange and the National Market System of the National Association of Securities Dealers, Inc. Automated Quotation System ("NASDAQ") on the applicable date, the preceding trading day, the next succeeding trading day, or an average of trading days, as determined by the Committee in its discretion. Unless the Committee determines otherwise or unless otherwise specified in an Award Agreement, Fair Market Value shall be deemed to be equal to the closing price of a share of Common Stock on the date as of which Fair Market Value is to be determined, or if shares of Common Stock are not publicly traded on such date, as of the most recent date on which shares of Common Stock were publicly traded. Notwithstanding the foregoing, if the Common Stock is not traded on any established stock exchange or national market system, the Fair Market Value means the price of a share of Common Stock as established by the Committee acting in good faith based on a reasonable valuation method that is consistent with the requirements of Section 409A of the Code and the regulations thereunder.

*"Incentive Stock Option"* means a Stock Option granted under Section 6 hereof that is intended to meet the requirements of Section 422 of the Code and the regulations thereunder.

*"Non-Employee Director"* means a member of the Board who is not an employee of the Company or any of its Subsidiaries.

*"Nonqualified Stock Option"* means a Stock Option granted under Section 6 hereof that is not an Incentive Stock Option.

*"Participant"* means any Eligible Person who holds an outstanding Award under the Plan.

*"Person"* means an individual, corporation, partnership, association, trust, unincorporated organization, limited liability company or other legal entity. All references to Person shall include an individual Person or a group (as defined in Rule 13d-5 under the Exchange Act) of Persons.

*"Plan"* means the MarketAxess Holdings Inc. 2020 Equity Incentive Plan as set forth herein, effective as of the Effective Date and as may be amended from time to time, as provided herein, and includes any sub-plan or appendix that may be created and approved by the Board to allow Eligible Persons of Subsidiaries to participate in the Plan.

*"Prior Plan"* means the MarketAxess Holdings Inc. 2012 Incentive Plan, as amended from time to time.

*"Restricted Stock Award"* means a grant of shares of Common Stock to an Eligible Person under Section 8 hereof that are issued subject to such vesting and transfer restrictions as the Committee shall determine, and such other conditions, as are set forth in the Plan and the applicable Award Agreement.

*"Restricted Stock Unit"* means a contractual right granted to an Eligible Person under Section 9 hereof representing notional unit interests equal in value to a share of Common Stock to be paid or distributed at such times, and subject to such conditions, as set forth in the Plan and the applicable Award Agreement.

*"Securities Act"* means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder, as the same may be amended from time to time.

"Service" means a Participant's employment with the Company or any Subsidiary or a Participant's service as a Non-Employee Director, consultant or other service provider with the Company or any Subsidiary, as applicable.

"Stock Appreciation Right" means a contractual right granted to an Eligible Person under Section 7 hereof entitling such Eligible Person to receive a payment, representing the excess of the Fair Market Value of a share of Common Stock over the base price per share of the right, at such time, and subject to such conditions, as are set forth in the Plan and the applicable Award Agreement.

"Stock Awards" means a grant of shares of Common Stock to an Eligible Person under Section 10 hereof.

"Stock Option" means a contractual right granted to an Eligible Person under Section 6 hereof to purchase shares of Common Stock at such time and price, and subject to such conditions, as are set forth in the Plan and the applicable Award Agreement.

"Subsidiary" means an entity (whether or not a corporation) that is wholly or majority owned or controlled, directly or indirectly, by the Company or any other Affiliate of the Company that is so designated, from time to time, by the Committee, during the period of such Affiliated status; provided, however, that with respect to Incentive Stock Options, the term "Subsidiary" shall include only an entity that qualifies under Section 424(f) of the Code as a "subsidiary corporation" with respect to the Company.

"Treasury Regulations" means regulations promulgated by the United States Treasury Department.

### 3. Administration.

3.1 *Committee Members.* The Plan shall be administered by the Committee. To the extent deemed necessary by the Board, each Committee member shall satisfy the requirements for (i) an "independent director" under rules adopted by the NASDAQ or other principal exchange on which the Common Stock is then listed and (ii) a "nonemployee director" within the meaning of Rule 16b-3 under the Exchange Act. Notwithstanding the foregoing, the mere fact that a Committee member shall fail to qualify under any of the foregoing requirements shall not invalidate any Award made by the Committee which Award is otherwise validly made under the Plan. The Board may exercise all powers of the Committee hereunder and may directly administer the Plan. Neither the Company nor any member of the Board or Committee shall be liable for any action or determination made in good faith by the Board or Committee with respect to the Plan or any Award thereunder.

3.2 *Committee Authority.* The Committee shall have all powers and discretion necessary or appropriate to administer the Plan and to control its operation, including, but not limited to, the power to (i) determine the Eligible Persons to whom Awards shall be granted under the Plan, (ii) prescribe the restrictions, terms and conditions of all Awards, (iii) interpret the Plan and terms of the Awards, (iv) adopt rules for the administration, interpretation and application of the Plan as are consistent therewith, and interpret, amend or revoke any such rules, (v) make all determinations with respect to a Participant's Service and the termination of such Service for purposes of any Award, (vi) correct any defect(s) or omission(s) or reconcile any ambiguity(ies) or inconsistency(ies) in the Plan or any Award thereunder, (vii) make all determinations it deems advisable for the administration of the Plan, (viii) decide all disputes arising in connection with the Plan and to otherwise supervise the administration of the Plan, (ix) subject to the terms of the Plan, amend the terms of an Award in any manner that is not inconsistent with the Plan, (x) accelerate the vesting or, to the extent applicable, exercisability of any Award at any time (including, but not limited to, upon a Change in Control or upon termination of Service of a Participant under certain circumstances (including, without limitation, upon retirement)) and (xi) adopt such procedures, modifications or subplans as are necessary or appropriate to permit participation in the Plan by Eligible Persons who are foreign nationals or employed outside of the United States. The Committee's determinations under the Plan need not be uniform and may be made by the Committee selectively among Participants and Eligible Persons, whether or not such Persons are similarly situated. The Committee shall, in its discretion, consider such factors as it deems relevant in making its interpretations, determinations and actions under the Plan including, without limitation, the recommendations or advice of any officer or employee of the

## APPENDIX: 2020 INCENTIVE PLAN

Company or board of directors of a Subsidiary or such attorneys, consultants, accountants or other advisors as it may select. All interpretations, determinations, and actions by the Committee shall be final, conclusive, and binding upon all parties.

3.3 *Delegation of Authority.* The Committee shall have the right, from time to time, to delegate in writing to one or more officers of the Company the authority of the Committee to grant and determine the terms and conditions of Awards granted under the Plan, subject to the requirements of Section 157(c) of the Delaware General Corporation Law (or any successor provision) or such other limitations as the Committee shall determine. In no event shall any such delegation of authority be permitted with respect to Awards granted to any member of the Board or to any Eligible Person who is subject to Rule 16b-3 under the Exchange Act. The Committee shall also be permitted to delegate, to any appropriate officer or employee of the Company, responsibility for performing certain ministerial functions under the Plan. In the event that the Committee's authority is delegated to officers or employees in accordance with the foregoing, all provisions of the Plan relating to the Committee shall be interpreted in a manner consistent with the foregoing by treating any such reference as a reference to such officer or employee for such purpose. Any action undertaken in accordance with the Committee's delegation of authority hereunder shall have the same force and effect as if such action was undertaken directly by the Committee and shall be deemed for all purposes of the Plan to have been taken by the Committee.

### 4. Shares Subject to the Plan.

4.1 *Number of Shares Reserved.* Subject to adjustment as provided in Section 4.2 and Section 4.4 hereof, the total number of shares of Common Stock that are available for issuance under the Plan (the "*Share Reserve*") shall equal 2,500,000, plus the number of shares of Common Stock that remain available for grant under the Prior Plan as of the Effective Date. Within the Share Reserve, the total number of shares of Common Stock available for issuance as Incentive Stock Options shall equal 1,000,000. Each share of Common Stock subject to an Award shall reduce the Share Reserve by one share; provided, however, that Awards that are required to be paid in cash pursuant to their terms shall not reduce the Share Reserve. Any shares of Common Stock delivered under the Plan shall consist of authorized and unissued shares or treasury shares. Upon the Effective Date of this Plan, no further awards will be granted under the Prior Plan.

4.2 *Share Replenishment.* Following the Effective Date, to the extent that an Award granted under this Plan or the Prior Plan is canceled, expired, forfeited, surrendered, settled by delivery of fewer shares of Common Stock than the number underlying the Award (including, without limitation, as a result of withholding of shares of Common Stock in payment of taxes relating to a Full-Value Award (as defined below) under this Plan or the Prior Plan), as applicable, or otherwise terminated without delivery of the shares of Common Stock to the Participant under the Plan or the Prior Plan, the shares of Common Stock retained by or returned to the Company will (i) not be deemed to have been delivered under the Plan or the Prior Plan, as applicable, (ii) be available for future Awards under the Plan, and (iii) increase the Share Reserve by one share for each share that is retained by or returned to the Company. Notwithstanding the foregoing, shares of Common Stock that are (x) withheld from any Stock Option or Stock Appreciation Right in payment of the exercise, base or purchase price or taxes relating to such an Award, (y) not issued or delivered as a result of the net settlement of any Stock Option or any share-settled Stock Appreciation Right, or (z) repurchased by the Company on the open market with the proceeds of an Option, will be deemed to have been delivered under the Plan and will not be available for future Awards under the Plan. "*Full-Value Award*" means any Restricted Stock Award, Award of Restricted Stock Units or Stock Award.

4.3 *Awards Granted to Non-Employee Directors.* No Non-Employee Director may be granted, during any calendar year, Awards having a fair value (determined on the date of grant) that, when added to all cash compensation paid to the Non-Employee Director in respect of the Non-Employee Director's service as a member of the Board for such calendar year, exceeds \$600,000. The independent members of the Board may make exceptions to this limit for a non-executive chair of the Board, provided that the Non-Employee Director receiving such additional compensation may not participate in the decision to award such compensation.

4.4 *Adjustments.* If there shall occur any change with respect to the outstanding shares of Common Stock by reason of any recapitalization, reclassification, stock dividend, extraordinary cash dividend, stock split, reverse stock split or other distribution with respect to the shares of Common Stock or any merger, reorganization, consolidation, combination, spin-off or other corporate event or transaction or any other change affecting the Common Stock (other than regular cash dividends to stockholders of the Company), the Committee shall, in the manner and to the extent it considers appropriate and equitable to the Participants and consistent with the terms of the Plan, cause an adjustment to be made to (i) the maximum number and kind of shares of Common Stock provided in Section 4.1 hereof, (ii) the number and kind of shares of Common Stock, units or other securities or rights subject to then outstanding Awards, (iii) the exercise, base or purchase price for each share or unit or other security or right subject to then outstanding Awards, (iv) other value determinations applicable to the Plan and/or outstanding Awards, and/or (v) any other terms of an Award that are affected by the event. Notwithstanding the foregoing, (a) any such adjustments shall, to the extent necessary, be made in a manner consistent with the requirements of Section 409A of the Code and (b) in the case of Incentive Stock Options, any such adjustments shall, to the extent practicable, be made in a manner consistent with the requirements of Section 424(a) of the Code, unless otherwise determined by the Committee.

## 5. Eligibility and Awards.

5.1 *Designation of Participants.* Any Eligible Person may be selected by the Committee to receive an Award and become a Participant. The Committee has the authority, in its discretion, to determine and designate from time to time those Eligible Persons who are to be granted Awards, the types of Awards to be granted, the number of shares of Common Stock or units subject to Awards to be granted and the terms and conditions of such Awards consistent with the terms of the Plan. In selecting Eligible Persons to be Participants, and in determining the type and amount of Awards to be granted under the Plan, the Committee shall consider any and all factors that it deems relevant or appropriate. Designation of a Participant in any year shall not require the Committee to designate such Person to receive an Award in any other year or, once designated, to receive the same type or amount of Award as granted to such Participant in any other year.

5.2 *Determination of Awards.* The Committee shall determine the terms and conditions of all Awards granted to Participants in accordance with its authority under Section 3.2 hereof. An Award may consist of one type of right or benefit hereunder or of two or more such rights or benefits granted in tandem.

5.3 *Award Agreements.* Each Award granted to an Eligible Person shall be represented by an Award Agreement. The terms of the Award, as determined by the Committee, will be set forth in the applicable Award Agreements as described in Section 15.2 hereof.

## APPENDIX: 2020 INCENTIVE PLAN

5.4 *Minimum Vesting Requirement.* Notwithstanding any other provision of the Plan to the contrary, Awards granted under the Plan shall vest no earlier than the first anniversary of the date on which the Award is granted; provided, that the following Awards shall not be subject to the foregoing minimum vesting requirement: any (i) substituted or assumed Awards under Section 15.10, (ii) Awards to Non-Employee Directors that vest on the earlier of the first anniversary of the date of grant and the next annual meeting of stockholders which is at least 50 weeks after the immediately preceding year's annual meeting, (iii) shares of Common Stock delivered in lieu of fully vested cash obligations, and (iv) any additional Awards the Committee may grant, up to a maximum of five percent (5%) of the Share Reserve, as adjusted pursuant to Section 4.4; and, provided, further, that the foregoing restriction shall not apply to the Committee's discretion to provide for accelerated exercisability or vesting of any Award, including, without limitation, in cases of retirement, death, Disability or a Change in Control, under an Award Agreement, or otherwise.

### 6. Stock Options.

6.1 *Grant of Stock Options.* A Stock Option may be granted to any Eligible Person selected by the Committee, except that an Incentive Stock Option may only be granted to an Eligible Person satisfying the conditions of Section 6.7(a) hereof. Each Stock Option shall be designated on the Date of Grant, in the discretion of the Committee, as an Incentive Stock Option or as a Nonqualified Stock Option. All Stock Options granted under the Plan are intended to comply with or be exempt from the requirements of Section 409A of the Code, to the extent applicable.

6.2 *Exercise Price.* The exercise price per share of a Stock Option (other than a Stock Option substituted or assumed under Section 15.10) shall not be less than one hundred percent (100%) of the Fair Market Value of a share of Common Stock on the Date of Grant. The Committee may in its discretion specify an exercise price per share that is higher than the Fair Market Value of a share of Common Stock on the Date of Grant.

6.3 *Vesting of Stock Options.* Subject to Section 5.4, the Committee shall, in its discretion, prescribe in an award agreement the time or times at which or the conditions upon which, a Stock Option or portion thereof shall become vested and/or exercisable. The requirements for vesting and exercisability of a Stock Option may be based on the continued Service of the Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified performance goal(s) and/or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Stock Option are not satisfied, the Award shall be forfeited.

6.4 *Term of Stock Options.* The Committee shall in its discretion prescribe in an Award Agreement the period during which a vested Stock Option may be exercised; provided, however, that the maximum term of a Stock Option shall be ten (10) years from the Date of Grant. The Committee may provide that a Stock Option will cease to be exercisable upon or at the end of a specified time period following a termination of Service for any reason as set forth in the Award Agreement or otherwise. A Stock Option may be earlier terminated as specified by the Committee and set forth in an Award Agreement upon or following the termination of a Participant's Service with the Company or any Subsidiary, including by reason of voluntary resignation, death, Disability, termination for Cause or any other reason. Subject to compliance with Section 409A of the Code and the provisions of this Section 6, the Committee may extend at any time the period in which a Stock Option may be exercised, but not beyond ten (10) years from the Date of Grant.

6.5 *Stock Option Exercise; Tax Withholding.* Subject to such terms and conditions as specified in an Award Agreement (including applicable vesting requirements), a Stock Option may be exercised in whole or in part at any time during the term thereof by notice in the form required by the Company, together with payment of the aggregate exercise price and applicable withholding tax. Payment of the exercise price may be made: (i) in cash or by cash equivalent acceptable to the Committee, or, (ii) to the extent permitted by the Committee in its sole discretion in an Award Agreement or otherwise (A) in shares of Common Stock valued at the Fair Market Value of such shares on the date of exercise, (B) through an open-market, broker-assisted sales transaction pursuant to which the Company is promptly delivered the amount of proceeds necessary to satisfy the exercise price, (C) by reducing the number of

shares of Common Stock otherwise deliverable upon the exercise of the Stock Option by the number of shares of Common Stock having a Fair Market Value on the date of exercise equal to the exercise price, (D) by a combination of the methods described above or (E) by such other method as may be approved by the Committee. In accordance with Section 15.11 hereof, and in addition to and at the time of payment of the exercise price, the Participant shall pay to the Company the full amount of any and all applicable income tax, employment tax and other amounts required to be withheld in connection with such exercise, payable under such of the methods described above for the payment of the exercise price as may be approved by the Committee and set forth in the Award Agreement.

6.6 *Limited Transferability of Nonqualified Stock Options.* All Stock Options shall be nontransferable except (i) upon the Participant's death, in accordance with Section 15.3 hereof or (ii) in the case of Nonqualified Stock Options only, for the transfer of all or part of the Stock Option to a Participant's "family member" (as defined for purposes of the Form S-8 registration statement under the Securities Act), or as otherwise permitted by the Committee to the extent also permitted by the general instructions of the Form S-8 registration statement, as may be amended from time to time, in each case as may be approved by the Committee in its discretion at the time of proposed transfer; provided, in each case, that any permitted transfer shall be for no consideration. The transfer of a Nonqualified Stock Option may be subject to such terms and conditions as the Committee may in its discretion impose from time to time. Subsequent transfers of a Nonqualified Stock Option shall be prohibited other than in accordance with Section 15.3 hereof.

6.7 *Additional Rules for Incentive Stock Options.*

(a) *Eligibility.* An Incentive Stock Option may only be granted to an Eligible Person who is considered an employee for purposes of Treasury Regulation Section 1.421-1(h) with respect to the Company or any Subsidiary that qualifies as a "subsidiary corporation" with respect to the Company for purposes of Section 424(f) of the Code.

(b) *Annual Limits.* No Incentive Stock Option shall be granted to a Participant as a result of which the aggregate Fair Market Value (determined as of the Date of Grant) of the Common Stock with respect to which incentive stock options under Section 422 of the Code are exercisable for the first time in any calendar year under the Plan and any other stock option plans of the Company or any Subsidiary or parent corporation, would exceed \$100,000, determined in accordance with Section 422(d) of the Code. This limitation shall be applied by taking Stock Options into account in the order in which granted. Any Stock Option grant that exceeds such limit shall be treated as a Nonqualified Stock Option.

(c) *Additional Limitations.* In the case of any Incentive Stock Option granted to an Eligible Person who owns, either directly or indirectly (taking into account the attribution rules contained in Section 424(d) of the Code), stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Subsidiary, the exercise price shall not be less than one hundred ten percent (110%) of the Fair Market Value of a share of Common Stock on the Date of Grant and the maximum term shall be five (5) years.

(d) *Termination of Service.* An Award of an Incentive Stock Option may provide that such Stock Option may be exercised not later than (i) three (3) months following termination of Service of the Participant with the Company and all Subsidiaries (other than as set forth in clause (ii) of this Section 6.7(d)) or (ii) one year following termination of Service of the Participant with the Company and all Subsidiaries due to death or permanent and total disability within the meaning of Section 22(e)(3) of the Code, in each case as and to the extent determined by the Committee to comply with the requirements of Section 422 of the Code.

(e) *Other Terms and Conditions; Nontransferability.* Any Incentive Stock Option granted hereunder shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as are deemed necessary or desirable by the Committee, which terms, together with the terms of the Plan, shall be intended and interpreted to cause such Incentive Stock Option to qualify as an "incentive stock option" under Section 422 of the

## APPENDIX: 2020 INCENTIVE PLAN

Code. A Stock Option that is granted as an Incentive Stock Option shall, to the extent it fails to qualify as an “incentive stock option” under the Code, be treated as a Nonqualified Stock Option. An Incentive Stock Option shall by its terms be nontransferable other than by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of a Participant only by such Participant.

(f) *Disqualifying Dispositions.* If shares of Common Stock acquired by exercise of an Incentive Stock Option are disposed of within two years following the Date of Grant or one year following the transfer of such shares to the Participant upon exercise, the Participant shall, promptly following such disposition, notify the Company in writing of the date and terms of such disposition and provide such other information regarding the disposition as the Company may reasonably require.

6.8 *Repricing Prohibited.* Subject to the adjustment provisions contained in Section 4.4 hereof and other than in connection with a Change in Control, without the prior approval of the Company’s stockholders, neither the Committee nor the Board shall cancel a Stock Option when the exercise price per share exceeds the Fair Market Value of one share of Common Stock in exchange for cash or another Award or cause the cancellation, substitution or amendment of a Stock Option that would have the effect of reducing the exercise price of such a Stock Option previously granted under the Plan or otherwise approve any modification to such a Stock Option, that would be treated as a “repricing” under the then applicable rules, regulations or listing requirements adopted by the NASDAQ or other principal exchange on which the Common Stock is then listed.

6.9 *Dividends and Dividend Equivalent Rights.* Dividends and dividend equivalent rights shall not be paid or provided with respect to Stock Options.

6.10 *No Rights as Stockholder.* The Participant shall not have any rights as a stockholder with respect to the shares underlying a Stock Option until such time as shares or Common Stock are delivered to the Participant pursuant to the terms of the Award Agreement.

### 7. Stock Appreciation Rights.

7.1 *Grant of Stock Appreciation Rights.* Stock Appreciation Rights may be granted to any Eligible Person selected by the Committee. Stock Appreciation Rights may be granted on a basis that allows for the exercise of the right by the Participant, or that provides for the automatic exercise or payment of the right upon a specified date or event. Stock Appreciation Rights shall be non-transferable, except as provided in Section 15.3 hereof. All Stock Appreciation Rights granted under the Plan are intended to comply with or otherwise be exempt from the requirements of Section 409A of the Code, to the extent applicable.

7.2 *Terms of Share Appreciation Rights.* Subject to Section 5.4, the Committee shall in its discretion provide in an Award Agreement the time or times at which or the conditions upon which, a Stock Appreciation Right or portion thereof shall become vested and/or exercisable. The requirements for vesting and exercisability of a Stock Appreciation Right may be based on the continued Service of a Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified performance goal(s) and/or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Stock Appreciation Right are not satisfied, the Award shall be forfeited. A Stock Appreciation Right will be exercisable or payable at such time or times as determined by the Committee; provided, however, that the maximum term of a Stock Appreciation Right shall be ten (10) years from the Date of Grant. Subject to compliance with Section 409A of the Code and the provisions of this Section 7.2, the Committee may extend at any time the period in which a Stock Appreciation Right may be exercised, but not beyond ten (10) years from the Date of Grant. The Committee may provide that a Stock Appreciation Right will cease to be exercisable upon or at the end of a period following a termination of Service for any reason. The base price of a Stock Appreciation Right shall be determined by the Committee in its discretion; provided, however, that the base price per share shall not be less than one hundred percent (100%) of the Fair Market Value of a

share of Common Stock on the Date of Grant (other than with respect to a Stock Appreciation Right substituted or assumed under Section 15.10).

7.3 *Payment of Stock Appreciation Rights.* A Stock Appreciation Right will entitle the holder, upon exercise or other payment of the Stock Appreciation Right, as applicable, to receive an amount determined by multiplying: (i) the excess of the Fair Market Value of a share of Common Stock on the date of exercise or payment of the Stock Appreciation Right over the base price of such Stock Appreciation Right, by (ii) the number of shares as to which such Stock Appreciation Right is exercised or paid. Payment of the amount determined under the foregoing may be made, as approved by the Committee and set forth in the Award Agreement, in shares of Common Stock valued at their Fair Market Value on the date of exercise or payment, in cash or in a combination of shares of Common Stock and cash, subject to applicable tax withholding requirements.

7.4 *Repricing Prohibited.* Subject to the adjustment provisions contained in Section 4.4 hereof and other than in connection with a Change in Control, without the prior approval of the Company's stockholders, neither the Committee nor the Board shall cancel a Stock Appreciation Right when the base price per share exceeds the Fair Market Value of one share of Common Stock in exchange for cash or another Award or cause the cancellation, substitution or amendment of a Stock Appreciation Right that would have the effect of reducing the base price of such a Stock Appreciation Right previously granted under the Plan or otherwise approve any modification to such Stock Appreciation Right that would be treated as a "repricing" under the then applicable rules, regulations or listing requirements adopted by the NASDAQ or other principal exchange on which the Common Stock is then listed.

7.5 *Dividends and Dividend Equivalent Rights.* Dividends and dividend equivalent rights shall not be paid or provided with respect to Stock Appreciation Rights.

## 8. Restricted Stock Awards.

8.1 *Grant of Restricted Stock Awards.* A Restricted Stock Award may be granted to any Eligible Person selected by the Committee. The Committee may require the payment by the Participant of a specified purchase price in connection with any Restricted Stock Award.

8.2 *Vesting Requirements.* Subject to Section 5.4, the restrictions imposed on shares granted under a Restricted Stock Award shall lapse in accordance with the vesting requirements specified by the Committee in the Award Agreement. The requirements for vesting of a Restricted Stock Award may be based on the continued Service of the Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified performance goal(s) and/or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Restricted Stock Award are not satisfied, the Award shall be forfeited and the shares of Common Stock subject to the Award shall be returned to the Company.

8.3 *Transfer Restrictions.* Shares granted under any Restricted Stock Award may not be transferred, assigned or subject to any encumbrance, pledge or charge until all applicable restrictions are removed or have expired, except as provided in Section 15.3 hereof. Failure to satisfy any applicable restrictions shall result in the subject shares of the Restricted Stock Award being forfeited and returned to the Company. The Committee may require in an Award Agreement that certificates (if any) representing the shares granted under a Restricted Stock Award bear a legend making appropriate reference to the restrictions imposed, and that certificates (if any) representing the shares granted or sold under a Restricted Stock Award will remain in the physical custody of an escrow holder until all restrictions are removed or have expired.

## APPENDIX: 2020 INCENTIVE PLAN

8.4 *Rights as Stockholder.* Subject to the foregoing provisions of this Section 8 and the applicable Award Agreement, the Participant shall have all rights of a stockholder with respect to the shares granted to the Participant under a Restricted Stock Award, including the right to vote the shares and receive all dividends and other distributions paid or made with respect thereto, unless the Committee determines otherwise at the time the Restricted Stock Award is granted. If a Participant has the right to receive dividends paid with respect to the Restricted Stock Award, such dividends shall be subject to the same vesting terms as the related Restricted Stock Award.

8.5 *Section 83(b) Election.* If a Participant makes an election pursuant to Section 83(b) of the Code with respect to a Restricted Stock Award, the Participant shall file, within thirty (30) days following the Date of Grant, a copy of such election with the Company and with the Internal Revenue Service, in accordance with the regulations under Section 83 of the Code. The Committee may provide in an Award Agreement that the Restricted Stock Award is conditioned upon the Participant's making or refraining from making an election with respect to the Award under Section 83(b) of the Code.

### 9. Restricted Stock Units.

9.1 *Grant of Restricted Stock Units.* A Restricted Stock Unit may be granted to any Eligible Person selected by the Committee. The value of each Restricted Stock Unit is equal to the Fair Market Value of a share of Common Stock on the applicable date or time period of determination, as specified by the Committee. Restricted Stock Units shall be subject to such restrictions and conditions as the Committee shall determine. Restricted Stock Units shall be non-transferable, except as provided in Section 15.3 hereof.

9.2 *Vesting of Restricted Stock Units.* The Committee shall, in its discretion, determine any vesting requirements with respect to Restricted Stock Units, which shall be set forth in the Award Agreement. The requirements for vesting of a Restricted Stock Unit may be based on the continued Service of the Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified performance goal(s) and/or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Restricted Stock Unit Award are not satisfied, the Award shall be forfeited.

9.3 *Payment of Restricted Stock Units.* Restricted Stock Units shall become payable to a Participant at the time or times determined by the Committee and set forth in the Award Agreement, which may be upon or following the vesting of the Award. Payment of a Restricted Stock Unit may be made, as approved by the Committee and set forth in the Award Agreement, in cash or in shares of Common Stock or in a combination thereof, subject to applicable tax withholding requirements. Any cash payment of a Restricted Stock Unit shall be made based upon the Fair Market Value of a share of Common Stock, determined on such date or over such time period as determined by the Committee.

9.4 *Dividend Equivalent Rights.* Dividends shall not be paid with respect to Restricted Stock Units. Dividend equivalent rights may be granted with respect to the Shares subject to Restricted Stock Units to the extent permitted by the Committee and set forth in the applicable Award Agreement; provided that any dividend equivalent rights granted shall be subject to the same vesting terms as the related Restricted Stock Units.

9.5 *No Rights as Stockholder.* The Participant shall not have any rights as a stockholder with respect to the shares subject to a Restricted Stock Unit until such time as shares of Common Stock are delivered to the Participant pursuant to the terms of the Award Agreement.

10. Stock Awards.

10.1 *Grant of Stock Awards.* A Stock Award may be granted to any Eligible Person selected by the Committee. A Stock Award may be granted for past Services, in lieu of bonus or other cash compensation, as directors' compensation or for any other valid purpose as determined by the Committee. The Committee shall determine the terms and conditions of such Awards, and, subject to Section 5.4, such Awards may be made without vesting requirements. In addition, the Committee may, in connection with any Stock Award, require the payment of a specified purchase price.

10.2 *Rights as Stockholder.* Subject to the foregoing provisions of this Section 10 and the applicable Award Agreement, upon the issuance of shares of Common Stock under a Stock Award the Participant shall have all rights of a stockholder with respect to the shares of Common Stock, including the right to vote the shares and receive all dividends and other distributions paid or made with respect thereto. If a Participant has the right to receive dividends paid with respect to the Stock Award, such dividends shall be subject to the same vesting terms as the related Stock Award, if applicable.

11. Change in Control.

11.1 *Effect on Awards.* Upon the occurrence of a Change in Control, all outstanding Awards shall either (a) be continued or assumed by the Company (if it is the surviving company or corporation) or by the surviving company or corporation or its parent (with such continuation or assumption including conversion into the right to receive securities, cash or a combination of both), or (b) substituted by the surviving company or corporation or its parent of awards (with such substitution including conversion into the right to receive securities, cash or a combination of both), with substantially similar terms for outstanding Awards (with appropriate adjustments to the type of consideration payable upon settlement of the Awards or other relevant factors, and with any applicable performance conditions adjusted pursuant to Section 12 or deemed achieved (i) for any completed performance period, based on actual performance, or (ii) for any partial or future performance period, at the greater of the target level or actual performance, in each case as determined by the Committee (with the Award remaining subject only to time vesting), unless otherwise provided in an Award Agreement).

11.2 *Certain Adjustments.* To the extent that outstanding Awards are not continued, assumed or substituted pursuant to Section 11.1 upon or following a Change in Control, the Committee is authorized (but not obligated) to make adjustments in the terms and conditions of outstanding Awards, including without limitation the following (or any combination thereof):

(a) acceleration of exercisability, vesting and/or payment of outstanding Awards immediately prior to the occurrence of such event or upon or following such event;

(b) upon written notice, providing that any outstanding Stock Options and Stock Appreciation Rights are exercisable during a period of time immediately prior to the scheduled consummation of the event or such other period as determined by the Committee (contingent upon the consummation of the event), and at the end of such period, such Stock Options and Stock Appreciation Rights shall terminate to the extent not so exercised within the relevant period; and

(c) cancellation of all or any portion of outstanding Awards for fair value (in the form of cash, Common Shares, other property or any combination thereof) as determined in the sole discretion of the Committee; provided, however, that, in the case of Stock Options and Stock Appreciation Rights or similar Awards, the fair value may equal the excess, if any, of the value or amount of the consideration to be paid in the Change in Control transaction to holders of shares of Common Stock (or, if no such consideration is paid, Fair Market Value of the shares of Common Stock) over the aggregate exercise or base price, as applicable, with respect to such Awards or portion thereof being canceled, or if there is no such excess, zero; provided, further, that if any payments or other consideration are deferred and/or contingent as a result of escrows, earn outs, holdbacks or any other contingencies, payments under this provision

## APPENDIX: 2020 INCENTIVE PLAN

may be made on substantially the same terms and conditions applicable to, and only to the extent actually paid to, the holders of Common Shares in connection with the Change in Control.

11.3 *Certain Terminations of Service.* Notwithstanding the provisions of Section 11.1, if a Participant's Service with the Company and its Subsidiaries is terminated upon or within twenty four (24) months following a Change in Control by the Company without Cause or upon such other circumstances as determined by the Committee, the unvested portion (if any) of all outstanding Awards held by the Participant shall immediately vest (and, to the extent applicable, become exercisable) and be paid in full upon such termination, with any applicable performance conditions deemed achieved (i) for any completed performance period, based on actual performance, or (ii) for any partial or future performance period, at the greater of the target level or actual performance, in each case as determined by the Committee, unless otherwise provided in an Award Agreement.

11.4 *Definition of Change in Control.* Unless otherwise defined in an Award Agreement or other written agreement approved by the Committee, "Change in Control" means, and shall occur, if:

(a) any Person (other than the Company, any trustee or other fiduciary holding securities under any employee benefit plan of the Company, or any company owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their ownership of shares of Common Stock), is or becomes the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing 50% or more of the combined voting power of the Company's then outstanding securities;

(b) during any period of two consecutive years (the "*Board Measurement Period*") individuals who at the beginning of such period constitute the Board and any new director (other than a director designated by a Person who has entered into an agreement with the Company to effect a transaction described in paragraph (a), (c), or (d) of this section, or a director initially elected or nominated as a result of an actual or threatened election contest with respect to directors or as a result of any other actual or threatened solicitation of proxies by or on behalf of any Person other than the Board) whose election by the Board or nomination for election by the Company's stockholders was approved by a vote of at least two-thirds of the directors then still in office who either were directors at the beginning of the Board Measurement Period or whose election or nomination for election was previously so approved, cease for any reason to constitute at least a majority of the Board;

(c) a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than 50% of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation; provided, however, that a merger or consolidation effected to implement a recapitalization of the Company (or similar transaction) in which no Person (other than those covered by the exceptions in (i) above) acquires more than 50% of the combined voting power of the Company's then outstanding securities shall not constitute a Change in Control of the Company; or

(d) the stockholders of the Company approve a plan of complete liquidation of the Company or the consummation of the sale or disposition by the Company of all or substantially all of the Company's assets other than (i) the sale or disposition of all or substantially all of the assets of the Company to a Person or Persons who beneficially own, directly or indirectly, at least 50% or more of the combined voting power of the outstanding voting securities of the Company at the time of the sale or (ii) pursuant to a spinoff type transaction, directly or indirectly, of such assets to the stockholders of the Company.

Notwithstanding the foregoing, to the extent necessary to comply with Section 409A of the Code with respect to the payment of "nonqualified deferred compensation," "Change in Control" shall be limited to a "change in control event" as defined under Section 409A of the Code.

12. Performance Goals; Adjustment. 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. In addition, with respect to a Participant hired or promoted following the beginning of a performance period, the Committee may determine to prorate the performance goals in respect of such Participant's Awards for the partial performance period. Performance goals to which an Award is subject may include any of the following, or any other performance goal determined in the Committee's sole discretion: (1) enterprise value or value creation targets of the Company; (2) income or net income; operating income; net operating income or net operating income after tax; operating profit or net operating profit; (3) cash flow including, but not limited to, from operations or free cash flow; (4) bank debt or other long-term or short-term public or private debt or other similar financial obligations (which may be calculated net of cash balances and/or other offsets and adjustments); (5) net sales, revenues, net income or earnings before income tax or other exclusions of the Company; (6) operating margin; return on operating revenue or return on operating profit; (7) return measures (after tax or pre-tax), including return on capital employed, return on invested capital; return on equity, return on assets, return on net assets; (8) market capitalization, fair market value of the shares of the Common Stock, franchise value (net of debt), economic value added; (9) total stockholder return or growth in total stockholder return (with or without dividend reinvestment); (10) proprietary investment results; (11) estimated market share (whether based on FINRA TRACE volume or otherwise); (12) expense management/control or reduction (including without limitation, compensation and benefits expense); (13) customer satisfaction; (14) technological improvements/implementation, new product innovation; (15) collections and recoveries; (16) property/asset purchases; (17) litigation and regulatory resolution/implementation goals; (18) leases, contracts or financings (including renewals, overhead, savings, G&A and other expense control goals); (19) risk management/implementation; (20) development and implementation of strategic plans and/or organizational restructuring goals; (21) development and implementation of risk and crisis management programs; compliance requirements and compliance relief; productivity goals; workforce management and succession planning goals; (22) employee satisfaction or staff development; (23) formations of joint ventures or partnerships or the completion of other similar transactions intended to enhance the Company's revenue or profitability or to enhance its customer base; or (24) completion of a merger, acquisition or any transaction that results in the sale of all or substantially all of the stock or assets of the Company.

13. Forfeiture Events.

13.1 *General.* The Committee may specify in an Award Agreement at the time of the Award that the Participant's rights, payments and benefits with respect to an Award are subject to reduction, cancellation, forfeiture or recoupment upon the occurrence of certain specified events, in addition to any otherwise applicable vesting or performance conditions of an Award. Such events may include, without limitation, termination of Service for Cause, violation of laws, regulations or material Company policies, breach of noncompetition, non-solicitation, confidentiality or other restrictive covenants that may apply to the Participant or other conduct by the Participant that is detrimental to the business or reputation of the Company.

13.2 *Termination for Cause.*

(a) *Treatment of Awards.* Unless otherwise provided by the Committee and set forth in an Award Agreement, if (i) a Participant's Service with the Company or any Subsidiary shall be terminated for Cause or (ii) after termination of Service for any other reason, the Committee determines in its discretion either that, (1) during the Participant's period of Service, the Participant engaged in an act or omission which would have warranted termination of Service for Cause or (2) after termination, the Participant engages in conduct that violates any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary, such Participant's rights, payments and benefits with respect to an Award shall be subject to cancellation, forfeiture and/or recoupment, as provided in Section 13.3 below. The Company shall have the power to determine whether the Participant has been terminated for Cause, the date upon which such termination for Cause occurs, whether the Participant engaged in an act or omission which would have warranted termination of Service for Cause or engaged in conduct that violated any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary. Any such determination shall be final, conclusive and binding upon all Persons. In addition, if the Company shall reasonably determine that a Participant has committed or may have committed any act which could constitute the basis for a termination of such Participant's Service for Cause or violates any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary, the Company may suspend the Participant's rights to exercise any Stock Option or Stock Appreciation Right, receive any payment or vest in any right with respect to any Award pending a determination by the Company of whether an act or omission could constitute the basis for a termination for Cause as provided in this Section 13.2.

(b) *Definition of Cause.* "Cause" means with respect to a Participant's termination of Service, the following: (a) in the case where there is no employment agreement, consulting agreement, change in control agreement or similar agreement in effect between the Company or an Affiliate and the Participant (or where there is such an agreement but it does not define "cause" (or words of like import, which shall include but not be limited to "gross misconduct")), termination due to a Participant's (1) failure to substantially perform Participant's duties or obey lawful directives that continues after receipt of written notice from the Company and a ten (10)-day opportunity to cure; (2) gross misconduct or gross negligence in the performance of Participant's duties; (3) fraud, embezzlement, theft, or any other act of material dishonesty or misconduct; (4) conviction of, indictment for, or plea of guilty or nolo contendere to, a felony or any crime involving moral turpitude; (5) material breach or violation of any agreement with the Company or its Affiliates, any restrictive covenant applicable to Participant, or any Company policy (including, without limitation, with respect to harassment); or (6) other conduct, acts or omissions that, in the good faith judgment of the Company, are likely to materially injure the reputation, business or a business relationship of the Company or any of its Affiliates; or (b) in the case where there is an employment agreement, consulting agreement, change in control agreement or similar agreement in effect between the Company or an Affiliate and the Participant that defines "cause" (or words of like import, which shall include but not be limited to "gross misconduct"), "cause" as defined under such agreement; provided, however, that with regard to any agreement under which the definition of "cause" only applies on occurrence of a change in control, such definition of "cause" shall not apply until a change in control occurs under such agreement and then only with regard to a termination thereafter. With respect to a termination of Service for a non-employee director, Cause means an act or failure to act that constitutes cause for removal of a director under applicable Delaware law. Any voluntary termination of Service by the Participant in anticipation of an involuntary termination of the Participant's Service for Cause shall be deemed to be a termination for Cause.

13.3 *Right of Recapture.*

(a) *General.* If at any time within one (1) year (or such longer time specified in an Award Agreement or other agreement with a Participant or policy applicable to the Participant) after the date on which a Participant exercises a Stock Option or Stock Appreciation Right or on which a Stock Award, Restricted Stock Award or Restricted Stock Unit vests, is settled in shares or otherwise becomes payable, or on which income otherwise is realized or property is received by a Participant in connection with an Award, (i) a Participant's Service is terminated for Cause, (ii) the Committee determines in its discretion that the Participant is subject to any recoupment of benefits pursuant to the Company's compensation recovery, "clawback" or similar policy, as may be in effect from time to time, or (iii) after a

Participant's Service terminates for any other reason, the Committee determines in its discretion either that, (1) during the Participant's period of Service, the Participant engaged in an act or omission which would have warranted termination of the Participant's Service for Cause or (2) after a Participant's termination of Service, the Participant engaged in conduct that violated any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary, then, at the sole discretion of the Committee, any gain realized by the Participant from the exercise, vesting, payment, settlement or other realization of income or receipt of property by the Participant in connection with an Award, shall be repaid by the Participant to the Company upon notice from the Company, subject to applicable law. Such gain shall be determined as of the date or dates on which the gain is realized by the Participant, without regard to any subsequent change in the Fair Market Value of a share of Common Stock. To the extent not otherwise prohibited by law, the Company shall have the right to offset the amount of such repayment obligation against any amounts otherwise owed to the Participant by the Company (whether as wages, vacation pay or pursuant to any benefit plan or other compensatory arrangement).

(b) *Accounting Restatement.* If a Participant receives compensation pursuant to an Award under the Plan based on financial statements that are subsequently restated in a way that would decrease the value of such compensation, the Participant will, to the extent not otherwise prohibited by law, upon the written request of the Company, forfeit and repay to the Company the difference between what the Participant received and what the Participant should have received based on the accounting restatement, in accordance with (i) any compensation recovery, "clawback" or similar policy, as may be in effect from time to time to which such Participant is subject and (ii) any compensation recovery, "clawback" or similar policy made applicable by law including the provisions of Section 945 of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the rules, regulations and requirements adopted thereunder by the Securities and Exchange Commission and/or any national securities exchange on which the Company's equity securities may be listed (the "*Policy*"). By accepting an Award hereunder, the Participant acknowledges and agrees that the Policy, whenever adopted, shall apply to such Award, and all incentive-based compensation payable pursuant to such Award shall be subject to forfeiture and repayment pursuant to the terms of the Policy.

14. Transfer, Leave of Absence, Etc. For purposes of the Plan, except as otherwise determined by the Committee, the following events shall not be deemed a termination of Service: (a) a transfer to the service of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or (b) an approved leave of absence for military service or sickness, a leave of absence where the employee's right to re-employment is protected either by a statute or by contract or under the policy pursuant to which the leave of absence was granted, a leave of absence for any other purpose approved by the Company or if the Committee otherwise so provides in writing.

15. General Provisions.

15.1 *Status of Plan.* The Committee may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver shares of Common Stock or make payments with respect to Awards.

15.2 *Award Agreement.* An Award under the Plan shall be evidenced by an Award Agreement in a written or electronic form approved by the Committee setting forth the number of shares of Common Stock or other amounts or securities subject to the Award, the exercise price, base price or purchase price of the Award, the time or times at which an Award will become vested, exercisable or payable and the term of the Award. The Award Agreement also may set forth the effect on an Award of a Change in Control and/or a termination of Service under certain circumstances. The Award Agreement shall be subject to and incorporate, by reference or otherwise, all of the applicable terms and conditions of the Plan, and also may set forth other terms and conditions applicable to the Award as determined by the Committee consistent with the limitations of the Plan. The grant of an Award under the Plan shall not confer any rights upon the Participant holding such Award other than such terms, and subject to such conditions, as are specified in the Plan as being applicable to such type of Award (or to all Awards) or as are expressly set forth in the Award Agreement. The Committee need not require the execution of an Award Agreement by a

## APPENDIX: 2020 INCENTIVE PLAN

Participant, in which case, acceptance of the Award by the Participant shall constitute agreement by the Participant to the terms, conditions, restrictions and limitations set forth in the Plan and the Award Agreement as well as the administrative guidelines of the Company in effect from time to time. In the event of any conflict between the provisions of the Plan and any Award Agreement, the provisions of the Plan shall prevail.

15.3 *No Assignment or Transfer; Beneficiaries.* Except as provided in Section 6.6 hereof or as otherwise provided by the Committee to the extent not prohibited under Section A.1.(5) of the general instructions of Form S-8, as may be amended from time to time, Awards under the Plan shall not be assignable or transferable by the Participant, and shall not be subject in any manner to assignment, alienation, pledge, encumbrance or charge. Notwithstanding the foregoing, in the event of the death of a Participant, except as otherwise provided by the Committee, an outstanding Award may be exercised by or shall become payable to the Participant's beneficiary as determined under the Company 401(k) retirement plan or other applicable retirement or pension plan. In lieu of such determination, a Participant may, from time to time, name any beneficiary or beneficiaries to receive any benefit in case of the Participant's death before the Participant receives any or all of such benefit. Each such designation shall revoke all prior designations by the same Participant and will be effective only when filed by the Participant in writing (in such form or manner as may be prescribed by the Committee) with the Company during the Participant's lifetime. In the absence of a valid designation as provided above, if no validly designated beneficiary survives the Participant or if each surviving validly designated beneficiary is legally impaired or prohibited from receiving the benefits under an Award, the Participant's beneficiary shall be the legatee or legatees of such Award designated under the Participant's last will or by such Participant's executors, personal representatives or distributees of such Award in accordance with the Participant's will or the laws of descent and distribution. The Committee may provide in the terms of an Award Agreement or in any other manner prescribed by the Committee that the Participant shall have the right to designate a beneficiary or beneficiaries who shall be entitled to any rights, payments or other benefits specified under an Award following the Participant's death. Any transfer permitted under this Section 15.3 shall be for no consideration.

15.4 *Deferrals of Payment.* The Committee may in its discretion permit a Participant to defer the receipt of payment of cash or delivery of shares of Common Stock that would otherwise be due to the Participant by virtue of the exercise of a right or the satisfaction of vesting or other conditions with respect to an Award; provided, however, that such discretion shall not apply in the case of a Stock Option or Stock Appreciation Right that is intended to satisfy the requirements of Treasury Regulations Section 1.409A-1(b)(5)(i)(A) or (B). If any such deferral is to be permitted by the Committee, the Committee shall establish rules and procedures relating to such deferral in a manner intended to comply with the requirements of Section 409A of the Code, including, without limitation, the time when an election to defer may be made, the time period of the deferral and the events that would result in payment of the deferred amount, the interest or other earnings attributable to the deferral and the method of funding, if any, attributable to the deferred amount.

15.5 *No Right to Employment or Continued Service.* Nothing in the Plan, in the grant of any Award or in any Award Agreement shall confer upon any Eligible Person or any Participant any right to continue in the Service of the Company or any of its Subsidiaries or interfere in any way with the right of the Company or any of its Subsidiaries to terminate the employment or other service relationship of an Eligible Person or a Participant for any reason or no reason at any time.

15.6 *Rights as Stockholder.* A Participant shall have no rights as a holder of shares of Common Stock with respect to any unissued securities covered by an Award until the date the Participant becomes the holder of record of such securities. Except as provided in Section 4.4 hereof, no adjustment or other provision shall be made for dividends or other stockholder rights, except to the extent that the Award Agreement provides for dividend payments or dividend equivalent rights. The Committee may determine in its discretion the manner of delivery of Common Stock to be issued under the Plan, which may be by delivery of stock certificates, electronic account entry into new or existing accounts or any other means as the Committee, in its discretion, deems appropriate. The Committee may require that the stock certificates (if any) be held in escrow by the Company for any shares of Common Stock or cause the shares to be legended in order to comply with the securities laws or other applicable restrictions. Should the shares of Common Stock be represented by book or electronic account entry rather than a certificate, the Committee may take such steps to restrict transfer of the shares of Common Stock as the Committee considers necessary or advisable.

15.7 *Trading Policy and Other Restrictions.* Transactions involving Awards under the Plan shall be subject to the Company's insider trading and Regulation FD policy and other restrictions, terms and conditions, to the extent established by the Committee or by applicable law, including any other applicable policies set by the Committee, from time to time.

15.8 *Section 409A Compliance.* To the extent applicable, it is intended that the Plan and all Awards hereunder comply with, or be exempt from, the requirements of Section 409A of the Code and the Treasury Regulations and other guidance issued thereunder, and that the Plan and all Award Agreements shall be interpreted and applied by the Committee in a manner consistent with this intent in order to avoid the imposition of any additional tax under Section 409A of the Code. In the event that any (i) provision of the Plan or an Award Agreement, (ii) Award, payment, transaction or (iii) other action or arrangement contemplated by the provisions of the Plan is determined by the Committee to not comply with the applicable requirements of Section 409A of the Code and the Treasury Regulations and other guidance issued thereunder, the Committee shall have the authority to take such actions and to make such changes to the Plan or an Award Agreement as the Committee deems necessary to comply with such requirements; provided, however, that no such action shall adversely affect any outstanding Award without the consent of the affected Participant. No payment that constitutes deferred compensation under Section 409A of the Code that would otherwise be made under the Plan or an Award Agreement upon a termination of Service will be made or provided unless and until such termination is also a "separation from service," as determined in accordance with Section 409A of the Code. Notwithstanding the foregoing or anything elsewhere in the Plan or an Award Agreement to the contrary, if a Participant is a "specified employee" as defined in Section 409A of the Code at the time of termination of Service with respect to an Award, then solely to the extent necessary to avoid the imposition of any additional tax under Section 409A of the Code, the commencement of any payments or benefits under the Award shall be deferred until the date that is six (6) months plus one (1) day following the date of the Participant's termination of Service or, if earlier, the Participant's death (or such other period as required to comply with Section 409A). For purposes of Section 409A of the Code, a Participant's right to receive any installment payments pursuant to this Plan or any Award granted hereunder shall be treated as a right to receive a series of separate and distinct payments. For the avoidance of doubt, each applicable tranche of Common Shares subject to vesting under any Award shall be considered a right to receive a series of separate and distinct payments. In no event whatsoever shall the Company be liable for any additional tax, interest or penalties that may be imposed on a Participant by Section 409A of the Code or any damages for failing to comply with Section 409A of the Code.

## APPENDIX: 2020 INCENTIVE PLAN

15.9 *Securities Law Compliance.* No shares of Common Stock will be issued or transferred pursuant to an Award unless and until all then applicable requirements imposed by Federal and state securities and other laws, rules and regulations and by any regulatory agencies having jurisdiction, and by any exchanges upon which the shares of Common Stock may be listed, have been fully met. As a condition precedent to the issuance of shares of Common Stock pursuant to the grant or exercise of an Award, the Company may require the Participant to take any action that the Company determines is necessary or advisable to meet such requirements. The Committee may impose such conditions on any shares of Common Stock issuable under the Plan as it may deem advisable, including, without limitation, restrictions under the Securities Act, under the requirements of any exchange upon which such shares of the same class are then listed, and under any blue sky or other securities laws applicable to such shares. The Committee may also require the Participant to represent and warrant at the time of issuance or transfer that the shares of Common Stock are being acquired solely for investment purposes and without any current intention to sell or distribute such shares.

15.10 *Substitution or Assumption of Awards in Corporate Transactions.* The Committee may grant Awards under the Plan in connection with the acquisition, whether by purchase, merger, consolidation or other corporate transaction, of the business or assets of any corporation or other entity, in substitution for awards previously granted by such corporation or other entity or otherwise. The Committee may also assume any previously granted awards of an employee, director, consultant or other service provider of another corporation or entity that becomes an Eligible Person by reason of such corporation transaction. The terms and conditions of the substituted or assumed awards may vary from the terms and conditions that would otherwise be required by the Plan solely to the extent the Committee deems necessary for such purpose. To the extent permitted by applicable law and the listing requirements of the NASDAQ or other exchange or securities market on which the Common Shares are listed, any such substituted or assumed awards shall not reduce the Share Reserve.

15.11 *Tax Withholding.* The Participant shall be responsible for payment of any taxes or similar charges required by law to be paid or withheld from an Award or an amount paid in satisfaction of an Award. Any required withholdings shall be paid by the Participant on or prior to the payment or other event that results in taxable income in respect of an Award. The Award Agreement may specify the manner in which the withholding obligation shall be satisfied with respect to the particular type of Award, which may include permitting the Participant to elect to satisfy the withholding obligation by tendering shares of Common Stock to the Company or having the Company withhold a number of shares of Common Stock having a value in each case up to the maximum statutory tax rates in the applicable jurisdiction or as the Committee may approve in its discretion (provided that such withholding does not result in adverse tax or accounting consequences to the Company), or similar charge required to be paid or withheld. The Company shall have the power and the right to require a Participant to remit to the Company the amount necessary to satisfy federal, state, provincial and local taxes, domestic or foreign, required by law or regulation to be withheld, and to deduct or withhold from any shares of Common Stock deliverable under an Award to satisfy such withholding obligation.

15.12 *Unfunded Plan.* The adoption of the Plan and any reservation of shares of Common Stock or cash amounts by the Company to discharge its obligations hereunder shall not be deemed to create a trust or other funded arrangement. Except upon the issuance of shares of Common Stock pursuant to an Award, any rights of a Participant under the Plan shall be those of a general unsecured creditor of the Company, and neither a Participant nor the Participant's permitted transferees or estate shall have any other interest in any assets of the Company by virtue of the Plan. Notwithstanding the foregoing, the Company shall have the right to implement or set aside funds in a grantor trust, subject to the claims of the Company's creditors or otherwise, to discharge its obligations under the Plan.

15.13 *Other Compensation and Benefit Plans.* The adoption of the Plan shall not affect any other share incentive or other compensation plans in effect for the Company or any Subsidiary, nor shall the Plan preclude the Company from establishing any other forms of share incentive or other compensation or benefit program for employees of the Company or any Subsidiary. The amount of any compensation deemed to be received by a Participant pursuant to an Award shall not constitute includable compensation for purposes of determining the

amount of benefits to which a Participant is entitled under any other compensation or benefit plan or program of the Company or a Subsidiary, including, without limitation, under any pension or severance benefits plan, except to the extent specifically provided by the terms of any such plan.

15.14 *Plan Binding on Transferees.* The Plan shall be binding upon the Company, its transferees and assigns, and the Participant, the Participant's executor, administrator and permitted transferees and beneficiaries.

15.15 *Severability.* If any provision of the Plan or any Award Agreement shall be determined to be illegal or unenforceable by any court of law in any jurisdiction, the remaining provisions hereof and thereof shall be severable and enforceable in accordance with their terms, and all provisions shall remain enforceable in any other jurisdiction.

15.16 *Governing Law.* The Plan, all Awards and all Award Agreements, and all claims or causes of action (whether in contract, tort or statute) that may be based upon, arise out of or relate to the Plan, any Award or Award Agreement, or the negotiation, execution or performance of any such documents or matter related thereto (including any claim or cause of action based upon, arising out of or related to any representation or warranty made in or in connection with the Plan, any Award or Award Agreement, or as an inducement to enter into any Award Agreement), shall be governed by, and enforced in accordance with, the internal laws of the State of Delaware, including its statutes of limitations and repose, but without regard to any borrowing statute that would result in the application of the statute of limitations or repose of any other jurisdiction.

15.17 *No Fractional Shares.* No fractional shares of Common Stock shall be issued or delivered pursuant to the Plan or any Award, and the Committee shall determine whether cash, other securities or other property shall be paid or transferred in lieu of any fractional shares of Common Stock or whether such fractional shares or any rights thereto shall be canceled, terminated or otherwise eliminated.

15.18 *No Guarantees Regarding Tax Treatment.* Neither the Company nor the Committee make any guarantees to any Person regarding the tax treatment of Awards or payments made under the Plan. Neither the Company nor the Committee has any obligation to take any action to prevent the assessment of any tax on any Person with respect to any Award under Section 409A of the Code, Section 4999 of the Code or otherwise and neither the Company nor the Committee shall have any liability to a Person with respect thereto.

15.19 *Data Protection.* By participating in the Plan, each Participant consents to the collection, processing, transmission and storage by the Company, its Subsidiaries and any third party administrators of any data of a professional or personal nature for the purposes of administering the Plan.

15.20 *Awards to Non-U.S. Participants.* To comply with the laws in countries other than the United States in which the Company or any of its Subsidiaries or Affiliates operates or has employees, Non-Employee Directors or consultants, the Committee, in its sole discretion, shall have the power and authority to (i) modify the terms and conditions of any Award granted to Participants outside the United States to comply with applicable foreign laws, (ii) take any action, before or after an Award is made, that it deems advisable to obtain approval or comply with any necessary local government regulatory exemptions or approvals and (iii) establish subplans and modify exercise procedures and other terms and procedures, to the extent such actions may be necessary or advisable. Any subplans and modifications to Plan terms and procedures established under this Section 15.20 by the Committee shall be attached to this Plan document as appendices.

## 16. Term; Amendment and Termination; Stockholder Approval.

16.1 *Term.* The Plan shall be effective as of the date of its approval by the stockholders of the Company (the "Effective Date"). Subject to Section 16.2 hereof, the Plan shall terminate on the tenth anniversary of the Effective Date.

## APPENDIX: 2020 INCENTIVE PLAN

16.2 *Amendment and Termination.* The Board may from time to time and in any respect, amend, modify, suspend or terminate the Plan; provided, however, that no amendment, modification, suspension or termination of the Plan shall materially and adversely affect any Award theretofore granted without the consent of the Participant or the permitted transferee of the Award. The Board may seek the approval of any amendment, modification, suspension or termination by the Company's stockholders to the extent it deems necessary in its discretion for purposes of compliance with Section 422 of the Code or for any other purpose, and shall seek such approval to the extent it deems necessary in its discretion to comply with applicable law or listing requirements of NASDAQ or other exchange or securities market. Notwithstanding the foregoing, the Board shall have broad authority to amend the Plan or any Award under the Plan without the consent of a Participant to the extent it deems necessary or desirable in its discretion to comply with, take into account changes in, or interpretations of, applicable tax laws, securities laws, employment laws, accounting rules and other applicable laws, rules and regulations.

## APPENDIX 1

### UK PARTICIPANTS

#### 1. Purpose and Interpretation.

1.1 *Purpose.* This Appendix 1 contains provisions which modify the Plan in relation to Eligible Persons and Participants who are employed, resident for tax purposes or otherwise subject to tax on employment income in the United Kingdom ("*UK Participants*"). For the avoidance of doubt, this Appendix 1 has no application to Eligible Persons or Participants who are not UK Participants. In the case of any UK Participants who are also employed, and/or subject to tax, in a jurisdiction other than the United Kingdom, this Appendix 1 is without prejudice to any additional obligations such UK Participants may have, or additional requirements to which they may be subject, pursuant to the terms of the Plan (disregarding any modifications made pursuant to this Appendix 1) or any other subplan.

#### 1.2 *Interpretation.* For the purposes of this Appendix 1:

"*Tax Liability*" means the total of (i) any income tax and primary class 1 (employees') National Insurance contributions that the Company or any of its Affiliates is liable to account for (or reasonably believes it is liable to account for) as a result of any Taxable Event and (ii) any secondary class 1 (employer's) National Insurance contributions that the Company or any of its Affiliates is liable to pay as a result of any Taxable Event and that may be lawfully recovered from the relevant UK Participant.

"*Taxable Event*" means any event or circumstance that gives rise to a liability for a UK Participant, or the Company or any of its Affiliates, to pay income tax and/or National Insurance contributions in respect of any Award, including (but not limited to) the grant, exercise, satisfaction, release, assignment, cancellation or lapse of such Award and any earmarking, acquisition and/or disposal of shares or other securities underlying such Award.

#### 2. Provisions Applicable to UK Participants.

2.1 *Amendment to Section 6.5 of the Plan.* Section 6.5 (*Stock Option Exercise; Tax Withholding*) shall be modified to read as follows:

Subject to such terms and conditions as specified in an Award Agreement (including applicable vesting requirements), a Stock Option may be exercised in whole or in part at any time during the term thereof by notice in the form required by the Company, together with payment of the aggregate exercise price and applicable Tax Liability. Payment of the exercise price may be made: (i) in cash or by cash equivalent acceptable to the Committee, or, (ii) to the extent permitted by the Committee in its sole discretion in an Award Agreement or otherwise (A) in shares of Common Stock valued at the Fair Market Value of such shares on the date of exercise, (B) through an open-market, broker-assisted sales transaction pursuant to which the Company is promptly delivered the amount of proceeds necessary to satisfy the exercise price, (C) by reducing the number of shares of Common Stock otherwise deliverable upon the exercise of the Stock Option by the number of shares of Common Stock having a Fair Market Value on the date of exercise equal to the exercise price, (D) by a combination of the methods described above or (E) by such other method as may be approved by the Committee. In accordance with Section 15.11 hereof, and in addition to and at the time of payment of the exercise price, the Participant shall pay to the Company the full amount of any Tax Liability (to the extent such Tax Liability is not otherwise collected from the UK Participant through PAYE), payable under such of the methods described above for the payment of the exercise price as may be approved by the Committee and set forth in the Award Agreement.

2.2 *Section 431 Elections.* It shall be a condition to the grant of an Award to any UK Participant that, if so required by the Company or any of its Affiliates, such UK Participant irrevocably agrees to enter into a joint election under section 431(1) of the United Kingdom Income Tax (Earnings and Pensions) Act 2003, in respect of the shares of

## APPENDIX: 2020 INCENTIVE PLAN

Common Stock to be issued or transferred in connection with an Award, within 14 days of the acquisition by the UK Participant of those shares.

2.3 *Amendment to Section 15.11 of the Plan.* Section 15.11 (*Tax Withholding*) shall be modified to read as follows:

### Section 15.11 *Tax Liabilities.*

(a) *Tax Withholding.* The Participant shall, to the extent permitted by law, be responsible for payment of any taxes (including, but not limited to, any Tax Liability, in the case of UK Participants) or similar charges required by law to be paid or withheld from an Award or an amount paid in satisfaction of an Award. Any required withholdings shall (to the extent such withholdings are not otherwise collected from a UK Participant through PAYE) be paid by the Participant on or prior to the payment or other event that results in taxable income in respect of an Award and it shall be a condition of the grant of an Award to any UK Participant that such UK Participant indemnifies the Company and its Affiliates against any Tax Liability. The Award Agreement may specify the manner in which the withholding obligation shall be satisfied with respect to the particular type of Award, which may include permitting the Participant to elect to satisfy the withholding obligation by tendering shares of Common Stock to the Company or having the Company withhold a number of shares of Common Stock having a value in each case up to the maximum statutory tax rates in the applicable jurisdiction or as the Committee may approve in its discretion (provided that such withholding does not result in adverse tax or accounting consequences to the Company), or similar charge required to be paid or withheld. The Company shall have the power and the right to require a Participant to remit to the Company the amount necessary to satisfy federal, national, state, provincial and local taxes, domestic or foreign, required by law or regulation to be withheld, and to deduct or withhold from any shares of Common Stock deliverable under an Award to satisfy such withholding obligation.

(b) *Employer's National Insurance Contributions.* It shall be a condition to the grant of an Award to any UK Participant that such UK Participant acknowledges and agrees that the Company or the UK Participant's employer (as appropriate) may, to the extent permitted by law, recover the whole or any part of any secondary class 1 (employer's) National Insurance contributions from the UK Participant and may, to the extent permitted by law, require the UK Participant to elect (using a form approved by HM Revenue & Customs) that the whole or any part of any secondary class 1 (employer's) National Insurance contributions shall be transferred to the UK Participant.

2.4 *Amendment to Section 15.18 of the Plan.* Section 15.18 (*No Guarantees Regarding Tax Treatment*) shall be modified to read as follows:

Neither the Company nor the Committee make any guarantees to any Person regarding the tax treatment of Awards or payments made under the Plan. Neither the Company nor the Committee has any obligation to take any action to prevent the assessment of any tax on any Person with respect to any Award under Section 409A of the Code, Section 4999 of the Code or otherwise and neither the Company nor the Committee shall have any liability to a Person with respect thereto. Awards granted under the Plan are not intended to benefit from tax advantaged treatment for United Kingdom tax purposes.

2.5 *Amendment to Section 15.19 of the Plan.* Section 15.19 (*Data Protection*) shall be modified to read as follows:

15.19 *Data Protection.* The implementation and administration of the Plan requires the use of personal data relating to each Eligible Person and Participant. Personal data relating to a Participant/Eligible Person will be used in accordance with the "Staff Privacy Policy" issued by MarketAxess Europe Limited, subject to the additional following information which specifically relates to the Plan and any further equity incentive plans of which Eligible Persons may be notified from time to time and is supplementary to the information provided in the Staff Privacy Policy. The defined terms used below have the meanings given to those terms in Section 2 above or else in the Staff Privacy Policy.

(a) *Purposes for using personal data.* In connection with the Plan, personal data will be used: (i) to consider the grant of an Award to an Eligible Person; (ii) to grant Awards to a Participant; (iii) for the management and administration of the Plan; and (iv) for such other purposes as are, or become, necessary in connection with the Plan.

(b) *Legal bases for the processing of personal data.* The legal justification for the processing of the personal data stated below in connection with the purposes stated above are the legitimate interests of MarketAxess Europe Limited and its group companies as well as the legitimate interests of a Participant. The relevant legitimate interests are the attraction, retention and motivation of key personnel.

(c) *Relevant types of personal data.* The following classes of personal data relating to an Eligible Person will be used for the purposes stated above: (i) name; (ii) SSN or International Tax ID; (iii) date of birth; (iv) work email address; (v) work phone number; (vi) home address; (vii) date of hire; (viii) employing subsidiary; and (ix) work location.

(d) *Recipients of your personal data.* For the purposes stated above, personal data will be shared between the entity which employs you and MarketAxess Holdings Inc. which is a US corporation. It may also be necessary to share your personal data with other group companies and our professional advisers, in each case for the purposes stated above. Where we need to transfer your personal data to the US, this will be done subject to the safeguards referenced in paragraph 8.3 of the Staff Privacy Policy.

[THIS PAGE INTENTIONALLY LEFT BLANK]

**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, 2019
- 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, indication by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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

The aggregate market value of the shares of common stock held by non-affiliates of the registrant as of June 30, 2019 (the last business day of the registrant's most recently completed second fiscal quarter) was approximately \$10.5 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 37,753,481 shares of common stock, 4,962,065 of which were held by affiliates, outstanding on that date.

As of February 12, 2020, the aggregate number of shares of the registrant's common stock outstanding was 37,921,561.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's definitive proxy statement for the 2020 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.**  
**2019 FORM 10-K ANNUAL REPORT**  
**TABLE OF CONTENTS**

	<u>Page</u>
<b>PART I</b>	
Item 1: Business .....	3
Item 1A: Risk Factors .....	23
Item 1B: Unresolved Staff Comments .....	44
Item 2: Properties .....	44
Item 3: Legal Proceedings .....	44
Item 4: Mine Safety Disclosures .....	44
<b>PART II</b>	
Item 5: Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities .....	45
Item 6: Selected Financial Data .....	47
Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations .....	49
Item 7A: Quantitative and Qualitative Disclosures about Market Risk .....	64
Item 8: Financial Statements and Supplementary Data .....	66
Item 9: Changes in and Disagreements with Accountants on Accounting and Financial Disclosure .....	100
Item 9A: Controls and Procedures .....	100
Item 9B: Other Information .....	100
<b>PART III</b>	
Item 10: Directors, Executive Officers and Corporate Governance .....	101
Item 11: Executive Compensation .....	101
Item 12: Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters .....	101
Item 13: Certain Relationships and Related Transactions and Director Independence .....	101
Item 14: Principal Accounting Fees and Services .....	101
<b>PART IV</b>	
Item 15: Exhibits and Financial Statement Schedules .....	102
Item 16: Form 10-K Summary .....	106

## 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. 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 expanded liquidity opportunities, improved execution quality and significant cost savings across global fixed-income markets. Over 1,700 institutional investor and broker-dealer firms are active users of our patented trading technology, accessing global liquidity on our platforms in U.S. investment-grade bonds, U.S. high-yield bonds, U.S. Treasuries, emerging market debt, Eurobonds and other fixed income securities. Through our Open Trading™ protocols, we execute bond trades between and among institutional investor and broker-dealer clients in our leading all-to-all anonymous trading environment for corporate bonds. We also offer 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. In addition, we provide 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.

Our platforms’ innovative technology solutions are designed to increase the number of potential trading counterparties and create a menu of solutions to address different trade sizes and bond liquidity characteristics. Our traditional Request-For-Quote (“RFQ”) model allows our institutional investor clients to simultaneously request competing, executable bids or offers from our broker-dealer clients and execute trades with the broker-dealer of their choice from among those that choose to respond. Our anonymous trading protocols (referred to throughout as “Open Trading”) complement our RFQ model by increasing the number of potential counterparties and improving liquidity by allowing all participants to interact anonymously in an all-to-all trading environment. Clients can use our auto-execution technology with both our traditional RFQ and Open Trading protocols, thereby using rules-based execution to connect to diverse sources of liquidity while reducing trading inefficiencies and human errors. Leveraging the benefits of our Open Trading marketplace, we recently launched Live Markets, an order book that will create a single view of two-way, actionable prices for the most active bonds, including newly issued debt, benchmark issues and news-driven securities. We expect that Open Trading participants will improve their trading capacity through the Live Markets order book, by more efficiently trading liquid names in larger size and accessing integrated real-time market data, such as Composite+.

Our services relating to trade execution range from providing a suite of trading protocols designed to fit the trading needs of our clients to innovative new trading technologies, such as auto-execution and the use of artificial intelligence, to assist our clients’ trading decisions. Trading protocols include single and multiple-dealer inquiries; list trading, which is the ability to request bids and offers on up to 200 bonds at the same time; portfolio trading, which allows clients to competitively trade baskets of up to 1,500 securities; and swap trading, which is the ability to request an offer to purchase one bond and a bid to sell another bond. Auto-execution allows clients to set eligibility criteria for their orders that our system will use to determine whether or not to execute a trade in accordance with the pre-defined parameters. Once a trade is completed, clients will settle the trade with the assistance of our automated post-trade messaging, which facilitates the communication of trade acknowledgment and allocation information between our institutional investor and broker-dealer clients.

We entered the U.S. Treasury market in 2019 through our acquisition of LiquidityEdge LLC (“LiquidityEdge”). LiquidityEdge’s innovative custom liquidity pools, as well as direct dealer streaming capabilities, for on- and off-the-run U.S. Treasuries offers a bespoke trading ecosystem to connect a community of dealers, market-makers and institutional investors to trade in the \$593.6 billion average-daily-volume U.S. Treasury market. In addition to providing MarketAxess clients with an enhanced ability to trade U.S. Treasuries, the acquisition is expected to support the future expansion of the Company’s hedging capabilities for its clients.

We are not a party to any of the disclosed trades that occur on our platform between institutional investor clients and broker-dealer clients; rather, we serve as an intermediary between broker-dealers and institutional investors, enabling them to meet, agree on a price and then transact directly with each other. However, in connection with our Open Trading and other anonymous 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 which are then settled through a third-party clearing broker. In 2019, 26.1% of all credit volume on the MarketAxess platform was executed via Open Trading protocols, up from 22.0% in 2018.

Our broker-dealer clients accounted for approximately 97.6% of the underwriting of newly-issued U.S. corporate bonds and approximately 85.3% of the underwriting of newly issued European corporate bonds in 2019. Although institutional investors, specialist market-making firms, proprietary trading firms and other non-traditional liquidity providers have increasingly provided liquidity on our platform through Open Trading, we believe these 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 subsequent to the original issuance of the security, without substantially affecting the price of the security.

In 2019, our volume in U.S. high-grade corporate bonds represented approximately 19.0% of the total estimated U.S. high-grade corporate bond volume, as reported by the Financial Industry Regulatory Authority (“FINRA”) Trade Reporting and Compliance Engine (“TRACE”). TRACE facilitates the mandatory reporting of over-the-counter (“OTC”) secondary market transactions in eligible fixed-income securities in the U.S., including trading between institutional investors and broker-dealers, as well as inter-dealer and retail trading. All broker-dealers that are FINRA member firms have an obligation to report transactions in corporate bonds to TRACE under a set of rules approved by the Securities and Exchange Commission (“SEC”).

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 pre-and post-trade transparency mandates from the recast Markets in Financial Instruments Directive (“MiFID II”) in Europe, Trax® has been authorized by each of the U.K. Financial Conduct Authority (“FCA”) and the Netherlands Authority for the Financial Markets (“AFM”) as an Approved Publication Arrangement (“APA”) and an Approved Reporting Mechanism (“ARM”). In addition to its APA and ARM reporting services, Trax® has developed a comprehensive suite of value-add solutions for MiFID II, including pre-trade transparency services, systematic internaliser (“SI”) determination and monitoring, best execution reporting, commodity position reporting, data quality analysis and peer benchmarking.

In 2019, 90.7% 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 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. 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 other general and administrative expenses.

## **Industry Background**

Fixed-income securities are issued by corporations, governments and other entities, and pay a pre-set absolute or relative rate of return. As of September 30, 2019, the most recent date available, there were approximately \$32.6 trillion principal amount of fixed-income securities outstanding in the U.S. market, including \$9.6 trillion principal amount of U.S. corporate bonds and \$16.3 trillion principal amount of U.S. government bonds, according to the Securities Industry and Financial Markets Association (“SIFMA”). The estimated average daily trading volume of U.S. corporate bonds, as measured by TRACE, was \$31.0 billion in 2019. Primary dealer holdings of U.S. corporate bonds (investment-grade and high-yield) as reported by the Federal Reserve Bank of New York were \$8.8 billion as of December 31, 2019. This represents less than one day of trading volume as measured by TRACE.

Traditionally, bond trading has been a manual process, with product and price discovery conducted over the telephone between two or more parties. This traditional process has a number of shortcomings resulting primarily from the lack of a central trading facility for fixed-income securities, which makes it difficult to match buyers and sellers for particular issues. Many market participants also use e-mail and instant messaging for trading these securities. While these electronic communication methods have addressed some of the limitations associated with telephonic trading, these methods are still hindered by limited liquidity, limited price transparency, significant transaction costs, compliance and regulatory challenges, and difficulty in executing numerous trades at one time. Our platforms' functionality address many of the remaining shortcomings that result from trading bonds over the telephone, e-mail or instant message.

Demand for our trading platforms has grown as the need for greater execution efficiency and changing regulations have continued to shift trading from voice markets to electronic markets across our product areas. We and other trading platforms have responded to this demand with technological advances which have further automated many of the manual processes required by traditional methods of trading. Although our market share has increased significantly in recent years, large components of the fixed income markets in which we operate have not yet migrated to electronic trading because of the diverse and heterogeneous nature of those instruments and because participants in these markets have traditionally operated in a more relationship-driven environment.

Regulatory changes have also driven demand for the electrification of fixed-income trading processes. The policy objectives of a number of post-2008 crisis reforms, such as the Dodd-Frank Wall Street Reform and Customer Protection Act (the "Dodd-Frank Act"), Basel III and MiFID II, are to increase transparency and reduce systemic risk. These objectives have generally led to increased adoption of electronic trading on regulated markets where price transparency, all-to-all trading and reporting tools are essential components. The Volcker Rule, which limits proprietary trading by banks, has also had an impact on dealer inventories and the ability of dealers to act as market-makers. Our Open Trading protocols, which are designed to allow our broker-dealer and institutional investor clients to interact in an all-to-all trading environment, have helped market participants improve their liquidity and turnover in response to these trends. During 2019, almost 1,100 participating client firms provided liquidity via our Open Trading solutions and we completed approximately 1.4 million Open Trading trades, an increase of 24.4% compared to 2018.

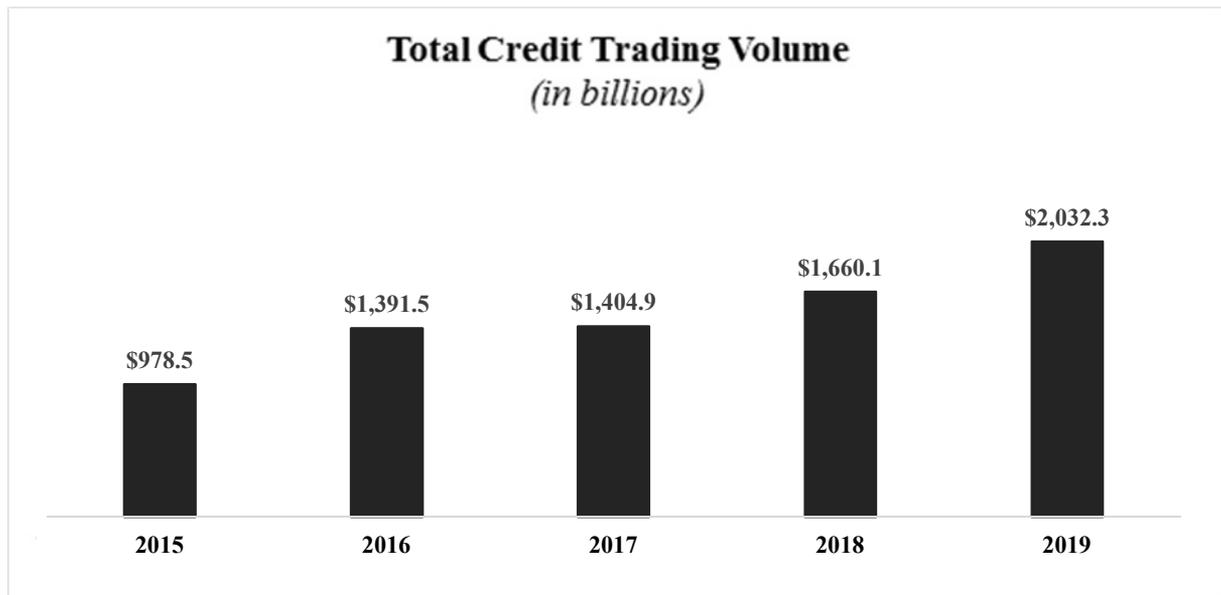
## **Our Competitive Strengths**

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:

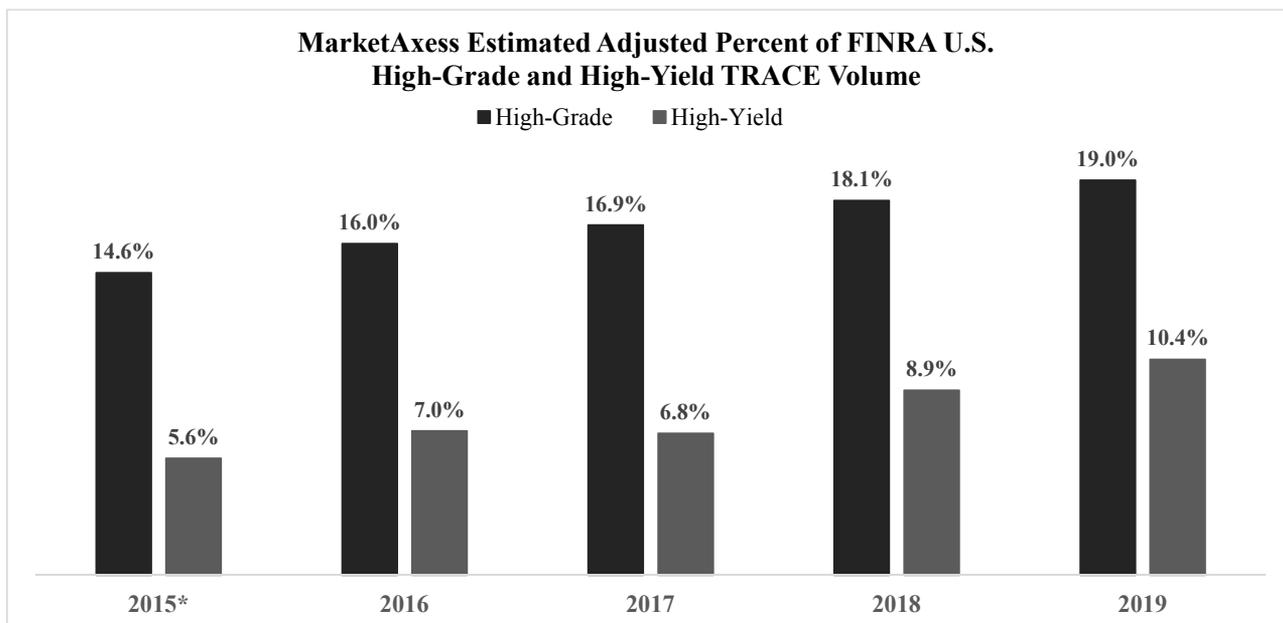
### ***Significant Trading Volumes with Participation by Leading Broker-Dealers and Institutional Investors***

Our electronic trading platforms provide access to the liquidity generated by the participation of over 1,700 active 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 U.S. high-grade corporate bonds, emerging markets and high-yield bonds, European high-grade corporate bonds and the other markets in which we operate. Our broker-dealer clients are motivated to continue to utilize our platform due to the presence on the platform of our large network of institutional investor clients and their ability to use our Open Trading protocols to help manage their risk, source liquidity, and facilitate transactions on behalf of their clients.

As shown in the chart below, our total credit trading volume increased from \$978.5 billion in 2015 to \$2.0 trillion in 2019.



Our adjusted\* estimated share of U.S. high-grade and high-yield corporate bond volume from 2015 to 2019 is shown in the chart below:



\* We adjusted the reported U.S. high-grade TRACE volumes to eliminate the increased reporting of affiliate back-to-back trades by certain broker-dealers that occurred from January 2015 through October 2015 because we believe that the TRACE volume, as adjusted by us, provide a more accurate comparison to prior period reporting.

## ***Open Trading is a Differentiator that Expands the Liquidity Pool and Further Increases Cost-Savings for Clients***

In the post-financial crisis years, liquidity has remained a persistent concern for market participants as regulators raised banks' 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 environment, has emerged as one solution to the post-crisis liquidity problem. As a result, the liquidity options for Open Trading participants are broader and more diverse 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 2019, almost 1,100 unique liquidity providers participated in Open Trading. Open Trading improves 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 for each participant, as well as the likelihood of receiving a competitive price response. We estimate that liquidity takers saved over \$209.8 million in transaction costs through Open Trading during 2019, while liquidity providers saved an estimated \$174.7 million during the year. These Open Trading cost savings are 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 RFQ protocol. During 2019, Open Trading delivered significant transaction cost savings for participants with an estimated \$384.5 million in aggregate savings for both liquidity providers and liquidity takers. Estimated liquidity taker cost savings is defined as the difference between the winning price and the best disclosed dealer cover price. Estimated liquidity provider cost savings is 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.

## ***Growing, Comprehensive International Offering and Client Base***

Our platforms provide global fixed-income market participants with trading functionality across global hard currency and local currency markets, connecting clients in over 50 countries to local and global dealers. MarketAxess has over 825 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 with minimal ramp-up time or 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 ("CEEMEA"), and Asia-Pacific ("APAC") regions. Our platforms provide clients with the ability to trade local currency debt denominated in 28 local currencies with over 125 emerging market dealers.

## ***Robust, Scalable Technology Throughout the Full Trading Cycle***

We have developed proprietary technology that is highly secure, fault-tolerant and provides adequate capacity for our current operations, as well as for substantial growth. Our highly scalable 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 span multiple components of the trading lifecycle and include pre-trade data and analytics, trade execution and post-trade data, analytics and reporting, connectivity and straight-through processing. Our systems are built to be scalable, flexible and resilient. We have also created new trading protocols and developed additional solutions for our clients that are translated and built by our highly experienced technology and business personnel. Going forward, we expect that our agile software development processes will help us continue to be a market leader in developing the technology solutions for our clients' trading needs.

In addition to services directly related to the execution of trades, we offer our clients several other services throughout the trading cycle. In the pre-trade period, our platform assists 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 platform supports all of the essential tools and functionalities to enable our participants to realize the full benefits of electronic trading and demonstrate best execution, including real-time trade details, straight-through processing ("STP"), account allocations, automated audit trails, regulatory trade reporting, trade detail matching, and transaction cost analysis.

### ***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, benefitting our current clients and attracting new market participants to our network. For example, our Composite+ pricing algorithm powers many of our automated trading solutions, which allows traders to automatically execute trades according to pre-determined parameters and automatically send completed or rejected order details to internal order management systems. By allowing traders to automate and execute their smaller, low touch trades more efficiently, our auto-execution solutions allow traders to focus their attention on higher value-added trades, with a goal of reducing trading inefficiencies and human errors.

### ***Proven Innovator with an Experienced Management Team***

Since our inception, we have been an innovator in the fixed-income securities markets. The members of our management team average more than 20 years of experience in the securities industry. We have consistently sought to benefit participants in the markets we serve by attempting to replicate the essential features of fixed-income trading, including the existing relationships between broker-dealers and their institutional investor clients, while applying technology to eliminate weaknesses in traditional trading methods and improve liquidity. In recent years, MarketAxess has received industry recognition from key independent publications for its innovations and contributions to the fixed-income market. For example, in 2019, Open Trading won the Waters Technology "Buy-Side Technology Award" for the Best Buy-Side Execution Venue, and Composite+ won the Risk "Market Technology Award" for the Electronic Trading Support Product of the Year and the Waters Technology "Waters Rankings Award" for the Best Artificial Intelligence Technology Provider.

Some of the innovations we have introduced to electronic trading include:

- the first multi-dealer disclosed trading platform for U.S. high-grade corporate bonds;
- the first electronic Treasury benchmarking for U.S. high-grade corporate bond trades;
- BondTicker®, our information services product, combining TRACE bond data with MarketAxess data and analytical tools;
- bid and offer list technology for corporate bond trading, enabling institutional investors to request executable prices for multiple securities simultaneously;
- the first disclosed client to multi-dealer trading platform for credit derivative indices;
- public Market Lists for corporate bonds, giving institutional investors the ability to display their bid and offer lists anonymously to the entire MarketAxess trading community;
- Axess All®, the first intra-day trade tape for the European fixed-income market; and
- Open Trading, the largest anonymous all-to-all trading environment for corporate bonds, which has helped market participants improve their liquidity and turnover in the post-crisis period.

### ***Independent Ownership Structure***

We believe our ownership structure has been an advantage relative to certain of our competitors that are owned by exchange or dealer groups as we have been free to make balanced business and trading protocol decisions with the best interests of both our institutional investor and broker-dealer clients in mind. We are also able to attract industry leaders with valuable skills and insights to our independent Board of Directors.

## **Our Strategy**

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 information, trading and technology services to market participants across the trading cycle. The key elements of our strategy are:

### ***Broaden Our Client Base in Our Existing Markets and Increase Penetration with Existing Clients***

We intend to use our broad network of over 1,700 active institutional investor and broker-dealer participants to drive more clients to our leading electronic fixed-income trading platforms. The number of active participants on our platforms has increased by over 113.3% since 2014. We believe that the continued expansion of our client base will lead to even further increases in the liquidity available on our platforms. We expect that the increased liquidity on our platforms and our ability to innovate and efficiently add new functionality and product offerings will also help us deepen our market share with our existing clients across our product suite. The number of clients trading three or more products on our platform has increased by 59.3% from 614 in 2015 to 978 in 2019. Last, we plan to increase our international presence by increasing the number of firms located outside the U.S. that access our platforms through our venues in Europe, Asia and Latin America, increasing the number of local currencies available for trading on our platforms; and, subject to regulatory requirements, increasing the number of countries in which we can offer our platforms.

### ***Enhance the Liquidity of Securities Traded on Our Platforms by Leveraging our Client Network and Open Trading Protocols***

We aim to increase the secondary market liquidity on our trading platforms by deploying innovative technology solutions designed to increase the number of potential trading counterparties on our platforms and to address different trade sizes, bond liquidity characteristics and trading preferences. Our Open Trading protocols exponentially increase the potential trading counterparties by allowing broker-dealers and institutional investors to interact in an all-to-all trading environment. During 2019, our clients executed approximately 1.4 million trades using our Open Trading solutions, representing 26.1% of the total credit trading volume on our corporate bond platform. In recent years, we have also significantly increased the number of participants that provide bond prices to our corporate bond platform via an algorithm, which has helped increase the number of algorithmic price responses from 0.8 million in 2016 to 9.4 million in 2019. We intend to continue to improve the liquidity of bonds on our platform by increasing the number of connections we have with algorithmic trading firms. We also believe that the combination of Open Trading and our vast client network provides the basis for MarketAxess to deliver meaningful cross-border liquidity or enter into new markets where liquidity is scarcer, such as municipal bonds.

### ***Continue to Develop Innovative Next-Generation Technologies that will Allow Our Clients to Further Automate and Improve the Performance of their Trading Desks***

We believe that the increased adoption of next-generation trading technologies by both dealer and investor clients will create improved liquidity, enhanced trading efficiencies and the ability to identify trends within the bond market. In recent years, we have launched a number of innovative technologies that rely on machine-learning, automation and algorithms that are designed to improve the trading decisions and workflows of our clients, while reducing trading inefficiencies and human errors. For example, clients can use our rules-based auto-execution technology with both our traditional RFQ protocol and Open Trading to automatically execute trades meeting defined parameters with diverse sources of liquidity. Our Composite+ pricing algorithm uses machine-learning to generate near real-time prices for over 25,000 corporate bonds based on a variety of data inputs, and our Like Bonds product uses a data-driven methodology to help clients find liquid, tradable alternatives to illiquid bonds. We intend to continue to invest in and develop advanced technologies such as these that will make MarketAxess an increasingly valuable part of our clients' trading decisions and workflows.

### ***Expand and Strengthen our Trade-Related Service, Data and Analytical Offerings Throughout the Trading Cycle***

We plan to expand and strengthen our existing service, data and analytical offerings throughout the trading cycle so that MarketAxess is more fully integrated into the workflow of our broker-dealer and institutional investor clients. In the pre-trade period, we intend to continue to enhance the value of our information and analytical offerings, including the content and capabilities of BondTicker<sup>®</sup>, Axess All<sup>®</sup> and Composite+. We plan to enhance and expand the usage of LiquidityBridge<sup>®</sup>, our execution management system (“EMS”) service that allows users to manage and facilitate the complex liquidity flows across multiple trading platforms, including the MarketAxess system. We also intend to augment our post-trade matching and regulatory reporting services provided by our Trax<sup>®</sup> brand in Europe that enable our clients to comply with their heightened obligations pursuant to MiFID II. As the use of our pre- and post-trade services and products grow, we believe that MarketAxess will become further entrenched as a value-added resource to our clients at each stage of the trading cycle, which we believe will further increase the attractiveness and use of our trading platforms.

### ***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 will enable us to enter new markets, provide new products or services, or otherwise enhance the value of our platform and existing trade-related services to our clients. In 2017, we expanded our strategic alliance with BlackRock, Inc. (“BlackRock”) to combine BlackRock’s order flow with our Open Trading solution to improve the range of trading connections available to global credit market participants. The acquisition of LiquidityEdge in November 2019 provides our clients with access to one of the leading platforms for U.S. Treasury trading, and it supports the further expansion of our U.S. Treasury hedging capabilities for our corporate bond platform. In addition, we entered into a partnership with Virtu Financial, Inc. in April 2019 to provide institutions with enhanced trading tools and access to global exchange-traded funds (ETFs) and fixed income securities.

## **Our Key Trading Markets and Services**

### ***U.S. High-Grade Corporate Bond Market***

The U.S. corporate bond market consists of three broad categories of securities: investment-grade debt (so-called “high-grade”), which typically refers to debt rated BBB- or better by Standard & Poor’s or Baa3 or better by Moody’s Investor Service; debt rated below investment-grade (so-called “high-yield”), which typically refers to debt rated lower than BBB- by Standard & Poor’s or Baa3 by Moody’s Investor Service; and debt convertible into equity (so-called “convertible debt”). According to SIFMA, U.S. corporate bond debt outstanding has increased approximately 20.0% from \$8.0 trillion at year-end 2014 to \$9.6 trillion at September 30, 2019. We use the terms high-grade and investment-grade interchangeably in this Annual Report on Form 10-K.

The U.S. high-grade corporate bond market represents the largest subset of the U.S. corporate bond market. Over the last five years, high-grade corporate bond issuance was over \$1 trillion each year. Notwithstanding the growth in the total amount of debt outstanding, turnover (which is the total amount traded as a percentage of the amount outstanding for the bonds that traded) is still below pre-credit crisis levels. The average daily trading volume of U.S. high-grade corporate bonds as reported by TRACE for the year ended December 31, 2019 was approximately \$22.2 billion compared to \$20.7 billion and \$19.6 billion for the years ended December 31, 2018 and 2017, respectively.

Our U.S. high-grade corporate bond business consists of U.S. dollar-denominated investment-grade debt issued by corporations for distribution in the U.S. Over 100 broker-dealers utilize our platform to trade U.S. high-grade corporate bonds, including all of the top 20 broker-dealers as ranked by underwriting volume of newly-issued U.S. high-grade corporate bonds in 2019. Our broker-dealer clients accounted for approximately 97.6 % of the underwriting of newly-issued U.S. high-grade corporate bonds in 2019. More than 1,100 active domestic and foreign institutional investor firms use our platform to trade U.S. high-grade corporate bonds. Our 2019 trading volume in the U.S. high-grade corporate bond market was \$1.1 trillion.

### ***U.S. Crossover and High-Yield Bond Market***

We define the high-yield bond market generally to include all debt rated lower than BBB- by Standard & Poor’s or Baa3 by Moody’s Investor Service. We define the crossover market to include any debt issue rated below investment-grade by one agency but investment-grade by the other. The total annual amount of high-yield corporate bond issuance as reported by SIFMA increased by 61.5% to \$273.5 billion in 2019 from \$169.4 billion in 2018. The average daily trading volume of high-yield bonds as measured by TRACE for the year ended December 31, 2019 was approximately \$8.8 billion compared to \$8.0 billion and \$8.2 billion for the years ended December 31, 2018 and 2017, respectively.

Over 100 of our broker-dealer clients and more than 1,000 active institutional investor firms use our platform to trade crossover and high-yield bonds. Trading in crossover and high-yield bonds uses many of the same features available in our U.S. high-grade corporate bond offering. We also offer leveraged loan trading for our clients that trade high-yield bonds. Our 2019 trading volume in the high-yield bond market was \$228.5 billion.

### ***Emerging Markets Bond Market***

We define the emerging markets bond market generally to include U.S. dollar, Euro or local currency denominated bonds issued by sovereign entities or corporations domiciled in a developing country. These issuers are typically located in Latin America, Asia, or Central and Eastern Europe. Examples of countries we classify as emerging markets include: Argentina, Brazil, Colombia, Mexico, Peru, the Philippines, Russia, Turkey and Venezuela.

The institutional investor base for emerging markets bonds includes many crossover investors from the high-yield and high-grade investment areas. Institutional investors have been drawn to emerging markets bonds by their high returns and high growth potential. The average daily trading volume of emerging markets debt, as reported by the Emerging Markets Trade Association for the nine months ended September 30, 2019, the most recent date available, was \$21.3 billion compared to \$19.6 billion and \$19.9 billion for the years ended December 31, 2018 and 2017, respectively.

Over 125 of our broker-dealer clients and more than 1,000 active institutional investor firms use our platform to trade emerging markets bonds. The emerging markets countries whose bonds were most frequently traded on our platform in 2019 were Mexico, Brazil, South Africa, Argentina, and Indonesia. In 2019, our clients were able to trade corporate and sovereign debt denominated in 25 local market currencies on our platform. Our 2019 trading volume in the emerging market bond market was \$489.4 billion.

### ***European Corporate Bond Market***

The European corporate bond market consists of a broad range of products, issuers and currencies. We define the European corporate bond market 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. Examples include:

- bonds issued by European corporations, denominated in any currency;
- bonds generally denominated in Euros, U.S. dollars or British Pounds Sterling intended to be distributed to European investors, excluding bonds that are issued by corporations domiciled in an emerging market;
- bonds issued by supra-national organizations (entities that include a number of central banks or government financial authorities, such as the World Bank), agencies and governments located in Europe, generally denominated in Euros, U.S. dollars or British Pounds Sterling, provided that such currency is not the currency of the country where the bond was issued; and
- floating-rate notes issued by European corporations.

We believe that the European corporate bond market is impacted by many of the same factors as the U.S. high-grade corporate bond market. The total amount of Euro denominated high-grade and high-yield bonds yearly issuance as reported by the International Capital Markets Association increased by 31.1% to \$514.4 billion in 2019 from \$392.5 billion in 2018. The average daily trading volume of European corporate bonds as estimated by Trax® for the year ended December 31, 2019 was approximately \$10.5 billion compared to \$9.2 billion and \$9.4 billion for the years ended December 31, 2018 and 2017, respectively.

We offer secondary trading functionality in U.S. dollar- and Euro-denominated European corporate bonds to our broker-dealer and institutional investor clients. We also offer our clients the ability to trade in other European corporate bonds, including bonds issued in British Pounds Sterling, floating rate notes, European government bonds and bonds denominated in non-core currencies. We offered the first platform in Europe with a multi-dealer disclosed counterparty trading capability for corporate bonds.

In the Eurobond credit market, defined as including European high-grade, high-yield and government bonds, 50 broker-dealers utilize our platform, including each of the top 20 broker-dealers as ranked by 2019 European corporate new-issue underwriting volume. More than 550 active institutional investor firms use our platform to trade European bonds. Our 2019 trading volume in the Eurobond bond market was \$247.2 billion.

### ***U.S. Treasury Market***

U.S. Treasury securities are government instruments issued by the U.S. Department of the Treasury. The average daily trading volume of U.S. Treasuries as measured by SIFMA was \$593.6 billion for the year ended December 31, 2019 compared to \$547.8 billion and \$505.2 billion for the years ended December 31, 2018 and 2017, respectively.

Over 125 firms use our LiquidityEdge platform to trade U.S. Treasuries. The Treasury products traded on the LiquidityEdge platform include On the Runs, Off the Runs and guaranteed spreads. During the period following the completion of the LiquidityEdge acquisition on November 1, 2019 through December 31, 2019 our trading volume in the U.S. Treasury market was \$0.7 trillion.

### ***U.S. Municipal Bond Market***

Municipal bonds 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. Depending on the type of financing, payments of the principal and interest on a municipal bond may come from general revenues of the municipal issuer, specific tax receipts, revenues generated from a public project, or payments from private entities or from a combination of sources. In addition to being issued for many different purposes, municipal securities are also issued in many different forms, such as fixed rate, zero coupon or variable rate bonds. The interest paid on municipal securities is typically exempt from federal income taxation and may be exempt from state income and other taxes as well. As of December 31, 2019, there were over 1.5 million different municipal bonds outstanding, in the total aggregate principal amount of more than \$3.8 trillion. In 2019, the average daily trading volume of municipal bonds, excluding variable rate demand notes, as measured by the Municipal Securities Rulemaking Board (“MSRB”) was \$5.3 billion for the year ended December 31, 2019 compared to \$6.0 billion and \$5.5 billion for the years ended December 31, 2018 and 2017, respectively.

Over 90 broker-dealer clients and over 200 institutional investor clients use our platform to trade municipal bonds. We offer trading for both taxable and non-taxable municipal bonds. Our 2019 trading volume in the U.S. municipal bond market was \$7.5 billion.

### ***U.S. Agency Bond Market***

We define the U.S. agency bond market to include debt issued by a U.S. government-sponsored enterprise. Some prominent issuers of agency bonds are the Federal National Mortgage Association and Federal Home Loan Mortgage Corporation. The total amount of U.S. agency bonds outstanding was approximately \$1.8 trillion as of September 30, 2019 as reported by SIFMA. The average daily trading volume of U.S. agency bonds (excluding mortgage-backed securities) as measured by TRACE was \$4.3 billion for the year ended December 31, 2019 compared to \$3.6 billion and \$4.2 billion for the years ended December 31, 2018 and 2017, respectively.

Over 40 of our broker-dealer clients and more than 300 active institutional investor firms use our platform to trade U.S. agency bonds. Trading in U.S. agency bonds uses many of the same features available in our U.S. high-grade corporate bond offering. Our 2019 trading volume in the U.S. agency bond market was \$47.8 billion.

### ***Credit Derivative Market***

Credit derivatives are contracts that allow market participants to obtain credit protection or assume credit exposure associated with a broad range of issuers of fixed-income securities and other debt obligations without ownership of the underlying security. Among the most significant requirements of the derivatives section of the Dodd-Frank Act are mandatory clearing of certain derivatives transactions (“swaps”) through regulated central clearing organizations and mandatory trading of those swaps through either regulated exchanges or swap execution facilities (“SEFs”), in each case, subject to certain key exceptions. We operate a SEF pursuant to the U.S. Commodity Futures Trading Commission’s (“CFTC”) rules and we list certain credit derivatives for trading by U.S. persons and other participants on our SEF. The SEC has not yet finalized its rules for security-based SEFs that would govern the execution of single-name credit derivatives.

We offer a range of functionality for electronic trading of CFTC-regulated credit derivative instruments on our SEF in compliance with the CFTC’s requirements. This includes an RFQ system that allows participants to send anonymous or disclosed RFQs, as well as an order book, which enables market participants to trade anonymously with all other market participants. Approximately 30 active market participants use our SEF to trade credit derivative indices and credit options. Our 2019 credit derivatives trading volume was \$48.9 billion.

## **Execution Benefits for Clients**

In addition to our platforms' strengths described above, we believe our platforms provide numerous additional benefits to our clients over both traditional fixed-income trading methods and competing electronic trading systems, including:

### ***Open Trading Functionality***

We offer Open Trading protocols for all of our key trading products, including corporate, municipal and emerging market bonds. Our Market List functionality provides our Open Trading participants with the ability to display requests for bids and offers anonymously to the entire MarketAxess trading community, thereby creating broader visibility of their inquiry among market participants and increasing the likelihood that the request results in a completed trade. Public Axes™ is an order book-style price discovery process that gives clients the ability to view anonymous or disclosed indications of interest from the inventory on our platform. For block-sized trades, clients may use our Private Axes® functionality, a protocol that allows participants to anonymously negotiate round lots (greater than \$1.0 million) and block trades to minimize information leakage. We recently launched Live Markets, an order book that will create a single view of two-way, actionable prices for the most active bonds, including newly issued debt, benchmark issues and news-driven securities.

### ***Transparent Pricing on a Broad Range of Securities***

The price discovery process includes the ability to view indicative prices from our broker-dealer clients' inventory available on our platform, access to real-time pricing information and analytical tools available on our BondTicker® service (including Composite+ predictive pricing, spread-to-Treasury data, search capabilities and independent third-party credit research), and the ability to request executable bids and offers simultaneously from all of our participating broker-dealer clients during the trading process on any debt security in our bond reference database. Institutional investors and broker-dealer clients can search bonds in inventory based on combinations of issuer, issue, rating, maturity, spread-to-Treasury, size and dealer providing the listing, in a fraction of the time it takes to do so manually. We believe that broader participation in client inquiries will result in more trade matches and lower transaction costs.

### ***Highly Automated Trading Processes that Create Greater Trading Accuracy and Cost-Efficiency***

We believe that we provide improved efficiency by reducing the time and labor required to conduct broad product and price discovery. Single-security, multi-security (bid or offer lists) inquiries and portfolio trading (baskets of up to 1,500 securities) can be efficiently conducted with multiple broker-dealers or via Open Trading. Our auto-execution technology uses rules-based execution logic to reduce trading inefficiencies and human errors while allowing traders to focus on higher-value trades. In addition, our BondTicker® service eliminates the need for manually-intensive phone calls or e-mail communications to gather, sort and analyze information concerning historical transaction prices.

Our electronic trading platforms also include verification mechanisms at various stages of the execution process which result in greater accuracy in the processing, confirming and clearing of trades between institutional investor and broker-dealer clients, including real-time trade details, STP, account allocations, automated audit trails and trade detail matching. These verification mechanisms are designed to ensure that our institutional investor and broker-dealer clients are sending accurate trade messages by providing multiple opportunities to verify they are trading the correct bond, at the agreed-upon price and size. Our platforms are designed to assist our institutional investor clients in automating the transmittal of order tickets from the portfolio manager to the trader, and from the trader to back-office personnel. This automation provides more timely execution and a reduction in the likelihood of errors that can result from manual entry of information into different systems.

### ***Efficient Risk Monitoring and Compliance***

Institutional investors, broker-dealers and their regulators are increasingly focused on ensuring that best execution is achieved for fixed-income trades. Our electronic trading platforms offer both institutional investors and broker-dealers an automated audit trail for each stage in the trading cycle. This enables compliance personnel to review information relating to trades more easily and with greater reliability. Trade information, including all price responses, execution time, trade price and, if applicable, spread-to-Treasury, is stored securely and automatically on our electronic trading platform. This data represents a valuable source of information for our clients' compliance personnel. Importantly, we believe the automated audit trail, together with the competitive pricing and transaction cost analysis that is a feature of our electronic trading platforms, gives fiduciaries the ability to demonstrate that they have achieved best execution on behalf of their clients.

### ***Limited Information Leakage***

Our Open Trading protocols allow our institutional investor clients to maintain their anonymity from trade initiation through to settlement without limiting their number of potential trading counterparties. In addition, our Private Axes<sup>®</sup> protocol allows participants to negotiate bilaterally on an anonymous basis to minimize information leakage when transacting in larger trade sizes.

### ***Greater Sales Efficiency and More Efficient Inventory Management***

We offer our broker-dealer clients broad connectivity with our institutional investor clients. Through this connectivity, our broker-dealer clients are able to efficiently display their indications of interest to buy and sell various securities. We also enable broker-dealers to broaden their distribution by participating in transactions to which they otherwise may not have had access. In addition, the ability to post prices and electronically execute on straightforward trades enables bond sales professionals at broker-dealer firms to focus their efforts on higher value-added trades and more complex transactions.

The posting of inventory to, and the ability to respond to inquiries from, a broad pool of institutional investors, creates an increased opportunity for broker-dealers to identify demand for their inventory, particularly in less liquid securities. Broker-dealers are also increasingly turning towards Open Trading as a new source of liquidity as they manage their risk exposure. As a result, we believe they can achieve enhanced bond inventory turnover by using our platform, which may limit their credit exposure.

### ***Post-Trade Reporting, Publishing and Matching Services***

In Europe, 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. Pursuant to the associated Markets in Financial Instruments Regulation (“MiFIR”), the number of fields and the complexity of the information that must be reported to regulators was significantly enhanced. Firms may either report directly to the regulator or use an entity that is licensed as an ARM, such as our Trax<sup>®</sup> ARM, to validate and submit such reports.

In addition, under MiFIR, all regulated investment firms 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 APA, such as our Trax<sup>®</sup> APA, to comply with the post trade transparency requirement and, although optional, many firms also utilize a third-party provider, such as Trax<sup>®</sup>, to satisfy the pre trade transparency requirement. The Trax<sup>®</sup> Transparency Solution and the Trax<sup>®</sup> APA trade reporting solution are available through the Trax Insight<sup>™</sup> platform, offering our clients a pre- and post-trade transparency solution, including APA trade reporting, quote publication, SI determination and instrument liquidity classification. Trax<sup>®</sup> also offers 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. Trax<sup>®</sup> Match is our 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, Trax<sup>®</sup> Match helps our clients to mitigate their operational risk, improve STP and efficiency and address the complexities of MiFID II and the Central Securities Depositories Regulation.

Trax<sup>®</sup> has over 180 clients, including broker-dealers, hedge funds and investment banks. The Trax<sup>®</sup> platform processed approximately 1.2 billion transactions in 2019.

### ***Information and Execution Management Services***

Traders are increasingly using data and machine-learning for pre-trade analytics, automated execution, transaction cost analysis and post-trade solutions. Our real-time pre-trade data and analytics are an additional value-added resource to our participants at each stage of the trading cycle, which further increases the attractiveness and use of our trading platforms. In the pre-trade period, our platforms assist our participants by providing them with real time and historical trade price information, intelligent Composite+pricing, BondTicker<sup>®</sup>, liquidity and turnover analytics, bond reference data and trade order matching alerts. The information and analytical tools we provide to our clients help them make investment and trading decisions. 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 Composite+ pricing algorithm generates near real-time prices for over 25,000 corporate bonds based on a variety of data inputs, including feeds from our trading platform, our Trax® post-trade service 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”.

Through our Trax® brand, we provide a range of information solutions for financial services firms, utilizing quotes contributed by market participants and leveraging data from our post-trade services business. Axess All®, the first intra-day trade tape for the European fixed-income market, is sourced from over 30,000 bond transactions processed daily by Trax® and includes aggregated volume and pricing for the most actively traded European fixed-income instruments. We also provide market participants with access to pricing, liquidity and volume data on over 40,000 unique fixed-income securities and securities reference data for approximately 300,000 fixed-income securities.

BondTicker® 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. The data includes trade time and sales information, including execution prices, as well as MarketAxess-estimated spread-to-Treasuries, for trades disseminated by the TRACE system. The data also includes actual execution prices and spread-to-Treasury levels for U.S. high-grade corporate bond trades executed on the MarketAxess platform. BondTicker® is currently the source of corporate bond trading information for *The Wall Street Journal* in the U.S.

BondTicker® allows institutional investors to search for and sort bonds based upon specific criteria, such as volume, time/date of transaction, spread change, issuer or security. This search function allows institutional investors to compile information relating to potential securities trades in a fraction of the time that it takes to manually compile this information from disparate sources or other electronic databases, including direct TRACE feeds and European pricing information provided by Trax’s end-of-day pricing feed.

BondTicker® is integrated directly into the MarketAxess electronic trading platform and can be seamlessly accessed, either when viewing securities inventory or when launching an inquiry. BondTicker® is also available through the internet for non-trading professional market participants, including, among others, research analysts and rating agencies, who can log in and access the information via a browser-based interface.

We also offer a set of tools that analyze credit trading activity for institutional investor clients. These tools utilize extensive amounts of market data and have a flexible interface to run and save in a variety of formats, depending on the business purpose. Further, we provide extensive client-specific reports that measure trading performance on our electronic trading platforms, including reports for the value of price discovery from multiple dealers, the cost savings generated from Open Trading participation and transaction cost analysis.

LiquidityBridge® is our EMS service 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. Clients can also automatically generate custom pricing and distribute inventory to any destination. By using a library of standard adaptors, LiquidityBridge® can be deployed across a variety of fixed-income markets.

### ***Straight-Through Processing and APIs***

Straight-through processing refers to the integration of systems and processes to automate the trade process from end-to-end — trade execution, confirmation and settlement — without the need for manual intervention. We provide our broker-dealer and institutional investor clients with a range of tools that facilitate straight-through processing, including order upload, easy-to-use online allocation tools and pre- and post-trade messaging features that enable our clients to communicate electronically between their front- and back-office systems. Our straight-through processing tools can be customized to meet specific needs of our clients and allow them to integrate their order, portfolio management and accounting systems in real time. We continue to build industry partnerships to assist our clients in creating connectivity throughout the trade cycle. Through these partnerships, we are increasingly providing solutions that can quickly be deployed within our clients’ trading operations.

Usage of our straight-through processing tools increased significantly during the last several years. We maintained over 1,300 STP connections as of December 31, 2019. In addition, many of our clients use our Application Programming Interface (“API”) services for pre-trade, trade negotiation and post-trade services to improve efficiency and reduce errors in processing.

## 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 to increase clients' awareness, knowledge and usage of our trading platforms, new product launches, information and data services and pre- and post-trade services. Our sales team is also responsible for training and supporting new and existing clients on their use of our platforms, 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 have worked with *The Wall Street Journal* to establish BondTicker® as the source of information for its daily corporate bond and high-yield tables. A similar process also exists for our Trax® post-trade business, employing both direct and indirect sales methods.

## 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 face five main areas of competition:

- *Telephone and Direct Electronic Communications* — 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 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 (Bondpoint, TMC Bonds, Creditex), Trumid and others in the credit and municipal markets; and Tradeweb, Bloomberg, Nasdaq (Nasdaq Fixed Income), CME Group (NEX Group), 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.
- *Exchanges* — In recent years, exchanges have pursued acquisitions that have put them in competition with us. For example, London Stock Exchange Group has recently announced an acquisition to become a significant owner of 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 and Nasdaq also operate platforms that compete with us. Exchanges also have data and analytics relationships with several market participants, 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, Refinitiv, Intercontinental Exchange, and IHS Markit 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 mechanisms* — 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.

Competitors, including companies in which some of our clients have invested, have developed electronic trading platforms or have announced their intention to explore the development of electronic trading platforms that compete or will compete with us. Furthermore, some of our clients have made, and may in the future continue to make, investments in or enter into agreements with other businesses that directly or indirectly compete with us.

In general, we compete on the basis of a number of key factors, including:

- broad network of broker-dealer and institutional investor clients using our electronic trading platforms;
- liquidity provided by the participating broker-dealers and, to a growing extent, by other institutional investors;
- magnitude and frequency of price improvement;
- enhancing the quality and speed of execution;
- compliance benefits;
- total transaction costs;
- technology capabilities, including the reliability, security, and ease of use of our electronic trading platforms; and
- range of products, protocols and services offered.

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 familiarity and integration of our clients with our electronic trading platforms and other systems. We have focused on the unique aspects of the markets we serve in the development of our platforms, working closely with our clients to provide a system that is suited to their needs.

Our broker-dealer clients have invested in building API's with us for inventory contributions, electronic trading, government bond benchmark pricing and post-trade messaging. We believe that we have successfully built deep roots with our broker-dealer clients, increasing our level of service to them while at the same time increasing their commitment to use our services; however, the contractual obligations of such clients are non-exclusive. See the Risk Factor captioned "*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.*"

Furthermore, a significant number of our institutional investor clients have built interfaces to enable them to communicate electronically between our platform and their order, portfolio management and accounting systems. We believe that this increases the reliance of these institutional investor clients on our services and creates significant competitive barriers to entry.

## **Technology**

The design and quality of our technology products are critical to our growth and our ability to execute our business strategy. Our electronic trading platforms have been designed with secure, scalable client-server architecture that makes broad use of distributed computing to achieve speed, reliability and fault tolerance. The platforms are built on industry-standard technologies and have been designed to handle many multiples of our current trading volume.

All critical server-side components, primarily our networks, application servers and databases, have backup equipment running in the event that 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. The majority of our broker-dealer clients and a significant number of our institutional investor clients have redundant dedicated high-speed communication paths to our network in order to provide fast data transfer. Our security measures include industry-standard communications encryption.

We have designed our primary application with an easy-to-use, Windows-based interface. Our clients are able to access our electronic trading platform through a secure, single sign-on. Clients are also able to execute transactions over our platform directly from their order management systems. We provide users an automatic software update feature that does not require manual intervention.

We prioritize security throughout our platforms, operations and software development. We make architectural, design and implementation choices 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 cyber security program is based on the National Institute of Standards and Technology Cyber Security Framework (the "Framework"). 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 leads a cyber security team in assessing, managing and reducing the relevant risks with a goal to assure critical operations and continuous delivery of service. We constantly monitor connectivity, and suspect events are escalated to our global risk and management teams.

## **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®, Trax®, 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 subsidiaries. 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. 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 the Risk Factor captioned *“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. One of our broker-dealers is registered with the SEC as a broker-dealer and 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. Another of our broker-dealers operates an exempt ATS for U.S. Treasuries. 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.

The CFTC is the federal agency primarily responsible for the administration of federal laws governing activities relating to futures, swaps and other derivatives, including the rules applicable to our SEF. Our SEF is subject to regulations that relate to trading and product requirements, governance and disciplinary requirements, operational capabilities, surveillance obligations and financial information and resource requirements, including the requirement that they maintain sufficient financial resources to cover operating costs for at least one year.

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 subsidiaries, the principal self-regulatory organization is FINRA. Our U.S. broker-dealer subsidiaries are subject to both scheduled and unscheduled examinations by the SEC and FINRA. In addition, our broker-dealers’ municipal securities-related activities are subject to the rules of the MSRB.

Following the 2008 financial crisis, legislators and regulators in the United States adopted new laws and regulations, including the Dodd-Frank Act. Several of these rules could adversely affect our bank-affiliated broker-dealer clients’ ability to make markets in a variety of fixed-income securities, which could negatively impact the level of liquidity and pricing available on our trading platforms. For example, while the Volcker Rule does not apply directly to us, the Volcker Rule bans proprietary trading by banks and their affiliates. In addition, enhanced leverage ratios applicable to large banking organizations in the U.S. and Europe require such organizations to strengthen their balance sheets and may limit their ability or willingness to make markets on our trading platform. We cannot predict the extent to which these rules or any future regulatory changes may adversely affect our business and operations.

In addition, Title VII of the Dodd-Frank Act (“Title VII”) amended the Commodity Exchange Act and the Exchange Act to establish a regulatory framework for swaps, subject to regulation by the CFTC, and security-based swaps, subject to regulation by the SEC. The CFTC has implemented the majority of its regulations in this area, most of which are in effect. The SEC has also finalized many of its security-based swap regulations, although a significant number are not yet in effect. Among other things, Title VII rules require certain standardized swaps to be cleared through a central clearinghouse and/or traded on a designated contract market or SEF, subject to various exceptions. Title VII also requires the registration and regulation of certain market participants, including SEFs. The SEC has proposed but not yet finalized its rules relating to the registration and regulation of security-based swap execution facilities (“SBSEFs”). If and when the SEC finalizes these rules, we may register one of our subsidiaries as a SBSEF in order to offer trading in certain security-based swaps.

The current administration under President Trump has sought, and already passed legislation, to roll-back key pieces of the Dodd-Frank Act in an effort to loosen certain regulatory restrictions on financial institutions. Although the current administration has indicated a goal of further reforming aspects of its existing financial services regulations, 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. In particular, there can be no assurance that rules impacting our clients will be amended or repealed, and we continue to expect the industry to be more heavily regulated than it was prior to the 2008 financial crisis.

### ***Non-U.S. Regulation***

Outside of the United States, we are currently regulated by: the FCA in the United Kingdom (“U.K.”), De Nederlandsche Bank (“DNB”) and the AFM in the Netherlands, the Securities & Futures Commission (the “SFC”) of Hong Kong, the Monetary Authority of Singapore (the “MAS”), the Australian Securities and Investment Commission in Australia (the “ASIC”) and the Investment Industry Regulatory Organization of Canada and provincial regulators in Canada and Securities and Exchange Commission and Central Bank in Brazil.

The FCA’s strategic objective is to ensure that the relevant markets function well 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.

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.

The European Union (“E.U.”) has recently enhanced the existing laws and developed new rules and regulations targeted at the financial services industry, including MiFID II and MiFIR, which were implemented in January 2018 and which introduced significant changes to the E.U. financial markets designed to facilitate more efficient markets and greater transparency for participants. Similar to the U.S., regulatory bodies in Europe have recently implemented new rules for the fixed-income markets. MiFID II and MiFIR were implemented in 2018 and introduced significant changes in market structure designed to: (i) enhance pre- and post-trade transparency for fixed-income instruments with the scope of requirements calibrated for liquidity, (ii) increase and enhance post-trade reporting obligations with a requirement to submit post-trade data to ARMs, (iii) ensure trading of certain derivatives occurs on regulated trading venues, (iv) improve technology synchronization and best execution and (v) establish a consolidated tape for trade data. MiFID II is also intended to help improve the functioning of the E.U. single market by achieving a greater consistency of regulatory standards. MiFID II has caused 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 will be positive for our businesses, unintended consequences of the rules and regulations may adversely affect us in ways yet to be determined.

The securities industry in the member states of the E.U. is regulated by agencies in each member state. E.U. regulations provide for a cross-border “passporting regime”, which allows us to provide our services throughout the E.U. in reliance upon our authorization from any E.U. member state. Historically, we have utilized the FCA authorizations held by our U.K. regulated subsidiaries in order to provide regulated services to our European clients outside of the U.K. in reliance on this passport. However, the U.K. ceased to be a member of the E.U. on January 31, 2020 (commonly referred to as “Brexit”), triggering a period during which the U.K. will continue to observe applicable E.U. regulations through December 31, 2020 or any later extension date (the “Transition Period”). In preparation for Brexit, we obtained AFM authorizations for our subsidiaries in the Netherlands in 2019 and, during the Transition Period, we are able to provide regulated services to our European clients in reliance on the cross-border services passport held by our Dutch subsidiaries.

The full effects of Brexit will depend on whether the U.K. is able to retain access to E.U. markets, including for financial services, following the Transition Period. Although negotiations to determine the future terms of the U.K.’s relationship with the E.U. are continuing, based upon the current state of those negotiations, we expect that we will rely on our Dutch subsidiaries to provide our trading platforms and certain post-trade services to our clients in the E.U. following the Transition Period. See the Risk Factor captioned “*The U.K. exit from the European Union 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.

## ***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 platform in other countries pursuant to exemptions from registration under the laws of such countries.

### **Americas**

MarketAxess Corporation is a SEC registered Broker-Dealer, a member of FINRA, the MSRB, and the Securities Investor Protection Corporation ("SIPC") and is authorized by the Australian Securities and Investments Commission ("ASIC") to operate an exempt market.

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 the Investment Industry Regulatory Organization of Canada ("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 ("SOFC") as an Information System.

LiquidityEdge is a SEC registered Broker-Dealer, a member of FINRA, the SIPC and is recognized as a Financial Market Supervisory Authority ("FINMA") in Switzerland as a foreign trading venue.

### **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"). MarketAxess Europe Limited may provide services throughout the European Economic Area ("EEA") under the MiFID passport. In addition, MarketAxess Europe Limited is approved by FINMA in Switzerland as a foreign trading venue, by the SFC in Hong Kong as an Automated Trading Service, and is authorized by ASIC to operate an exempt market. In respect of Australia, following amendments to the Australian Corporations Act, an application for an Overseas Australian Market Operator License is pending with ASIC.

MarketAxess NL B.V. is authorized and regulated by the AFM in the Netherlands as an MTF. MarketAxess NL B.V. may provide services throughout the EEA under the MiFID passport and is approved by FINMA to provide cross-border services into Switzerland as a foreign trading venue.

Trax NL B.V. is licensed in the Netherlands by the AFM as a Data Reporting Services Provider ("DRSP"), specifically to act as an ARM and APA.

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

LiquidityEdge UK Limited is authorized and regulated by the FCA as a MiFID investment firm.

## **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 by FINMA in Switzerland as a foreign trading venue, by Hong Kong as an ATS, and by Germany as a foreign market operator.

## **Employees**

As of December 31, 2019, we had 527 employees, 325 of whom were based in the U.S. and 202 of whom were based outside of the U.S., principally in the U.K. None of our employees are 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.

## **Company Information**

MarketAxess was incorporated in Delaware in April 2000. Our internet website address is [www.marketaxess.com](http://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 of Directors has standing Audit, Compensation, Nominating and Corporate Governance, Risk and Investment Committees. Each of these committees has a written charter approved by our Board of Directors and our Board of Directors 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](http://www.sec.gov).

## Item 1A. Risk Factors.

### Risks Related to Our Business Generally

#### 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. 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;
- actual or threatened acts of war or terrorism or other armed hostilities;
- 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 inflation and weakening consumer confidence levels;
- 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 Federal Reserve Board monetary policy, 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 or low trading volume in the U.S. and global financial markets.

*The U.K. exit from the European Union could materially adversely impact our business, clients, financial condition, results of operations and prospects.*

The U.K. ceased to be a member of the E.U. on January 31, 2020 (commonly referred to as “Brexit”), triggering a period during which the U.K. will continue to observe applicable E.U. regulations through December 31, 2020 or any later extension date (the “Transition Period”). Based upon the current state of the negotiations between the U.K. and E.U., we expect that regulated financial services firms, including our U.K. subsidiaries, will lose their “passporting” rights to automatically operate throughout the E.U. following the Transition Period. This future loss of the existing passport right to the E.U. will affect us and many of our clients. For us, it means that we will have to rely on our Dutch regulated subsidiaries to provide our trading platforms and certain post-trade services to our clients in the E.U.

Brexit has significantly affected the fiscal, monetary and regulatory landscape in both the U.K. and E.U., and could have a material impact on their economies and the future growth of various industries. In particular, the ecosystem of the E.U. financial services industry in which we operate, which prior to Brexit has been heavily centered in London, has become more decentralized. The exit of the U.K. has significantly impacted the business environment in which we and our clients operate, increased the cost of conducting business in both the E.U. and the U.K., and introduces significant new uncertainties with respect to the legal and regulatory requirements to which we and our clients are subject. As we have historically conducted business in Europe primarily through our U.K. subsidiaries, we have new regulatory and operational costs and challenges associated with the establishment of our subsidiaries in the Netherlands and the management of a less centralized customer and employee base. We could also be adversely affected by reduced growth and greater volatility in the Pound Sterling and the U.K. economy.

Brexit is expected to lead to legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which E.U. laws to replace or replicate, 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 could increase following Brexit. Brexit has also 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. Changes to U.K. immigration policy will also occur as a result of Brexit and our access to, and our ability to compete for and hire, skilled employees in both the U.K. and the E.U. is expected to become more constrained.

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

## **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 in 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 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 will depend 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;
- 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);
- diversify our sources of revenues;
- maintain adequate control of our expenses;
- operate, support, expand and develop our operations, technology, website, software, communications and other systems;
- defend our trading platforms and other systems from cybersecurity threats;
- manage growth in personnel and operations;
- increase awareness of our brand or market positioning;
- expand our sales and marketing programs;
- take advantage of acquisitions, strategic alliances and other opportunities; 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 may not be able to introduce enhanced versions of our electronic trading platforms, new services and/or service enhancements in a timely or acceptable manner, which could harm our competitive position.***

Our future success will depend on our ability to develop and introduce new features to, and new versions of, our electronic trading platforms. For example, we have responded to the reduction in fixed-income secondary market liquidity that has been experienced since the credit crisis by, among other things, introducing a number of all-to-all trading options for our institutional investor and broker-dealer clients. The success of new features and versions depends on several factors, including the timely completion, introduction and market acceptance of the feature or version. In addition, the market for our electronic trading platforms may be limited if prospective clients require customized features or functions that we are unable or unwilling to provide. We cannot assure you that any new features and versions will become or remain successful. If we are unable to anticipate and respond to the demand for new services, products and technologies and develop new features and enhanced versions of our electronic trading platform that achieve widespread levels of market acceptance on a timely and cost-effective basis, it could have a material adverse effect on our business, financial condition and results of operations.

## **Risks Related to Competition**

***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:

- other multi-party electronic trading platforms;
- market data and information vendors;
- securities and futures exchanges;
- inter-dealer brokerage firms;

- technology, software, and information services or other companies that have existing commercial relationships with broker-dealers or institutional investors; and
- other approved regulatory mechanisms.

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. 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 ICE 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.

### **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 of electronic means of trading securities 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 48.1% 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. We have experienced significant growth in trading volumes, revenues and profitability in recent years. 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 platform 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 platform 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. We anticipate that our average fees per million may vary in the future due to changes in yield, years-to-maturity and nominal size of bonds traded on our platform. Consequently, past trends in commissions are not necessarily indicative of future commissions.

***If we experience significant fluctuations in our operating results or fail to meet revenue and earnings expectations, our stock price may fall rapidly and without advance notice.***

Our revenues and operating results may fluctuate due to a number of factors, including:

- the unpredictability of the financial services industry;
- difficulty in quickly adjusting our expense base if revenues fall short of expectations;
- our ability to retain existing broker-dealer and institutional investor clients and attract new broker-dealer and institutional investor clients;
- our ability to drive an increase in the use of our electronic trading platforms by new and existing broker-dealer and institutional investor clients;
- changes in our fee plans;
- the introduction of new features on our electronic trading platforms;
- the effectiveness of our sales force;
- new product and service introductions by us or our competitors;
- fluctuations in overall market trading volume or our market share for our key products;
- technical difficulties or interruptions in our service;
- general economic conditions in our geographic markets;
- additional investment in our services or operations; and
- new regulations that limit or affect how our electronic trading platforms can operate or which increase our regulatory compliance costs.

As a result, our operating results may fluctuate significantly on a quarterly basis, as has occurred in the past, which could result in decreases in our stock price.

***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.

## **Risks Related to our Geographic and Customer Concentration**

***Our businesses are geographically concentrated and could be significantly affected by an adverse change in the regions in which we operate.***

Historically, our business operations have been substantially located in the U.S. and the U.K. While we are expanding our businesses to new geographic areas, we are still highly concentrated in these areas. Accordingly, our businesses are exposed to adverse regulatory and competitive changes, economic downturns and changes in political conditions in these two countries, such as Brexit. Moreover, due to the concentration of our operations in these areas, such operations are less diversified and, accordingly, are subject to greater regional risks than those of some of our competitors. If we are unable to identify and successfully manage or mitigate these risks, our businesses, financial condition, results of operations and prospects could be materially adversely affected.

***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 and e-mail 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 platform would be negatively impacted, which could adversely affect our operating results. In the U.S., the Volcker Rule section of the Dodd-Frank Act bans proprietary trading by banks and their affiliates, which could adversely affect our bank-affiliated broker-dealer clients' ability to make markets in a variety of fixed-income securities. In addition, 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 platform, which could, in turn, reduce the use of our platform 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 Market Risks**

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

In connection with our anonymous 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 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 and procedures in place to identify and manage our credit risk. In connection with the recent growth of our Open Trading protocols, and our acquisition of LiquidityEdge, we have implemented additional automated controls to help us manage our credit risk exposure. There can be no assurance that the policies, procedures and automated controls we use to manage this credit risk 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 will expose us to significant operational, financial and liquidity risks***

We intend to begin self-clearing substantially all of our bond transactions for our U.S. operations in the first half of 2020 and we may expand self-clearing to 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 and financing risks and potentially increased expenses. We may encounter difficulties that may lead to operating inefficiencies, including 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.

***We cannot assure you that our compliance and risk management methods will be effective and our financial condition and results of operations may be materially and adversely affected if they fail.***

The fixed-income products that can be traded through our Open Trading functionality, as well as our investments in fixed and variable rate debt financial instruments, are subject to significant interest-rate and foreign currency exchange rate risks. To manage these and the risks inherent in our business, we must maintain effective policies, procedures and systems that enable us to identify, monitor and control our exposure to financial, legal, regulatory, operational and market risks. Our risk-management methods are based on internally developed controls, observed historical market behavior and what we believe to be industry practices. Our risk-management methods may prove to be ineffective because of their design, their implementation or the lack of adequate, accurate or timely information. Our risk management methods may also fail to identify a risk or understand a risk that might result in losses. If our risk-management policies and efforts are ineffective, we could suffer losses that could have a material adverse effect on our financial condition and operating results.

We must rely upon our analysis of information regarding markets, personnel, clients or other matters that is publicly available or otherwise accessible to us. That information may not in all cases be accurate, complete, up-to-date or properly analyzed. Furthermore, we rely on a combination of technical and human controls and supervision that are subject to error and potential failure, the challenges of which are exacerbated by the 24-hour-a-day, global nature of our business.

Our success in complying with complex and changing laws and navigating risks in various jurisdictions and markets depends on our maintenance of compliance, auditing and reporting systems and risk management procedures, as well as our ability to recruit and retain qualified compliance and risk management personnel. While we have developed policies and procedures to identify, monitor and manage our legal, regulatory, operational and market risks, we cannot assure you that our systems will always be effective in monitoring or evaluating the risks to which we are exposed.

## **Technology and IT Systems 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 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:

- enhance our existing products and services;
- 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;
- continue to attract highly-skilled technology personnel; and
- 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 standards. If we face material delays in introducing new services, products and enhancements, our broker-dealer and institutional investor clients may forego the use of our platforms and use those of our competitors.

Further, the adoption of new internet, networking, 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 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 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 our Open Trading transactions and to provide the technology underpinning our U.S. Treasury platform. We obtain essential reference data and information services from external sources, including data received from certain competitors, clients, self-regulatory organizations 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, such as telephone companies, online service providers, data processors, cloud computing and software and hardware vendors. Other third parties provide, for instance, our data center, telecommunications access lines and significant computer systems and software licensing, support and maintenance services. 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 has in the past had, and could in the future 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, such as natural disasters, extreme weather events or 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.

Any failure of, or significant interruption, delay or disruption to, or security breaches affecting, our systems, networks or infrastructure has 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 the source of the problem.

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 platform 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.

## Cybersecurity Risks

*Malicious cyber-attacks 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), 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 are, and will continue to be, subject to attacks, 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 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. 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 cyber-security 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, 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.

## 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. For instance, a third party might reverse engineer or otherwise obtain and use our technology without our permission and without our knowledge, thereby infringing our rights and allowing competitors to duplicate or replicate our products. 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;
- prevent us from operating our business, or portions of our business;
- cause us to cease developing, licensing or using all or any part of our electronic trading platform that incorporates the challenged intellectual property;
- require us to redesign our products or services, which may not be feasible;
- result in significant monetary liability;
- divert management's attention and resources; and
- require us to pay royalties or enter into licensing agreements in order to obtain the right to use necessary technologies, which may not be possible on commercially reasonable terms.

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, we may be 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.***

From time to time, we may consider 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 purchase of Xtrakter in 2013 and LiquidityEdge in 2019. 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 platform, 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;
- entry 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.

***If we enter into strategic alliances, partnerships or joint ventures, we may not realize the anticipated strategic goals for any such transactions.***

From time to time, we may 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. 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.

In addition, there may be a long negotiation period before we enter into a strategic alliance, partnership or joint venture or a long preparation period before we commence providing the intended product or solution and/or begin earning revenues pursuant to such arrangement. We typically incur significant business development expenses, and management's attention may be diverted from the operation of our existing business, during the discussion and negotiation period with no guarantee of consummation of the proposed transaction. Even if we succeed in developing a strategic alliance, partnership or joint venture with a new partner, we may not be successful in maintaining the relationship, which may have a material adverse effect on our business, financial condition or results of operations.

We cannot assure you that we will be able to enter into strategic alliances, partnerships or joint ventures on terms that are favorable to us, or at all, or that any strategic alliance, partnership or joint ventures we have entered into or may enter into will be successful. In particular, these arrangements may not generate the expected number of new clients or increased trading volume or other benefits we seek. Unsuccessful strategic alliances, partnerships or joint ventures, or those that do not fully meet our expectations, could harm our reputation and have a material adverse effect on our business, financial condition and results of operations.

***We may be required to recognize impairments of our goodwill or other intangible assets, which could adversely affect our results of operations or financial condition.***

The determination of the value of goodwill and other intangible assets requires management to make estimates and assumptions that affect our consolidated financial statements. We test for impairment of goodwill on an annual basis, at year-end, or more frequently if there are changed circumstances. We assess intangible assets for impairment when events or circumstances indicate the existence of a possible impairment.

Determining the fair value of certain assets acquired and liabilities assumed requires judgement which requires management to use significant estimates and assumptions, including assumptions with respect to future cash flows, discount rates, growth rates and asset lives. Any future acquisition may result in goodwill and other intangible assets that are subject to impairment tests, which could result in future impairment charges.

#### **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, particularly Richard M. McVey, Chief Executive Officer and Chairman of our Board of Directors. The terms of Mr. McVey's employment agreement with us do not require him to continue to work for us and allow him to terminate his 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 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 has become increasingly competitive as an increasing number of existing and new competitors focus on the electronic trading of fixed income products. Many of these competitive ventures are interested in hiring our experienced technology personnel and our qualified sales staff. Additionally, highly innovative technology firms may offer attractive employment opportunities to our technology personnel. Many of these firms have greater resources than we have and are able to offer more lucrative compensation packages. In addition, in making employment decisions, particularly in the internet, high-technology and financial services industries, job candidates often consider the total compensation package offered, including the value of the stock-based compensation they are to receive in connection with their employment. Significant volatility in the price of our common stock may adversely affect our ability to attract or retain key employees. 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 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, the CFTC 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, the Swiss Financial Market Supervisory Authority in Switzerland, the Monetary Authority of Singapore, the Hong Kong Securities and Futures Commission, 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, Xtrakter is registered as an ARM and APA with the FCA and the AFM.

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-dealers and MTF, 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. MarketAxess SEF Corporation is registered with the CFTC as a SEF and is required, among other things, to maintain sufficient financial resources to cover operating costs for at least one year.

Our ability to operate our platform in a jurisdiction is 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 become impractical. For a further description of the regulations which may limit our activities, see "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. 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.

Changes in legislation and in the rules and regulations promulgated by domestic and foreign regulators, and how they are applied, often directly affect the method of operation and profitability of dealers and other financial services intermediaries, including our dealer clients, and could result in restrictions in the way we and our clients conduct business. For example, various rules promulgated since the financial crisis, including under the Dodd-Frank Act, could adversely affect our dealer clients' ability to make markets in a variety of products, thereby negatively impacting the level of liquidity and pricing available on our trading platform. Our business and that of our clients could also be affected by the monetary policies adopted by the Federal Reserve and foreign central banking authorities, which may affect the credit quality of our clients or increase the cost for our clients to trade certain instruments on our trading platform. In addition, such changes in monetary policy may directly impact our cost of funds for financing and investment activities and may impact the value of the financial instruments we hold.

In addition, regulatory bodies in Europe have recently developed new rules and regulations targeted at the financial services industry, including MiFID II and MiFIR which were implemented in January 2018 and which introduced significant changes to the E.U. financial markets designed to facilitate more efficient markets and greater transparency for participants. MiFID II and MiFIR may have an adverse effect on our operations and our ability to offer our trading platforms in a manner that can successfully compete against other methods of trading. Additionally, most of the world's major economies have introduced and continue to introduce regulations implementing Basel III, a global regulatory standard on bank capital adequacy, stress testing and market liquidity risk. The continued implementation of these and other bank capital standards could restrict the ability of our large bank and dealer customers to raise additional capital or use existing capital for trading purposes, which might cause them to trade less on our trading platforms and diminish transaction velocity. In addition, as regulations are introduced which affect our prudential obligations, the regulatory capital requirements imposed on certain of our subsidiaries may change.

We believe that it remains premature to know conclusively how specific aspects of the regulatory developments described above may directly affect our business. 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. In addition, we cannot predict how current proposals that have not yet been finalized and/or that remain subject to ongoing debate will be implemented or in what form. We believe that uncertainty and potential delays around the final form of such new laws, rules and regulations may negatively impact our clients and trading volumes in certain markets in which we transact. 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.

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

Certain types of information we collect, compile, store, use, transfer and/or publish are subject to numerous federal, state, local, and foreign laws and regulations regarding privacy, data protection and information security. These laws and regulations govern the storing, sharing, use, processing, transfer, disclosure and protection of personal information and other content. The scope of these laws and regulations are changing, subject to differing interpretations, may be inconsistent among countries or conflict with other rules. We are also subject to the terms of our privacy policies and obligations to third parties related to applicable privacy, data protection, and information security.

The regulatory framework for privacy and data protection worldwide is uncertain, and is likely to remain uncertain for the foreseeable future, and we expect that there will continue to be new laws, regulations and industry standards concerning privacy, data protection, and information security proposed and enacted in the various jurisdictions in which we operate. For example, European legislators adopted the General Data Protection Regulations (“GDPR”) that became effective in May 2018. The GDPR imposes more stringent E.U. data protection requirements and provides for greater penalties for noncompliance. Further, Brexit has created uncertainty with regard to the regulation of data protection in the U.K. In particular, it is unclear whether the U.K. will enact data protection laws or regulations designed to be consistent with the GDPR and how data transfers to and from the U.K. will be regulated.

Our efforts to comply with privacy, data protection and information security laws and regulations could entail substantial expenses, may divert resources from other initiatives and could impact our ability to provide certain solutions. Additionally, if our third-party providers violate any of these laws or regulations, such violations may also put our operations at risk. Any failure or perceived failure by us to comply with any of our obligations relating to privacy, data protection or information security may result in governmental investigations or enforcement actions, litigation, claims or negative publicity 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.

***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 and the National Futures Association (“NFA”), along with statutory bodies such as the SEC, the CFTC, 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, the CFTC, FINRA, the NFA, 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.

## **Legal Risks**

***In the event of employee error or misconduct, our business may be harmed.***

Employee misconduct or error could expose us to significant liability, financial losses, regulatory sanctions and reputational harm. Misconduct or error by employees could include engaging in improperly using our confidential information or the confidential or personal information of our clients or engaging in improper or unauthorized activities or transactions.

Our employees could carry out improper activities on behalf of our clients, or use proprietary client or company information for personal or other improper or illegal uses. Employee errors also expose us to the risk of material loss until such errors are detected and unauthorized transactions or improper activities are reversed.

Errors and misconduct by our current or former employees could cause us to suffer financial losses, regulatory sanctions and reputational harm. The precautions we take to monitor and prevent employee errors and misconduct may not be effective in all cases.

***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. 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.

## Risks Related to Growing our U.S. and International Operations

*We may face increasing economic and regulatory 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 platform and services. However, there are certain risks inherent in doing business in international markets, particularly in the financial services industry, which is heavily regulated in many jurisdictions. 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;
- 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.

Our international operations are also subject to the legal, economic and market risks associated with geopolitical uncertainties in other regions of the world, including but not limited to the risk of war, inter and intra national conflict, economic crises and terrorism.

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. For example, MiFID II and MiFIR were implemented by regulatory bodies in Europe in January 2018. We cannot predict the full extent to which any of these new regulations or future regulatory changes may impact our European 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.

Brexit could lead to further legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which E.U. laws to replace or replicate. Our compliance with these changing laws and regulations may be costly and time-consuming and may have a material adverse effect on our clients' trading activities on our platform. We cannot predict what future actions the regulatory bodies that supervise our business might take, or the impact that any such actions may have on our business.

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.

### ***Our growth initiatives may place significant strain on management and other resources.***

We have significantly expanded our business activities and operations over the last several years. Continued growth, both domestic and international, will require further investment in management and new personnel, infrastructure and compliance systems. The expansion of our international operations involves risks that may have an adverse effect on our business and operations, such as the challenge of effectively managing and staffing our international operations, complying with increased and varied regulatory requirements and entering new markets. In addition, we may incur substantial development, sales and marketing expenses and expend significant management effort to create a new product or service, and the period before the product or service is successfully developed, introduced and adopted may extend over many months or years. Even after incurring these costs, our clients may determine that they do not need or prefer the product or service.

We may not be able to manage our growth efficiently, which could result in our expansion costs increasing at a faster rate than our revenues and distracting management from our core business and operations. If we cannot successfully implement the necessary processes to support and manage new initiatives, our business, financial condition and results of operations may suffer.

***Fluctuations in foreign currency exchange rates may adversely affect our financial results.***

We conduct operations in several different countries outside the U.S., most notably the U.K., and substantial portions of our revenues, expenses, assets and liabilities are 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 income and the value of balance sheet items denominated in foreign currencies.

Although we have entered into foreign currency forward contracts to hedge our net investment in our U.K. subsidiaries and may enter into additional hedging transactions in the future to help mitigate our foreign exchange risk exposure, these hedging arrangements may not be effective, particularly in the event of inaccurate forecasts of the levels of our non-U.S. denominated assets and liabilities. Accordingly, if there are adverse movements in exchange rates, we may suffer significant losses, which would adversely affect our operating results and financial condition.

**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. 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:

- support more rapid growth of our business;
- develop new or enhanced services and products;
- fund operating losses;
- respond to competitive pressures;
- acquire complementary companies or technologies;
- enter into strategic alliances;
- increase the regulatory net capital necessary to support our operations; or
- respond to unanticipated or changing capital 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. 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 agreement with JPMorgan Chase & Co., which includes restrictive covenants with respect to dividends, issuances of additional capital and other financial and operational matters related to our business. For a detailed discussion of the risks associated with our credit agreement, see the Risk Factor captioned “*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.*”

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, 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 with JPMorgan Chase & Co. that provides for revolving loans and letters of credit up to an aggregate of \$100.0 million. Subject to the satisfaction of certain specified conditions, we are permitted to upsize the borrowing capacity of the credit agreement by an additional \$50.0 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 leverage ratio, a minimum net regulatory capital balance for certain subsidiaries and a minimum consolidated adjusted earnings before interest, taxes, depreciation, and amortization (“EBITDA”) level. 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 lender 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 lender would also have the right in these circumstances to terminate any commitments it has 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.

### **Risks Related to our Internal Controls**

*As a public company, we are subject to certain financial and corporate governance requirements that may be difficult for us to satisfy and may divert management’s attention from our business.*

We are subject to the requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (“SOX”) and the related SEC rules and regulations that call for our management to conduct an annual assessment and report on the effectiveness of our internal controls over financial reporting. Our independent registered public accounting firm must also issue an annual report addressing the operating effectiveness of our internal controls over financial reporting.

While our internal controls over financial reporting currently meet the standards set forth in SOX, failure to maintain an effective internal control environment could have a material adverse effect on our business, financial condition and results of operations. We cannot be certain of our ability to continue to comply with the requirements of SOX. If we are unable to continue to comply with the requirements of SOX in an efficient manner, we may be subject to regulatory action. In addition, in the event that we identify a material weakness, there can be no assurance that we would be able to remediate such material weakness in an efficient manner. Moreover, if we are unable to assert that our internal control over financial reporting is effective in any future period (or if our auditors are unable to issue an opinion on the effectiveness of our internal controls), we could suffer reputational harm and incur significant expenses to restructure our internal controls over financial reporting, which may have a material adverse effect on us.

### **Risks Related to Our Common Stock**

*Market volatility and future sales of our shares by significant stockholders may cause our stock price and the value of your investment to decline.*

The market price of our common stock may be significantly affected by volatility in the markets in general. The market price of our common stock likely will continue to fluctuate in response to factors including the following:

- the other risk factors described in this Annual Report on Form 10-K;
- prevailing interest rates;
- the market for similar securities;
- changes in the nature of our stockholder base;

- additional issuances of common stock;
- general economic conditions; and
- our financial condition, performance and prospects, including our ability or inability to meet analyst expectations.

Most of these factors are beyond our control. In addition, the stock markets in general, including the NASDAQ Global Select Market, have experienced and continue to experience significant price and volume fluctuations. These fluctuations have resulted in volatility in the market prices of securities for companies such as ours that often has been unrelated or disproportionate to changes in the operating performance of the affected companies. These broad market and industry fluctuations may affect adversely the market price of our common stock regardless of our operating performance.

In addition, future sales of our common stock, or the perception of potential future sales, may adversely impact the market price of our common stock. If any one or more of our existing stockholders were to sell a large number of shares, the market price of our common stock could be negatively affected. Also, if we issue a large number of shares of our common stock in connection with a public offering, future acquisition, strategic alliance, third-party investment and private placement or otherwise, the market price of our common stock could decline considerably. Furthermore, our stockholders may be diluted by such future sales.

***We may decrease or cease paying dividends on our common stock in the future.***

There is no assurance that we will continue to pay any dividends to holders of our common stock in the future or, if we continue paying dividends, that such dividends will be paid at the rate at which they were paid in prior periods. If we were to decrease the dividend rate or cease paying dividends, investors may need to rely on the sale of their common stock after price appreciation, which may never occur, as the primary or only way to realize any future gains on their investment.

***If securities analysts do not publish research or reports about our business or if they downgrade our common stock, the price of our common stock could decline.***

The trading market for our common stock relies in part on the research and reports that industry or financial analysts publish about us or our business. These analysts work independently of us. If one or more analysts who cover us downgrade our stock, our stock price could decline rapidly. If one or more of these analysts cease coverage of our company, we could lose visibility in the market, which in turn could cause our stock price to decline.

***Provisions in our organizational documents and Delaware law might discourage, delay or prevent a change of control of our company or changes in our management, and therefore, depress the trading price of our common stock.***

Provisions of our certificate of incorporation and bylaws may make it substantially more difficult for a third party to acquire control of us and may prevent changes in our management, including provisions that:

- prevent stockholders from calling special meetings;
- allow the directors to amend the bylaws without stockholder approval; and
- set forth advance notice procedures for nominating directors and submitting proposals for consideration at stockholders' meetings.

Provisions of Delaware law may also inhibit potential acquisition bids for us or prevent us from engaging in business combinations. In addition, certain of our executives have severance agreements that could require an acquirer to pay a higher price. Either collectively or individually, these provisions may prevent holders of our common stock from benefiting from what they may believe are the positive aspects of acquisitions and takeovers, including the potential realization of a higher rate of return on their investment from these types of transactions.

**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 40,000 square feet for our other office locations in the U.S., United Kingdom, Brazil, the Netherlands, Hong Kong and Singapore under various leases expiring between January 2020 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 14 to the Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K 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 12, 2020, the last reported closing price of our common stock on the NASDAQ Global Select Market was \$335.50.

#### Holders

There were 32 holders of record of our common stock as of February 12, 2020.

#### 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, 2019, we repurchased the following shares of common stock:

<u>Period</u>	<u>Total Number of Shares Purchased</u>	<u>Average Price Paid per Share</u>	<u>Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs</u>	<u>Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans and Programs (In thousands)</u>
October 1, 2019 - October 31, 2019 .....	28,483	\$ 362.31	5,700	\$ 91,780
November 1, 2019 - November 30, 2019 .....	5,002	373.60	5,000	89,912
December 1, 2019 - December 31, 2019 .....	<u>5,396</u>	<u>382.29</u>	<u>5,200</u>	<u>87,928</u>
	<u>38,881</u>	<u>\$ 366.53</u>	<u>15,900</u>	

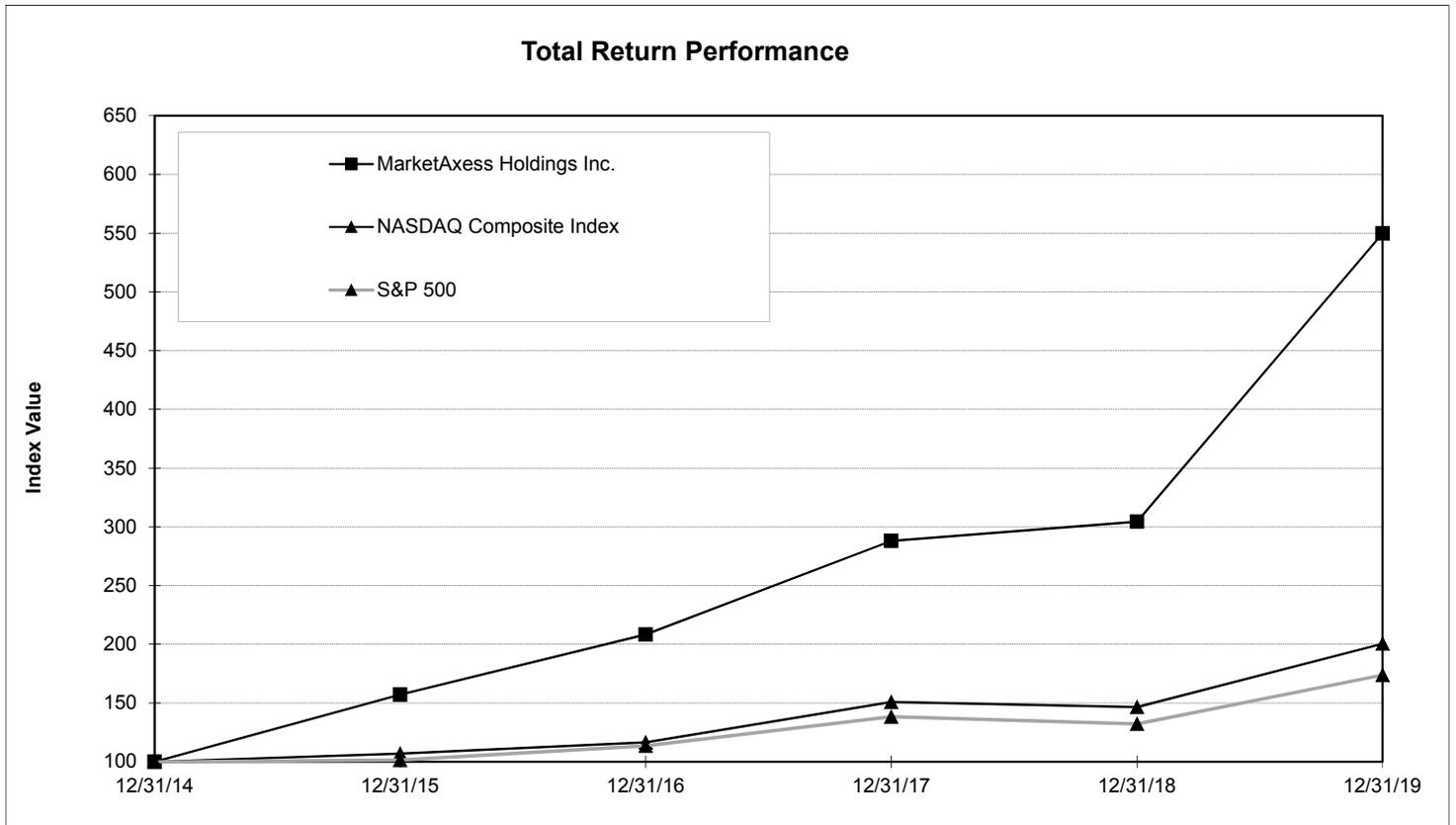
During the three months ended December 31, 2019, we repurchased 38,881 shares of common stock. The repurchases included 15,900 shares repurchased in connection with our share repurchase program and 22,981 shares surrendered by employees to us to satisfy the withholding tax obligations upon the exercise of stock options and vesting of restricted shares or stock units.

In September 2017, our Board of Directors authorized a fifteen-month share repurchase program for up to \$100.0 million commencing in October 2017. The expiration date was subsequently extended to March 31, 2019. In January 2019, our Board of Directors authorized a new two-year share repurchase program for up to \$100.0 million of our common stock that commenced in April 2019. Shares repurchased under each program will be held in treasury for future use.

## STOCK PERFORMANCE GRAPH

The following graph shows a comparison from December 31, 2014 through December 31, 2019 of the cumulative total return for (i) our common stock, (ii) the NASDAQ Composite Index and (iii) the S&P 500 Index. 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, 2014, 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. Selected Financial Data.**

The selected statements of operations data for each of the years ended December 31, 2019, 2018 and 2017 and the selected balance sheet data as of December 31, 2019 and 2018 have been derived from our audited financial statements included elsewhere in this Annual Report on Form 10-K. The selected statements of operations data for the years ended December 31, 2016 and 2015, and the balance sheet data as of December 31, 2017, 2016 and 2015 have been derived from our audited financial statements not included in this Annual Report on Form 10-K.

	<b>Year Ended December 31,</b>				
	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
	<b>(In thousands, except per share amounts)</b>				
<b>Statements of Operations Data:</b>					
<b>Revenues</b>					
Commissions (1).....	\$ 463,856	\$ 390,834	\$ 355,282	\$ 332,307	\$ 266,221
Information services (2).....	30,730	28,227	25,806	23,269	22,585
Post-trade services (3) .....	15,763	15,346	11,090	10,812	11,648
Other (4) .....	1,003	1,158	1,244	1,342	1,739
<b>Total revenues</b> .....	<b>511,352</b>	<b>435,565</b>	<b>393,422</b>	<b>367,730</b>	<b>302,193</b>
<b>Expenses</b>					
Employee compensation and benefits .....	131,079	109,117	102,313	96,625	83,856
Depreciation and amortization.....	26,857	23,080	19,274	17,838	18,542
Technology and communications.....	26,792	23,866	20,048	17,275	15,916
Professional and consulting fees.....	25,534	21,521	19,367	17,175	13,043
Occupancy .....	11,639	14,176	6,125	4,681	4,685
Marketing and advertising .....	11,559	12,114	9,762	8,934	6,148
Clearing costs (5).....	11,314	7,754	5,797	6,060	3,313
General and administrative.....	15,696	11,353	11,121	9,157	9,261
<b>Total expenses</b> .....	<b>260,470</b>	<b>222,981</b>	<b>193,807</b>	<b>177,745</b>	<b>154,764</b>
<b>Operating income</b> .....	<b>250,882</b>	<b>212,584</b>	<b>199,615</b>	<b>189,985</b>	<b>147,429</b>
<b>Other income (expense)</b>					
Investment income .....	8,063	6,112	3,619	2,137	905
Other, net (6) .....	(1,521)	(610)	(1,466)	(520)	(434)
<b>Total other income</b> .....	<b>6,542</b>	<b>5,502</b>	<b>2,153</b>	<b>1,617</b>	<b>471</b>
<b>Income before income taxes</b> .....	<b>257,424</b>	<b>218,086</b>	<b>201,768</b>	<b>191,602</b>	<b>147,900</b>
Provision for income taxes.....	52,522	45,234	53,679	65,430	51,863
<b>Net income</b> .....	<b>\$ 204,902</b>	<b>\$ 172,852</b>	<b>\$ 148,089</b>	<b>\$ 126,172</b>	<b>\$ 96,037</b>
Net income per common share					
Basic.....	\$ 5.53	\$ 4.68	\$ 4.02	\$ 3.42	\$ 2.62
Diluted .....	\$ 5.40	\$ 4.57	\$ 3.89	\$ 3.34	\$ 2.55
Cash dividends declared per common share .....	\$ 2.04	\$ 1.68	\$ 1.32	\$ 1.04	\$ 0.80
Weighted average number of shares of common stock outstanding:					
Basic.....	37,083	36,958	36,864	36,844	36,690
Diluted .....	37,956	37,855	38,038	37,738	37,637
	<b>As of December 31,</b>				
	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
	<b>(In thousands)</b>				
<b>Balance Sheet Data:</b>					
Cash, cash equivalents and investments.....	\$ 500,601	\$ 486,427	\$ 406,535	\$ 362,647	\$ 284,434
Working capital (7).....	502,410	477,632	410,248	363,787	283,383
Total assets .....	954,930	695,539	581,232	528,042	439,041

- (1) Commissions include monthly distribution fees and trading commissions.
- (2) Information services revenues include data licensed to our broker-dealer clients, institutional investor clients and data-only subscribers, as well as professional consulting services, technology software licenses and maintenance and support services.
- (3) Post-trade services revenues include revenue from regulatory transaction reporting, trade publication and trade matching services.
- (4) Other revenues consist primarily of telecommunications line charges to broker-dealer clients.
- (5) Clearing costs consist of fees charged by third-party clearing brokers for the clearing and settlement of matched principal trades.
- (6) Other, net consists of unrealized gains or losses on trading security investments, realized gains and losses on investments, foreign currency transaction gains or losses, investment advisory fees and other miscellaneous revenues and expenses.
- (7) Working capital is defined as current assets minus current liabilities. Current assets consist of cash and cash equivalents, investments, accounts receivable and prepaid and other expenses (excludes cash provided as collateral). Current liabilities consist of accrued employee compensation, income and other tax liabilities, deferred revenue, and accounts payable, accrued expenses and other liabilities.

## **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 "Selected Financial Data" and 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, 2019 and 2018, respectively. A discussion of changes in our Financial Results and Cash Flow Comparisons from the year ended December 31, 2017 to December 31, 2018 has been omitted from this form 10-K, but 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, 2018.*

### **Executive Overview**

MarketAxess operates leading electronic trading platforms delivering expanded liquidity opportunities, improved execution quality and significant cost savings across global fixed-income markets. Over 1,700 institutional investor and broker-dealer firms are active users of our patented trading technology, accessing global liquidity on our platforms in U.S. investment-grade bonds, U.S. high-yield bonds, U.S. Treasuries, emerging market debt, Eurobonds and other fixed income securities. Through our Open Trading protocols, we execute bond trades between and among institutional investor and broker-dealer clients in the leading all-to-all anonymous trading environment for corporate bonds. We also offer 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. In addition, we provide 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.

Our platforms' innovative technology solutions are designed to increase the number of potential trading counterparties and create a menu of solutions to address different trade sizes and bond liquidity characteristics. Our traditional RFQ model allows our institutional investor clients to simultaneously request competing, executable bids or offers from our broker-dealer clients and execute trades with the broker-dealer of their choice from among those that choose to respond. Our Open Trading protocols complement our request-for-quote model by increasing the number of potential counterparties and improving liquidity by allowing all participants to interact anonymously in an all-to-all trading environment. Clients can use our auto-execution technology with both our traditional RFQ and Open Trading protocols, thereby using rules-based execution to connect to diverse sources of liquidity while reducing trading inefficiencies and human errors. Leveraging the benefits of our Open Trading marketplace, we recently launched Live Markets, an order book that will create a single view of two-way, actionable prices for the most active bonds, including newly issued debt, benchmark issues and news-driven securities. We expect that Open Trading participants will improve their trading capacity through the Live Markets order book, by more efficiently trading liquid names in larger size and accessing integrated real-time market data, such as Composite+.

We derive revenue from commissions for trades executed on our platform, 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 other 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:

- to use our broad network of over 1,700 active institutional investor and broker-dealer participants to drive more clients to our platforms;
- to increase the secondary market liquidity on our trading platform by deploying innovative technology solutions, such as our Open Trading protocols, to increase the number of potential trading counterparties on our platform and to address different trade sizes, bond liquidity characteristics and trading preferences;

- to continue to develop innovative next-generation technologies that will allow our clients to further automate and improve the performance of their trading desks through increased liquidity, enhanced trading efficiencies and the ability to identify trends within the bond market;
- to expand and strengthen our existing service, data and analytical offerings throughout the trading cycle so that we are more fully integrated into the workflow of our broker-dealer and institutional investor clients; and
- to increase and supplement our internal growth by entering into strategic alliances, or acquiring businesses or technologies that will enable us to enter new markets, provide new products or services, or otherwise enhance the value of our platform to our clients.

## **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 result in declining trading volume. These factors could have a material adverse 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, economic and political conditions in the United States, Europe and elsewhere, and the consolidation or contraction of our broker-dealer and institutional investor clients.

Our results of operations are impacted by a number of factors, including market conditions and the overall level of market volumes in our core products. In 2019, estimated U.S. high-grade and U.S. high-yield market volume, as reported by Financial Industry Regulatory Authority's ("FINRA") Trade Reporting and Compliance Engine ("TRACE"), increased 8.1% and 10.4%, respectively, compared to 2018. Historically, market conditions are typically more constructive for electronic trading and the growth of our market share when there is lower new issuance activity, increased volatility, widening credit spreads and increased investment fund flow movement, among other factors. In 2019, aggregate U.S. high-grade and U.S. high-yield new issue activity was approximately 5.8% higher than 2018. In addition, whereas credit spreads and credit spread volatility generally widened during 2018, both volatility and spreads tightened throughout 2019. The decline in U.S. Treasury yields, tightening of credit spreads and increase in average years-to-maturity led to longer duration on U.S. high-grade bonds traded on our platform and an increase in U.S. high-grade fee capture compared to 2018.

### ***Competitive Landscape***

The global 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. We primarily compete with other electronic trading platforms and trading business conducted directly between broker-dealers and their institutional investor clients over the telephone, e-mail or instant messaging. 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.

In general, we compete on the basis of a number of key factors, including, among others, the liquidity provided on our platform, the magnitude and frequency of price improvement enabled by our platform, total transaction costs, the quality and speed of execution and our platforms' features and trading functionalities. 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 familiarity and integration of our broker-dealer and institutional investor clients with our electronic trading platform and other systems. We have focused on the unique aspects of the credit markets we serve in the development of our platform, 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. See "Business — Government Regulation." The existing legal framework that governs the financial markets is periodically reviewed and amended, resulting in enforcement of new laws and regulations that apply to our business. The current regulatory environment in the United States may be subject to future legislative changes driven by the current presidential administration as it largely pursues policies of financial deregulation. In 2017, the SEC established a Fixed Income Market Structure Advisory Committee in order to provide the SEC with diverse perspectives on the structure and operations of the U.S. fixed-income markets, as well as advice and recommendations on matters related to fixed-income market structure. The impact of any reform efforts on us and our operations remains uncertain.

In addition, the U.K. ceased to be a member of the E.U. on January 31, 2020 (commonly referred to as “Brexit”), triggering a period during which the U.K. will continue to observe applicable E.U. regulations through December 31, 2020 or any later extension date (the “Transition Period”). In preparation for Brexit, we obtained AFM authorizations for our subsidiaries in the Netherlands in 2019 and, during the Transition Period, we are able to provide regulated services to our European clients in reliance on the cross-border services passport held by our Dutch subsidiaries. Brexit is expected to lead to legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which E.U. laws to replace or replicate, 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 could increase following Brexit.

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 platforms that meet the various regulatory requirements and help them comply with their regulatory obligations.

### ***Technology Environment***

We must continue to enhance and improve our electronic trading platform. 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 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. We expect that our transition to agile software development processes will help us continue to be a market leader in developing the technology solutions for our clients’ trading needs.

We experience cyber-threats and attempted security breaches. Cyber security incidents could impact revenue and operating income and increase costs. We therefore continue to make investments, which may result in increased costs, to strengthen our cybersecurity measures. See also Item 1A. *Risk Factors*, “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 there are five 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 originate transactions through the platforms;
- 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; and
- the level of commissions that we collect for trades executed through the platforms.

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.

### ***Commission Revenue***

Commissions 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. Under our disclosed trading transaction fee plans, 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 U.S. Treasury matched principal trades, commissions are invoiced and recorded on a monthly basis.

*U.S. High-Grade Corporate Bond Commissions.* 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 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. The average U.S. high-grade fees per million may vary in the future due to changes in yield, years-to-maturity and nominal size of bonds traded on our platform. Distribution fees include any unused monthly fee commitments under our variable fee plans.

*Other Credit Commissions.* Other credit includes Eurobonds, emerging markets bonds, high-yield bonds, municipal bonds and leveraged loans. Commissions for other credit products 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 other credit fees per million may vary in the future due to changes in product mix or trading protocols.

*Rates Commissions.* Rates includes U.S. Treasury, U.S. agency, European government bonds and credit derivatives. 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 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 and data feeds provided by outside vendors or service providers. 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 certain 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 platform, information services and post-trade 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 for the clearing and settlement of matched principal trades.

*General and Administrative.* General and administrative expense consists primarily of general travel and entertainment, board of directors' expenses, charitable contributions, employee training and professional development, provision for doubtful accounts and various state franchise and U.K. value-added taxes.

Expenses may grow in the future, notably in employee compensation and benefits as we increase headcount to support investment in new products 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, including the LiquidityEdge acquisition, which closed on November 1, 2019.

#### ***Other Income (Expense)***

*Investment Income.* Investment income consists of income earned on our investments.

*Other, Net.* Other, net consists of unrealized gains or losses on trading security investments, realized gains or losses on investments, foreign currency transaction gains or losses, investment advisory fees and other miscellaneous revenues and expenses.

#### **Critical Accounting Policies and 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, also referred to as U.S. 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. Note 2 of the Notes to our Consolidated Financial Statements includes a summary of the significant accounting policies and methods used in the preparation of our Consolidated Financial Statements. There were no significant changes to our critical accounting policies and estimates during the year ended December 31, 2019, as compared to those we disclosed in Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2018.

#### **Recent Accounting Pronouncements**

See Note 2 to the Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K for a discussion of recent accounting pronouncements, including but not limited to the Company's adoption of the new U.S. GAAP leasing standard (ASC 842) on a modified retrospective basis effective January 1, 2019 and the cloud computing arrangements standard on a prospective basis effective July 1, 2019.

## 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 15 to the Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K for certain geographic information about our business required by U.S. GAAP.

## Results of Operations

### Year Ended December 31, 2019 Compared to Year Ended December 31, 2018

On November 1, 2019, we completed our acquisition of LiquidityEdge which enabled us to expand our trading capabilities to include U.S. Treasuries. For additional information regarding this acquisition, see Note 5 to the Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K.

The following table summarizes our financial results, which includes LiquidityEdge related revenue and expenses of \$2.5 million and \$3.8 million, respectively, recognized during 2019:

	Year Ended December 31,			
	2019	2018	\$ Change	% Change
	(\$ in thousands, except per share amounts)			
Revenues .....	\$ 511,352	\$ 435,565	\$ 75,787	17.4 %
Expenses.....	260,470	222,981	37,489	16.8
Operating income.....	250,882	212,584	38,298	18.0
Other income.....	6,542	5,502	1,040	18.9
Income before income taxes .....	257,424	218,086	39,338	18.0
Provision for income taxes.....	52,522	45,234	7,288	16.1
Net income .....	<u>\$ 204,902</u>	<u>\$ 172,852</u>	<u>\$ 32,050</u>	18.5 %
Net income per common share - Diluted .....	\$ 5.40	\$ 4.57	\$ 0.83	18.2%

A 3.9% change in the average foreign currency exchange rate of the British pound sterling compared to the U.S. Dollar during 2019 had the effect of decreasing revenues and expenses by \$2.8 million and \$2.9 million, respectively, for the year ended December 31, 2019.

### Revenues

Our revenues for the years ended December 31, 2019 and 2018, and the resulting dollar and percentage changes, were as follows:

	Year Ended December 31,					
	2019		2018		\$ Change	% Change
	(\$ in thousands)					
	\$	% of Revenues	\$	% of Revenues		
Commissions .....	\$ 463,856	90.7 %	\$ 390,834	89.7 %	\$ 73,022	18.7 %
Information services.....	30,730	6.0	28,227	6.5	2,503	8.9
Post-trade services.....	15,763	3.1	15,346	3.5	417	2.7
Other.....	1,003	0.2	1,158	0.3	(155)	(13.4)
Total revenues.....	<u>\$ 511,352</u>	100.0 %	<u>\$ 435,565</u>	100.0 %	<u>\$ 75,787</u>	17.4 %

## Commissions

Our commission revenues for the years ended December 31, 2019 and 2018, and the resulting dollar and percentage changes, were as follows:

	Year Ended December 31,			
	2019	2018	\$ Change	% Change
	(\$ in thousands)			
Variable transaction fees				
U.S. high-grade .....	\$ 173,944	\$ 144,642	\$ 29,302	20.3 %
Other credit .....	188,514	147,148	41,366	28.1
Total credit.....	362,458	291,790	70,668	24.2
Rates.....	4,722	2,146	2,576	120.0
Total variable transaction fees.....	367,180	293,936	73,244	24.9
Distribution fees				
U.S. high-grade .....	71,885	72,135	(250)	(0.3)
Other credit .....	24,347	24,077	270	1.1
Total credit.....	96,232	96,212	20	0.0
Rates.....	444	686	(242)	(35.3)
Total distribution fees.....	96,676	96,898	(222)	(0.2)
Total commissions.....	<u>\$ 463,856</u>	<u>\$ 390,834</u>	<u>\$ 73,022</u>	18.7 %

U.S. high-grade variable transaction fees increased \$29.3 million due to a 14.0% increase in trading volume and a 5.5% increase in the variable transaction fee per million. Other credit variable transaction fees increased \$41.4 million due to a 33.1% increase in trading volume offset by a 3.8% decrease in the variable transaction fee per million. Open trading volume increased by 44.2% and represented 21.1% and 16.9% of credit commission revenue for the years ended December 31, 2019 and 2018, respectively. The 120.0% increase in variable transaction fees for rates was attributable to the inclusion of U.S. Treasuries trading volume and commissions subsequent to the November 1, 2019 acquisition of LiquidityEdge.

Our trading volume for each of the years presented was as follows:

	Year Ended December 31,			
	2019	2018	\$ Change	% Change
	(\$ in millions)			
Trading Volume Data				
U.S. high-grade - fixed rate .....	\$ 992,844	\$ 867,518	\$ 125,326	14.4 %
U.S. high-grade - floating rate.....	64,980	60,654	4,326	7.1
Total U.S. high-grade.....	1,057,824	928,172	129,652	14.0
Other credit.....	974,494	731,888	242,606	33.1
Total credit.....	2,032,318	1,660,060	372,258	22.4
Rates .....	659,548	53,479	606,069	N/M
Number of U.S. Trading Days .....	250	249		
Number of U.K. Trading Days.....	253	253		

For volume reporting purposes, transactions in foreign currencies are converted to U.S. dollars at average monthly rates. The 14.0% increase in our U.S. high-grade volume was principally due to an increase in estimated overall market volume coupled with growth in our estimated market share. Our estimated market share of total U.S. high-grade corporate bond volume increased to 19.0% for the year ended December 31, 2019 from 18.1% for the year ended December 31, 2018. Estimated U.S. high-grade TRACE volume increased by 8.1% to \$5.6 trillion for the year ended December 31, 2019 from \$5.1 trillion for the year ended December 31, 2018.

Other credit volumes increased by 33.1% for the year ended December 31, 2019 compared to the year ended December 31, 2018, primarily due to increases of 48.4% in Eurobond volume, 29.4% in emerging markets bond volume and 28.7% in high-yield bond volume. Our estimated market share of U.S. high-yield TRACE volume increased to 10.4% for the year ended December 31, 2019 from 8.9% for the year ended December 31, 2018.

The significant increase in rates volume was attributable to the inclusion of U.S. Treasuries trading volumes subsequent to the November 1, 2019 acquisition of LiquidityEdge.

Our average variable transaction fee per million for the years ended December 31, 2019 and 2018 was as follows:

	<b>Year Ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
Average Variable Transaction fee per million		
U.S. high-grade - fixed rate.....	\$ 171.06	\$ 160.63
U.S. high-grade - floating rate .....	<u>63.15</u>	<u>87.22</u>
Total U.S. high-grade .....	164.44	155.84
Other credit .....	<u>193.45</u>	<u>201.05</u>
Total credit.....	178.35	175.77
 Rates.....	 7.16	 40.13

Total U.S. high-grade average variable transaction fee per million increased to \$164 per million for the year ended December 31, 2019 from \$156 per million for the year ended December 31, 2018, mainly due to an increase in the duration of bonds traded on the platforms. Other credit average variable transaction fee per million decreased to \$193 per million for the year ended December 31, 2019 from \$201 million for the year ended December 31, 2018, mainly due to a larger percentage of trading volume in Eurobonds that command lower fees per million. The significant decrease in the average variable transaction fee per million for rates products was primarily attributable to the inclusion of U.S. Treasuries trading volumes that command lower fees per million. We expect rates variable transaction fee per million to decline in 2020 upon reflecting a full period of activity for U.S. Treasuries trading volume.

*Information Services.* Information services revenue increased \$2.5 million for the year ended December 31, 2019. The increase is attributable to revenue from new data contracts of \$3.2 million offset by the unfavorable impact of the stronger U.S. dollar of \$0.7 million.

*Post-Trade Services.* Post-trade services revenue increased \$0.4 million for the year ended December 31, 2019 principally due to an increase of \$1.4 million in regulatory transaction reporting services revenue, offset by the unfavorable impact of the stronger U.S. dollar of \$0.7 million. Our transaction reporting business processed 1.2 billion transactions for the year ended December 31, 2019 compared to 0.9 billion for the year ended December 31, 2018.

*Other.* Other revenue was \$1.0 million and \$1.2 million for the years ended December 31, 2019 and 2018, respectively.

## Expenses

Our expenses for the years ended December 31, 2019 and 2018, and the resulting dollar and percentage changes, were as follows:

	Year Ended December 31,					
	2019		2018		\$	%
	\$	% of Revenues	\$	% of Revenues		
<b>Expenses</b>						
Employee compensation and benefits ....	\$ 131,079	25.6 %	\$ 109,117	25.1 %	\$ 21,962	20.1 %
Depreciation and amortization.....	26,857	5.3	23,080	5.3	3,777	16.4
Technology and communications.....	26,792	5.2	23,866	5.5	2,926	12.3
Professional and consulting fees.....	25,534	5.0	21,521	4.9	4,013	18.6
Occupancy .....	11,639	2.3	14,176	3.3	(2,537)	(17.9)
Marketing and advertising .....	11,559	2.3	12,114	2.8	(555)	(4.6)
Clearing costs.....	11,314	2.2	7,754	1.8	3,560	45.9
General and administrative.....	15,696	3.1	11,353	2.6	4,343	38.3
Total expenses .....	<u>\$ 260,470</u>	50.9 %	<u>\$ 222,981</u>	51.2 %	<u>\$ 37,489</u>	16.8 %

Employee compensation and benefits increased by \$22.0 million primarily due increases in salaries, taxes and benefits on higher employee headcount of \$10.3 million, stock-based compensation of \$9.5 million resulting from higher employee equity awards granted in 2019 and employee incentive compensation of \$3.3 million, which is tied to operating performance. The total number of employees increased to 527 as of December 31, 2019 from 454 as of December 31, 2018.

Depreciation and amortization increased by \$3.8 million primarily due to higher amortization of software development costs of \$1.1 million, amortization of software licenses of \$1.0 million and depreciation of production hardware of \$0.9 million. For the years ended December 31, 2019 and 2018, \$12.3 million and \$35.9 million, respectively, of equipment purchases and leasehold improvements and \$22.4 million and \$11.7 million, respectively, of software development costs were capitalized. In 2018, we incurred capital expenditures of \$25.1 million related to the build-out of our new headquarters in New York City.

Technology and communications expenses increased by \$2.9 million primarily due to increases in software subscription costs of \$1.2 million, data center and cloud hosting of \$0.9 million and market data costs of \$0.8 million.

Professional and consulting fees increased by \$4.0 million primarily due to \$1.7 million of acquisition related costs, \$0.9 million of consulting and legal fees related to the self-clearing initiative and higher IT consulting fees of \$0.5 million.

Occupancy costs decreased by \$2.5 million primarily due to an increase in rent expense of \$5.0 million offset by a reduction of \$7.1 million in duplicate rent expense incurred during the build-out phase of our new headquarters in New York City during the year ended December 31, 2018. We relocated to the new headquarters in January 2019.

Clearing costs increased by \$3.6 million due to \$3.0 million of clearing expenses associated with higher Open Trading volume and \$0.6 million of clearing expenses associated with U.S. Treasuries matched principal transactions. Third-party clearing costs as a percentage of Open Trading matched principal trading revenue from credit products decreased to 11.0% for the year ended December 31, 2019 from 11.8% for the year ended December 31, 2018.

General and administrative expenses increased by \$4.3 million primarily due to higher employee training and professional development costs of \$2.1 million, general travel, entertainment and meals of \$0.9 million and registration fees of \$0.5 million.

*Other Income (Expense)*

Our other income for the years ended December 31, 2019 and 2018, and the resulting dollar and percentage changes, were as follows:

	<b>Year Ended December 31,</b>					
	<b>2019</b>		<b>2018</b>			
	(\$ in thousands)					
	<u>\$</u>	<u>% of Revenues</u>	<u>\$</u>	<u>% of Revenues</u>	<u>\$ Change</u>	<u>% Change</u>
Investment income.....	\$ 8,063	1.6 %	\$ 6,112	1.4 %	\$ 1,951	31.9 %
Other, net .....	(1,521)	(0.3)	(610)	(0.1)	(911)	149.3
Total other income.....	<u>\$ 6,542</u>	1.3 %	<u>\$ 5,502</u>	1.3 %	<u>\$ 1,040</u>	18.9 %

Investment income increased by \$1.9 million primarily due to higher investment balances and an increase in interest rates in 2019. Other, net decreased by \$0.9 million as 2018 included \$0.8 million of sales tax refunds.

*Provision for Income Taxes.*

The provision for income taxes and effective tax rate for the years ended December 31, 2019 and 2018 were as follows:

	<b>Year Ended December 31,</b>			
	<b>2019</b>	<b>2018</b>	<b>\$ Change</b>	<b>% Change</b>
	(\$ in thousands)			
Provision for income taxes .....	\$ 52,522	\$ 45,234	\$ 7,288	16.1 %
Effective tax rate.....	20.4%	20.7%		

The income tax provision reflected \$10.6 million and \$5.6 million of excess tax benefits related to share-based compensation awards that vested or were exercised during the years ended December 31, 2019 and 2018, 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.

## Quarterly Results of Operations

Our quarterly results have varied significantly as a result of:

- changes in trading volume due to market conditions, changes in the number of trading days in certain quarters, and seasonality effects caused by slow-downs in trading activity during certain periods;
- changes in the number of broker-dealers and institutional investors using our trading platform, as well as variation in usage by existing clients;
- acquisitions or the Company's expansion into new products; or
- variance in our expenses, particularly employee compensation and benefits.

The following table sets forth certain unaudited consolidated quarterly income statement data for the eight quarters ended December 31, 2019. In our opinion, this unaudited information has been prepared on a basis consistent with our annual financial statements and includes all adjustments (consisting only of normal recurring adjustments) necessary for a fair statement of the unaudited quarterly data. This information should be read in conjunction with our Consolidated Financial Statements and related Notes included in this Annual Report on Form 10-K. The results of operations for any quarter are not necessarily indicative of results that we may achieve for any subsequent periods.

	Three Months Ended							
	Dec 31, 2019	Sep 30, 2019	Jun 30, 2019	Mar 31, 2019	Dec 31, 2018	Sep 30, 2018	Jun 30, 2018	Mar 31, 2018
	(In thousands, except per share amounts) (unaudited)							
<b>Revenues</b>								
Commissions.....	\$ 117,103	\$ 119,869	\$ 114,124	\$ 112,760	\$ 101,436	\$ 90,513	\$ 96,113	\$ 102,772
Information services.....	8,515	7,693	7,156	7,366	7,057	7,174	6,930	7,066
Post-trade services.....	3,923	3,784	3,956	4,100	3,675	3,475	3,620	4,576
Other.....	233	251	254	265	276	281	301	300
<b>Total revenues</b> .....	<u>129,774</u>	<u>131,597</u>	<u>125,490</u>	<u>124,491</u>	<u>112,444</u>	<u>101,443</u>	<u>106,964</u>	<u>114,714</u>
<b>Expenses</b>								
Employee compensation and benefits.....	33,117	32,681	32,623	32,658	27,802	26,282	26,199	28,834
Depreciation and amortization.....	7,730	6,700	6,345	6,082	5,848	6,173	5,790	5,269
Technology and communications ....	7,155	7,381	6,474	5,782	6,415	5,879	5,793	5,779
Professional and consulting fees.....	6,389	7,018	6,296	5,831	5,353	5,685	5,426	5,057
Occupancy.....	3,090	2,802	2,798	2,949	3,844	3,528	3,467	3,337
Marketing and advertising.....	3,087	2,506	3,667	2,299	3,534	2,980	3,535	2,065
Clearing costs.....	3,345	2,782	2,610	2,577	2,257	1,760	2,012	1,725
General and administrative.....	5,010	3,762	3,800	3,124	3,426	2,744	2,708	2,475
<b>Total expenses</b> .....	<u>68,923</u>	<u>65,632</u>	<u>64,613</u>	<u>61,302</u>	<u>58,479</u>	<u>55,031</u>	<u>54,930</u>	<u>54,541</u>
<b>Operating income</b> .....	60,851	65,965	60,877	63,189	53,965	46,412	52,034	60,173
<b>Other income (expense)</b>								
Investment income.....	1,767	2,211	2,096	1,989	1,926	1,635	1,383	1,168
Other, net.....	(661)	(838)	(64)	42	175	(250)	(207)	(328)
<b>Total other income</b> .....	<u>1,106</u>	<u>1,373</u>	<u>2,032</u>	<u>2,031</u>	<u>2,101</u>	<u>1,385</u>	<u>1,176</u>	<u>840</u>
<b>Income before income taxes</b> .....	61,957	67,338	62,909	65,220	56,066	47,797	53,210	61,013
Provision for income taxes.....	11,684	13,336	14,804	12,698	10,235	9,203	12,723	13,073
<b>Net income</b> .....	<u>\$ 50,273</u>	<u>\$ 54,002</u>	<u>\$ 48,105</u>	<u>\$ 52,522</u>	<u>\$ 45,831</u>	<u>\$ 38,594</u>	<u>\$ 40,487</u>	<u>\$ 47,940</u>
<b>Net income per common share</b>								
Basic.....	\$ 1.35	\$ 1.46	\$ 1.30	\$ 1.42	\$ 1.24	\$ 1.04	\$ 1.10	\$ 1.30
Diluted.....	\$ 1.32	\$ 1.42	\$ 1.27	\$ 1.39	\$ 1.21	\$ 1.02	\$ 1.07	\$ 1.27

The following tables set forth trading volume and average variable transaction fee per million for the eight quarters ended December 31, 2019.

	<b>Three Months Ended</b>							
	<b>Dec 31, 2019</b>	<b>Sep 30, 2019</b>	<b>Jun 30, 2019</b>	<b>Mar 31, 2019</b>	<b>Dec 31, 2018</b>	<b>Sep 30, 2018</b>	<b>Jun 30, 2018</b>	<b>Mar 31, 2018</b>
<b>Trading Volume Data</b>	<b>(In millions)</b>							
U.S. high-grade - fixed rate.....	\$238,959	\$245,027	\$249,025	\$259,833	\$223,737	\$191,950	\$215,308	\$ 236,523
U.S. high-grade - floating rate....	14,150	16,918	16,335	17,577	16,915	14,066	15,211	14,462
Total U.S. high-grade.....	253,109	261,945	265,360	277,410	240,652	206,016	230,519	250,985
Other credit.....	236,403	255,097	248,503	234,491	187,274	166,990	177,681	199,943
Total credit.....	489,512	517,042	513,863	511,901	427,926	373,006	408,200	450,928
Rates (1) .....	620,437	11,661	13,174	14,276	14,345	12,505	12,550	14,079

(1) Rates includes U.S. Treasury volume traded through LiquidityEdge, which was acquired by the Company on November 1, 2019.

	<b>Three Months Ended</b>							
	<b>Dec 31, 2019</b>	<b>Sep 30, 2019</b>	<b>Jun 30, 2019</b>	<b>Mar 31, 2019</b>	<b>Dec 31, 2018</b>	<b>Sep 30, 2018</b>	<b>Jun 30, 2018</b>	<b>Mar 31, 2018</b>
<b>Average Variable Transaction Fee Per Million</b>								
U.S. high-grade - fixed rate.....	\$177.27	\$181.45	\$168.05	\$158.45	\$160.52	\$162.02	\$162.26	\$158.14
U.S. high-grade - floating rate ....	53.64	56.08	65.22	75.70	69.53	91.36	96.35	94.29
Total U.S. high-grade .....	170.36	173.35	161.72	153.21	154.12	157.19	157.91	154.46
Other credit .....	191.36	196.04	190.07	196.32	207.55	198.15	195.66	202.19
Total credit.....	180.50	184.55	175.43	172.95	177.50	175.53	174.34	175.62
Rates (1).....	4.81	48.62	46.69	38.99	41.34	38.56	38.86	41.43
Number of U.S. trading days .....	62	64	63	61	61	63	64	61
Number of U.K. trading days.....	64	65	61	63	64	64	62	63

(1) The decrease in the average variable transaction fee per million for rates during the three months ended December 31, 2019 was attributable to the inclusion of U.S. Treasury trading volumes traded through LiquidityEdge, which command lower fees per million.

### Liquidity and Capital Resources

During the past two years, we have met our funding requirements through cash on hand and internally generated funds. Cash and cash equivalents and investments totaled \$500.6 million at December 31, 2019.

In October 2015, we entered into a two-year amended and restated credit agreement (the “Credit Agreement”) that increased our borrowing capacity to an aggregate of \$100.0 million. In October 2017, we amended the Credit Agreement and extended the maturity date to October 2018. The amended Credit Agreement also provided for two additional one-year extension options and modified certain borrowing terms and covenants. Following the exercise of the first option to extend the maturity date by one year in October 2018, we exercised our second option in October 2019 to extend the maturity date to October 2020. Subject to satisfaction of certain specified conditions, we are permitted to upsize the borrowing capacity under the Credit Agreement by an additional \$50.0 million. As of December 31, 2019, we had \$1.0 million in letters of credit outstanding and \$99.0 million in available borrowing capacity under the Credit Agreement.

During the past two years, our cash flows were as follows:

	<b>Year Ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
	<b>(In thousands)</b>	
Net cash provided by operating activities .....	\$ 265,935	\$ 223,917
Net cash (used in) investing activities .....	(122,051)	(50,296)
Net cash (used in) financing activities .....	(118,100)	(92,673)
Effect of exchange rate changes on cash and cash equivalents .....	1,011	(1,640)
Net increase for the period .....	<u>\$ 26,795</u>	<u>\$ 79,308</u>

***Cash Flows for the Year Ended December 31, 2019 Compared to Year Ended December 31, 2018***

The \$42.0 million increase in net cash provided by operating activities was primarily due to increases in net income of \$32.1 million, stock-based compensation expense of \$9.4 million and amortization of operating lease right-of-use assets of \$5.8 million, decreases in deferred taxes of \$3.9 million and net purchases of corporate debt trading investments of \$3.2 million offset by an increase in working capital of \$11.0 million.

The \$71.8 million increase in net cash (used in) investing activities was attributable to cash of \$97.4 million used as partial consideration for the acquisition of LiquidityEdge, net of cash and restricted cash acquired, offset by an increase in net proceeds from sales and maturities of securities available-for-sale of \$12.9 million and a decrease in capital expenditures of \$12.9 million. The decrease in capital expenditures was comprised of a \$23.6 million decrease in purchases of furniture, equipment and leasehold improvements related to the build-out of our new headquarters in New York City offset by an increase in capitalized software development costs of \$10.7 million.

The \$25.4 million increase in net cash (used in) financing activities was principally due to an increase in withholding tax payments on restricted stock vesting and stock option exercises of \$17.8 million and an increase in cash dividends paid on common stock of \$13.8 million, offset by a decrease in repurchases of our common stock of \$7.9 million.

***Non-GAAP Financial Measures***

In addition to reporting financial results in accordance with GAAP, we use certain non-GAAP financial measures called earnings before interest, taxes, depreciation and amortization (“EBITDA”) and free cash flow (“FCF”). We define FCF as cash flow from operating activities excluding the net change in trading investments 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 and FCF 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 and FCF 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, as defined, for the years ended December 31, 2019 and 2018:

	<b>Year Ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
	<b>(In thousands)</b>	
Net income.....	\$ 204,902	\$ 172,852
Add back:		
Interest expense .....	—	—
Provision for income taxes .....	52,522	45,234
Depreciation and amortization.....	26,857	23,080
Earnings before interest, taxes, depreciation and amortization .....	<u>\$ 284,281</u>	<u>\$ 241,166</u>

The table set forth below presents a reconciliation of our net cash provided by operating activities to FCF, as defined, for the years ended December 31, 2019 and 2018:

	<b>Year Ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
	<b>(In thousands)</b>	
Net cash provided by operating activities.....	\$ 265,935	\$ 223,917
Exclude: Net change in trading investments .....	(4,045)	(856)
Less: Purchases of furniture, equipment and leasehold improvements .....	(12,292)	(35,888)
Less: Capitalization of software development costs.....	(22,408)	(11,705)
Free cash flow.....	<u>\$ 227,190</u>	<u>\$ 175,468</u>

### ***Other Factors Influencing Liquidity and Capital Resources***

We believe that our current resources are adequate to meet our liquidity needs and capital expenditure requirements for at least the next 12 months. However, our future liquidity and capital requirements will depend on a number of factors, including expenses associated with product development and expansion and new business opportunities that are intended to further diversify our revenue stream. 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.

Certain of our U.S. subsidiaries are registered as a broker-dealer or a SEF and therefore are subject to the applicable rules and regulations of the SEC and the CFTC. These rules contain minimum net capital requirements, as defined in the applicable regulations, and also may require a significant part of the registrants' assets be kept in relatively liquid form. Certain of our foreign subsidiaries are regulated by the Financial Conduct Authority 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, 2019, 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, 2019, our subsidiaries maintained aggregate net capital and financial resources that were \$219.7 million in excess of the required levels of \$15.8 million.

Each of our U.S. and foreign regulated subsidiaries are subject to local regulations which generally prohibit 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 without prior notification to or approval from such regulated entity's principal regulator. As of December 31, 2019, the amount of unrestricted cash held by our non-U.S. subsidiaries was \$153.9 million.

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 settle through third-party clearing brokers. 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 securities clearing agreements with third party clearing brokers, we maintain collateral deposits with each clearing broker in the form of cash. The amount of the collateral deposits, which are disclosed in the Consolidated Statements of Cash Flows as restricted cash, and included in prepaid expenses and other assets in the Consolidated Statements of Financial Condition was \$4.1 million and \$1.1 million as of December 31, 2019 and 2018, respectively. We are exposed to credit risk in the event a counterparty does not fulfill its obligation to complete a transaction or if there is a miscommunication or other 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 failure on any of our trades. We did not record any liabilities or losses with regard to this right for the years ended December 31, 2019 and 2018.

In the normal course of business, we enter into contracts that contain a variety of representations, warranties and general indemnifications. Our maximum exposure from any claims under these arrangements is unknown, as this would involve claims that have not yet occurred. However, based on past experience, we expect the risk of material loss to be remote.

See Item 5 of this Annual Report on Form 10-K for a discussion of our repurchases of our common stock and our dividend policy.



## **Item 7A. *Quantitative and Qualitative Disclosures About Market Risk.***

### ***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.

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, 2019, we had \$224.3 million of investments in corporate bonds and U.S. Treasuries that were classified as securities available-for-sale or trading securities. Adverse movements, such as a 10% decrease in the value of these securities or a downturn or disruption in the markets for these securities, could result in a substantial loss. 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 Item 1A. *Risk Factors*, “Risks Related to Our Business Generally – 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, cash equivalents and investments. As of December 31, 2019, our cash and cash equivalents and investments amounted to \$500.6 million. A hypothetical 100 basis point decrease in interest rates would decrease our annual investment income by approximately \$4.9 million, assuming no change in the amount or composition of our cash and cash equivalents.

As of December 31, 2019, a hypothetical 100 basis point increase or decrease in interest rates would decrease or increase the fair value of the available-for-sale investment portfolio by approximately \$1.1 million, assuming no change in the amount or composition of the investments. The hypothetical unrealized gain (loss) of \$1.1 million would be recognized in other comprehensive loss on the Consolidated Statements of Financial Condition.

A similar hypothetical 100 basis point increase or decrease in interest rates would decrease or increase the fair value of the trading securities portfolio by approximately \$1.2 million. The hypothetical unrealized gain (loss) of \$1.2 million would be recognized in other, net in the Consolidated Statements of Operations.

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 income and the value of balance sheet items denominated in foreign currencies.

During the year ended December 31, 2019, approximately 14.4% of our revenue and 28.9% 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 \$7.4 million and operating expenses by approximately \$7.0 million.

### ***Derivative Risk***

Our limited derivative risk stems from our activities in the foreign currency forward contract market. We use this market to mitigate our U.S. dollar versus British Pound Sterling exposure that arises from the activities of our U.K. subsidiaries. As of December 31, 2019, the fair value of the notional amount of our foreign currency forward contract was \$158.7 million. We do not speculate in any derivative instruments.

## ***Credit Risk***

Certain of our subsidiaries act as a matched principal counterparty in connection with the Open Trading and other transactions that we execute between clients. We act as an intermediary in these transactions by serving as counterparty to both the buyer and the seller in trades which then settle 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 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 and procedures in place to identify and manage our credit risk. In connection with the recent growth of our Open Trading protocols and our acquisition of LiquidityEdge, we have implemented additional automated controls to help us manage our credit risk exposure. There can be no assurance that the policies, procedures and automated controls we use to manage this credit risk 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.

We intend to begin self-clearing substantially all of our bond transactions for our U.S. operations in the first half of 2020 and we may expand self-clearing to our foreign operations in the future. See the Risk Factor captioned “*Self-clearing will expose us to significant operational, financial and liquidity risks*”.

Cash and cash equivalents includes cash and money market instruments that are primarily maintained at one major global bank. Given this concentration, we are exposed to certain credit risk in relation to our deposits at this bank.

**Item 8. Financial Statements and Supplementary Data.**

**MARKETAXESS HOLDINGS INC.**

**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

<b>Management’s Report on Internal Control Over Financial Reporting</b> .....	67
<b>Audited Consolidated Financial Statements</b>	
Report of Independent Registered Public Accounting Firm .....	68
Consolidated Statements of Financial Condition — As of December 31, 2019 and 2018 .....	71
Consolidated Statements of Operations — For the years ended December 31, 2019, 2018 and 2017 .....	72
Consolidated Statements of Comprehensive Income — For the years ended December 31, 2019, 2018 and 2017 .....	73
Consolidated Statements of Changes in Stockholders’ Equity — For the years ended December 31, 2019, 2018 and 2017.....	74
Consolidated Statements of Cash Flows — For the years ended December 31, 2019, 2018 and 2017.....	75
Notes to Consolidated Financial Statements .....	76

*The unaudited supplementary data regarding consolidated quarterly income statement data are incorporated by reference to the information set forth in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” in the section captioned “Quarterly Results of Operations.”*

## 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, 2019. 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 our assessment and those criteria, management concluded that the Company maintained effective internal control over financial reporting as of December 31, 2019.

The effectiveness of our internal control over financial reporting as of December 31, 2019 has been audited by PricewaterhouseCoopers LLP, 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, 2019 and 2018, and the related consolidated statements of operations, comprehensive income, changes in stockholders’ equity and cash flows for each of the three years in the period ended December 31, 2019, 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, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 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, 2019, 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 matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate 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 matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

#### *Revenue Recognition-Variable Transaction Fees and Distribution Fees*

As described in Note 2 to the consolidated financial statements, revenue includes \$367.2 million of variable transaction fees and \$96.7 million of distribution fees and unused minimum fees for the year ended December 31, 2019, representing commissions for trades executed on the Company's platforms. 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 and maturity of the bond traded. As disclosed by management, commissions are determined based on the fee schedule associated with the instrument being traded. Fee schedules can incorporate variable transaction fees, fixed distribution fees and unused monthly fee commitments.

The principal considerations for our determination that performing procedures relating to variable transaction and distribution fees is a critical audit matter are that there was significant audit effort necessary in performing procedures and evaluating evidence related to these revenue types, which are calculated based on the instrument being traded, volume of the instrument being traded, and the client's fee schedule.

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 variable transaction and distribution fees revenue recognition. These procedures also included, among others, testing a sample of commissions revenue transactions by agreeing the details of the trade to underlying documentation, agreeing fees charged to the fee schedule based on the trade details, and calculating, as applicable, the variable transaction and distribution fees.

#### *Acquisition of LiquidityEdge LLC - Valuation of Customer Relationship Intangible Assets*

As described in Notes 2 and 5 to the consolidated financial statements, the Company completed its acquisition of LiquidityEdge LLC for aggregate consideration of \$152.7 million on November 1, 2019, which resulted in \$58.7 million of customer relationship intangible assets being recorded. The fair value of the intangible assets acquired was determined by management's independent third-party specialist based on cash flow projections using certain key assumptions related to the growth rates, the customer attrition rates, the discount rate and asset lives.

The principal considerations for our determination that performing procedures relating to the valuation of customer relationship intangible assets recognized from the acquisition of LiquidityEdge LLC is a critical audit matter are there was a significant judgment by management in determining the valuation, which in turn led to a high degree of auditor subjectivity in performing procedures and evaluating audit evidence related to the appropriateness of the methodology and the reasonableness of the assumptions for the customer relationship intangible assets, including the revenue growth rates, customer attrition rates, discount rate, and the asset lives used in determining the valuation of the customer relationships intangible assets. The audit effort involved the use of professionals with specialized skill and knowledge to assist in performing procedures and evaluating audit evidence.

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 acquisition accounting including controls over management's valuation of the customer relationship intangible assets, and controls over development of the assumptions related to the valuation of these intangible assets. These procedures also included, among others, (i) reading the purchase agreement and (ii) testing management's process for determining the fair value of intangible assets. Testing management's process included evaluating the appropriateness of the valuation method, testing the completeness and accuracy of data used in the estimate and the reasonableness of key assumptions, including the revenue growth rates, customer attrition rates, discount rate, and the asset lives for the customer relationship intangible assets, using professionals with specialized skill and knowledge to assist in doing so. The work of management's specialist was evaluated as part of testing management's process. As a basis for using the work of management's specialist, procedures were performed to evaluate whether management's specialist had the necessary professional competency, capability and objectivity to value the customer relationship intangible assets.

/s/ PricewaterhouseCoopers LLP  
New York, New York  
February 18, 2020

We have served as the Company's auditor since 2000.

**MARKETAXESS HOLDINGS INC.**  
**CONSOLIDATED STATEMENTS OF FINANCIAL CONDITION**

	As of	
	December 31, 2019	December 31, 2018
	(In thousands, except share and per share amounts)	
<b>ASSETS</b>		
Cash and cash equivalents .....	\$ 270,124	\$ 246,322
Investments, at fair value .....	230,477	240,105
Accounts receivable, net of allowance of \$57 and \$80 as of December 31, 2019 and 2018, respectively .....	62,017	57,535
Goodwill .....	146,861	59,713
Intangible assets, net of accumulated amortization .....	60,986	2,962
Furniture, equipment, leasehold improvements and capitalized software, net of accumulated depreciation and amortization.....	71,795	63,010
Operating lease right-of-use assets .....	81,399	—
Prepaid expenses and other assets.....	30,770	22,468
Deferred tax assets, net .....	501	3,424
<b>Total assets</b> .....	<b>\$ 954,930</b>	<b>\$ 695,539</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>Liabilities</b>		
Accrued employee compensation .....	\$ 47,365	\$ 39,053
Income and other tax liabilities .....	16,690	16,432
Deferred revenue .....	3,499	2,810
Accounts payable, accrued expenses and other liabilities.....	19,294	29,366
Operating lease liabilities .....	97,991	—
<b>Total liabilities</b> .....	<b>184,839</b>	<b>87,661</b>
Commitments and Contingencies (Note 14)		
<b>Stockholders' equity</b>		
Preferred stock, \$0.001 par value, 4,855,000 shares authorized, no shares issued and outstanding as of December 31, 2019 and 2018 .....	—	—
Series A Preferred Stock, \$0.001 par value, 110,000 shares authorized, no shares issued and outstanding as of December 31, 2019 and 2018 .....	—	—
Common stock voting, \$0.003 par value, 110,000,000 shares authorized, 40,746,593 shares and 40,540,349 shares issued and 37,935,984 shares and 37,639,917 shares outstanding as of December 31, 2019 and 2018, respectively .....	122	122
Common stock non-voting, \$0.003 par value, 10,000,000 shares authorized, no shares issued and outstanding as of December 31, 2019 and 2018 .....	—	—
Additional paid-in capital .....	342,541	341,860
Treasury stock - Common stock voting, at cost, 2,810,609 and 2,900,432 shares as of December 31, 2019 and 2018, respectively .....	(153,388)	(184,962)
Retained earnings.....	591,086	463,252
Accumulated other comprehensive loss.....	(10,270)	(12,394)
<b>Total stockholders' equity</b> .....	<b>770,091</b>	<b>607,878</b>
<b>Total liabilities and stockholders' equity</b> .....	<b>\$ 954,930</b>	<b>\$ 695,539</b>

The accompanying notes are an integral part of these consolidated financial statements.

**MARKETAXESS HOLDINGS INC.**  
**CONSOLIDATED STATEMENTS OF OPERATIONS**

	Year Ended December 31,		
	2019	2018	2017
	(In thousands, except per share amounts)		
<b>Revenues</b>			
Commissions .....	\$ 463,856	\$ 390,834	\$ 355,282
Information services .....	30,730	28,227	25,806
Post-trade services .....	15,763	15,346	11,090
Other .....	1,003	1,158	1,244
<b>Total revenues</b> .....	<b>511,352</b>	<b>435,565</b>	<b>393,422</b>
<b>Expenses</b>			
Employee compensation and benefits .....	131,079	109,117	102,313
Depreciation and amortization .....	26,857	23,080	19,274
Technology and communications .....	26,792	23,866	20,048
Professional and consulting fees .....	25,534	21,521	19,367
Occupancy .....	11,639	14,176	6,125
Marketing and advertising .....	11,559	12,114	9,762
Clearing costs .....	11,314	7,754	5,797
General and administrative .....	15,696	11,353	11,121
<b>Total expenses</b> .....	<b>260,470</b>	<b>222,981</b>	<b>193,807</b>
<b>Operating income</b> .....	<b>250,882</b>	<b>212,584</b>	<b>199,615</b>
<b>Other income (expense)</b>			
Investment income .....	8,063	6,112	3,619
Other, net .....	(1,521)	(610)	(1,466)
<b>Total other income</b> .....	<b>6,542</b>	<b>5,502</b>	<b>2,153</b>
<b>Income before income taxes</b> .....	<b>257,424</b>	<b>218,086</b>	<b>201,768</b>
Provision for income taxes .....	52,522	45,234	53,679
<b>Net income</b> .....	<b>\$ 204,902</b>	<b>\$ 172,852</b>	<b>\$ 148,089</b>
Net income per common share			
Basic .....	\$ 5.53	\$ 4.68	\$ 4.02
Diluted .....	\$ 5.40	\$ 4.57	\$ 3.89
Cash dividends declared per common share .....	\$ 2.04	\$ 1.68	\$ 1.32
Weighted average shares outstanding			
Basic .....	37,083	36,958	36,864
Diluted .....	37,956	37,855	38,038

The accompanying notes are an integral part of these consolidated financial statements.

**MARKETAXESS HOLDINGS INC.**  
**CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME**

	Year Ended December 31,		
	2019	2018	2017
		<b>(In thousands)</b>	
<b>Net income</b> .....	\$ 204,902	\$ 172,852	\$ 148,089
Net cumulative translation adjustment and foreign currency exchange hedge, net of tax of \$(1,218), \$1,290 and \$(2,807), respectively.....	1,128	(2,078)	2,236
Net unrealized gain (loss) on securities available-for-sale, net of tax of \$312, \$(23), and \$(39), respectively .....	996	(90)	(234)
<b>Comprehensive income</b> .....	<u>\$ 207,026</u>	<u>\$ 170,684</u>	<u>\$ 150,091</u>

The accompanying notes are an integral part of these consolidated financial statements.

**MARKETAXESS HOLDINGS INC.**  
**CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY**

	Common Stock Voting	Additional Paid-In Capital	Treasury Stock - Common Voting	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
(In thousands)						
<b>Balance at December 31, 2016</b>	\$ 120	\$ 342,311	\$(117,330)	\$ 255,140	\$ (12,228)	\$ 468,013
Net income	—	—	—	148,089	—	148,089
Cumulative translation adjustment and foreign currency exchange hedge, net of tax	—	—	—	—	2,236	2,236
Unrealized net (loss) on securities available-for-sale, net of tax	—	—	—	—	(234)	(234)
Stock-based compensation	—	14,421	—	—	—	14,421
Exercise of stock options	1	1,971	—	—	—	1,972
Withholding tax payments on restricted stock vesting and stock option exercises	—	(27,691)	—	—	—	(27,691)
Repurchases of common stock	—	—	(42,461)	—	—	(42,461)
Cumulative effect of change in accounting for employee share based payments	—	69	—	(52)	—	17
Cash dividend on common stock	—	—	—	(49,594)	—	(49,594)
<b>Balance at December 31, 2017</b>	121	331,081	(159,791)	353,583	(10,226)	514,768
Net income	—	—	—	172,852	—	172,852
Cumulative translation adjustment and foreign currency exchange hedge, net of tax	—	—	—	—	(2,078)	(2,078)
Unrealized net (loss) on securities available-for-sale, net of tax	—	—	—	—	(90)	(90)
Stock-based compensation	—	15,850	—	—	—	15,850
Exercise of stock options	1	2,972	—	—	—	2,973
Withholding tax payments on restricted stock vesting and stock option exercises	—	(8,043)	—	—	—	(8,043)
Repurchases of common stock	—	—	(25,171)	—	—	(25,171)
Cash dividend on common stock	—	—	—	(63,183)	—	(63,183)
<b>Balance at December 31, 2018</b>	122	341,860	(184,962)	463,252	(12,394)	607,878
Net income	—	—	—	204,902	—	204,902
Cumulative translation adjustment and foreign currency exchange hedge, net of tax	—	—	—	—	1,128	1,128
Unrealized net gain on securities available-for-sale, net of tax	—	—	—	—	996	996
Stock-based compensation	—	25,294	—	—	—	25,294
Exercise of stock options	—	1,207	—	—	—	1,207
Withholding tax payments on restricted stock vesting and stock option exercises	—	(25,820)	—	—	—	(25,820)
Treasury shares used for acquisition	—	—	48,830	—	—	48,830
Repurchases of common stock	—	—	(17,256)	—	—	(17,256)
Cash dividend on common stock	—	—	—	(77,068)	—	(77,068)
<b>Balance at December 31, 2019</b>	\$ 122	\$ 342,541	\$(153,388)	\$ 591,086	\$ (10,270)	\$ 770,091

The accompanying notes are an integral part of these consolidated financial statements.

**MARKETAXESS HOLDINGS INC.**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**

	Year Ended December 31,		
	2019	2018	2017
	(In thousands)		
<b>Cash flows from operating activities</b>			
Net income .....	\$ 204,902	\$ 172,852	\$ 148,089
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization.....	26,857	23,080	19,274
Amortization of operating lease right-of-use assets .....	5,795	—	—
Stock-based compensation expense.....	25,294	15,850	14,421
Deferred taxes .....	2,682	(1,258)	6,590
Other .....	(786)	2,338	1,953
Changes in operating assets and liabilities:			
(Increase) in accounts receivable .....	(2,962)	(5,117)	(2,353)
(Increase) in prepaid expenses and other assets .....	(4,624)	(3,791)	(7,039)
Decrease (increase) in trading investments .....	4,045	856	(17,081)
(Increase) in mutual funds held in rabbi trust.....	(2,118)	(933)	(1,839)
Increase in accrued employee compensation .....	8,312	2,551	1,719
Increase in income and other tax liabilities .....	187	2,965	5,770
Increase in deferred revenue.....	689	150	145
(Decrease) increase in accounts payable, accrued expenses and other liabilities .....	(1,509)	14,374	(1,614)
(Decrease) in operating lease liabilities.....	(829)	—	—
<b>Net cash provided by operating activities .....</b>	<b>265,935</b>	<b>223,917</b>	<b>168,035</b>
<b>Cash flows from investing activities</b>			
Acquisition of business, net of cash and cash equivalents acquired.....	(97,430)	—	—
Available-for-sale investments			
Proceeds from maturities and sales .....	170,936	333,791	187,794
Purchases .....	(160,827)	(336,533)	(215,831)
Purchases of furniture, equipment and leasehold improvements .....	(12,292)	(35,888)	(12,086)
Capitalization of software development costs .....	(22,408)	(11,705)	(13,471)
Other .....	(30)	39	(59)
<b>Net cash (used in) investing activities .....</b>	<b>(122,051)</b>	<b>(50,296)</b>	<b>(53,653)</b>
<b>Cash flows from financing activities</b>			
Cash dividend on common stock .....	(76,231)	(62,432)	(48,888)
Exercise of stock options .....	1,207	2,973	1,972
Withholding tax payments on restricted stock vesting and stock option exercises .....	(25,820)	(8,043)	(27,691)
Repurchases of common stock .....	(17,256)	(25,171)	(42,461)
<b>Net cash (used in) financing activities .....</b>	<b>(118,100)</b>	<b>(92,673)</b>	<b>(117,068)</b>
<b>Effect of exchange rate changes on cash and cash equivalents .....</b>			
	1,011	(1,640)	1,457
<b>Cash and cash equivalents including restricted cash</b>			
Net increase (decrease) for the period .....	26,795	79,308	(1,229)
Beginning of period .....	247,458	168,150	169,379
<b>End of period .....</b>	<b>\$ 274,253</b>	<b>\$ 247,458</b>	<b>\$ 168,150</b>
<b>Supplemental cash flow information:</b>			
Cash paid during the year for income taxes.....	\$ 51,766	\$ 47,208	\$ 43,997
Right-of-use assets obtained in exchange for operating lease liabilities .....	\$ 7,464		
<b>Non-cash investing and financing activity:</b>			
Liabilities assumed in connection with the LiquidityEdge acquisition:			
Fair value of assets acquired .....	\$ 148,425		
Cash paid for acquisition of business, net of cash and cash equivalents .....	(97,430)		
Treasury stock used for acquisition of business .....	(48,830)		
Liabilities assumed .....	<b>\$ 2,165</b>		

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 1,700 institutional investor and broker-dealer firms are active users of MarketAxess’ patented trading technology, accessing global liquidity on our platforms in U.S. investment-grade bonds, U.S. high-yield bonds, U.S. Treasuries, emerging market debt, Eurobonds 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.

***Accounting Pronouncements, Recently Adopted***

In August 2018, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2018-15, “Intangibles—Goodwill and Other—Internal-Use Software: Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract” (“ASU 2018-15”). The standard requires the capitalization of implementation costs incurred in a cloud computing arrangement to be aligned with the requirements for capitalizing costs incurred to develop or obtain internal use software. The updated guidance is effective for annual and interim reporting periods beginning after December 15, 2019, with early adoption permitted. The Company adopted ASU 2018-15 effective July 1, 2019 on a prospective basis. The Company completed its analysis and the adoption of this guidance did not have a material impact on the Company’s Consolidated Financial Statements.

In February 2016, the FASB issued ASU 2016-02, “Leases” (“ASU 2016-02”) requiring lessees to recognize lease assets and lease liabilities on the balance sheet for those leases previously classified as operating leases with lease terms greater than 12 months. The Company adopted ASU 2016-02 effective January 1, 2019 using a modified retrospective transition approach and will not restate comparative periods. In addition, the Company elected the package of practical expedients permitted under the transition guidance within the new standard which allowed it to carry forward the historical lease classification. The Company recorded new operating lease right-of-use assets of \$79.5 million, eliminated a deferred rent liability of \$11.7 million and recorded lease liabilities associated with the future minimum payments required under operating leases of \$91.2 million. The adoption of this guidance did not have a material effect on the Company’s Consolidated Statements of Operations or Consolidated Statements of Cash Flows.

In May 2014, the FASB issued ASU 2014-09, “Revenue from Contracts with Customers” (“ASU 2014-09”) requiring an entity to recognize revenue for the transfer of goods or services equal to the amount that it expects to be entitled to receive for those goods or services. The standard also requires new disclosure concerning contracts with customers, including the significant judgments made when applying the guidance. The Company adopted ASU 2014-09 effective January 1, 2018 using the modified retrospective transition approach. The adoption of this guidance did not have a material impact on the Company’s Consolidated Financial Statements.

***Accounting Pronouncements, Not Yet Adopted as of December 31, 2019***

In January 2017, the FASB issued ASU 2017-04, “Intangibles-Goodwill and Other” (“ASU 2017-04”). ASU 2017-04 simplifies the testing for goodwill impairment. The guidance will be effective for the Company beginning January 1, 2020 and early adoption is permitted and should be applied prospectively. The adoption of this guidance is not expected to have a material effect on the Company’s Consolidated Financial Statements.

***Cash and Cash Equivalents***

Cash and cash equivalents includes cash and money market instruments that are primarily maintained at one major global bank. Given this concentration, the Company is exposed to certain credit risk in relation to its deposits at this bank. The Company defines cash equivalents as short-term interest-bearing investments with maturities at the time of purchase of three months or less.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

***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. The Company's available-for-sale investments are comprised of investment grade corporate debt securities. 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 investment grade corporate debt securities and 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.

The Company assesses whether an other-than-temporary impairment loss on the available-for-sale investments has occurred due to declines in fair value or other market conditions. The portion of an other-than-temporary impairment related to credit loss is recorded as a charge in the Consolidated Statements of Operations. The remainder is recognized in accumulated other comprehensive loss if the Company does not intend to sell the security and it is more likely than not that the Company will not be required to sell the security prior to recovery. No charges for other-than-temporary losses were recorded during the years ended December 31, 2019, 2018 and 2017.

***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, securities available-for-sale, trading securities and foreign currency forward contracts. All other financial instruments are short-term in nature and the carrying amount is reported on the Consolidated Statements of Financial Condition at approximate fair value.

***Allowance for Doubtful Accounts***

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 doubtful accounts is based upon the historical collection experience and specific collection issues that have been identified. Additions to the allowance for doubtful accounts are charged to bad debt expense, which is included in general and administrative expense in the Company's Consolidated Statements of Operations.

The allowance for doubtful accounts was \$0.1 million, \$0.1 million and \$0.2 million as of December 31, 2019, 2018 and 2017, respectively. The provision for bad debts was \$0.3 million, \$0.2 million and \$0.4 million for the years ended December 31, 2019, 2018 and 2017, respectively. Write-offs and other charges against the allowance for doubtful accounts were \$0.1 million, \$0.2 million and \$0.1 million for the years ended December 31, 2019, 2018 and 2017, respectively.

***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.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

***Cloud Computing Costs***

The Company capitalizes certain costs associated with cloud computing arrangements, including, among other items, employee compensation and related benefits and third-party consulting costs that are part of the application development stage. These costs are setup as a prepaid asset on the balance sheet and are amortized over the period of the hosting service contract. 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.

***Cash Provided as Collateral***

Cash is provided as collateral for broker-dealer clearing accounts. Cash provided as collateral is included in prepaid expenses and other assets in the Consolidated Statements of Financial Condition.

***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 hedge its net investment in its U.K. subsidiaries. Gains and losses on these transactions are included in accumulated other comprehensive loss 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 platform and, under certain plans, distribution fees or monthly minimum fees to use the platform for a particular product area. 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 and maturity of the bond traded. Under the Company's disclosed trading transaction fee plans, 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. 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 U.S. Treasury matched principal trades, commissions are invoiced and recorded on a monthly basis. The following table presents commission revenue by fee type:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
	<b>(In thousands)</b>		
<b>Commission revenue by fee type</b>			
Variable transaction fees			
Disclosed trading .....	\$ 266,916	\$ 228,004	\$ 234,143
Open Trading - matched principal trading .....	98,080	65,932	45,660
U.S. Treasuries - matched principal trading .....	2,184	—	—
Total variable transaction fees .....	<u>367,180</u>	<u>293,936</u>	<u>279,803</u>
Distribution fees and unused minimum fees .....	96,676	96,898	75,479
Total commissions .....	<u>\$ 463,856</u>	<u>\$ 390,834</u>	<u>\$ 355,282</u>

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

*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:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
	<b>(In thousands)</b>		
<b>Information services revenue by timing of recognition</b>			
Services transferred over time .....	\$ 29,619	\$ 27,475	\$ 25,242
Services transferred at a point in time .....	1,111	752	564
Total information services revenues.....	\$ 30,730	\$ 28,227	\$ 25,806

*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:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
	<b>(In thousands)</b>		
<b>Post-trade services revenue by timing of recognition</b>			
Services transferred over time.....	\$ 15,669	\$ 15,013	\$ 9,657
Services transferred at a point in time.....	94	333	1,433
Total post-trade services revenues.....	\$ 15,763	\$ 15,346	\$ 11,090

*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:

	<b>December 31, 2018</b>	<b>Payments received in advance of services to be performed</b>	<b>Revenue recognized for services performed during the period</b>	<b>Foreign Currency Translation</b>	<b>December 31, 2019</b>
	<b>(In thousands)</b>				
Information services.....	\$ 1,959	\$ 7,439	\$ (7,260)	\$ —	\$ 2,138
Post-trade services .....	851	13,617	(13,136)	29	1,361
Total deferred revenue.....	\$ 2,810	\$ 21,056	\$ (20,396)	\$ 29	\$ 3,499

The majority of the Company’s contracts are short-term in nature with durations of less than one-year. For contracts extending beyond one year, the aggregate amount of the transaction price allocated to remaining performance obligations was \$41.7 million as of December 31, 2019. The Company expects to recognize revenue associated with the remaining performance obligations over the next 31 months.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

***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. The Company recognizes interest and penalties related to unrecognized tax benefits in other, net in the Consolidated Statements of Operations. All tax effects related to share-based payments are recorded through tax expense 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 of the net assets acquired is recorded as goodwill. Determining the fair value of certain assets acquired and liabilities assumed is judgmental in nature 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. Subsequent to 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.

***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 U.S. generally accepted accounting principles 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.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**3. Net Capital Requirements**

Certain U.S. subsidiaries of the Company are registered as a broker-dealer or swap execution facility and therefore are subject to the applicable rules and regulations of the Securities and Exchange Commission (“SEC”) and the Commodity Futures Trading Commission. These rules contain minimum net capital requirements, as defined in the applicable regulations, and also may require a significant part of the registrants’ assets be kept in relatively liquid form. Certain of the Company’s foreign subsidiaries are regulated by the Financial Conduct Authority 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, 2019, 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, 2019, the Company’s subsidiaries maintained aggregate net capital and financial resources that were \$219.7 million in excess of the required levels of \$15.8 million.

Each of the Company’s U.S. and foreign regulated subsidiaries are subject to local regulations which generally prohibit 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 without prior notification to or approval from such regulated entity’s principal regulator.

**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>
	(In thousands)			
<b><u>As of December 31, 2019</u></b>				
Money market funds .....	\$ 99,755	\$ —	\$ —	\$ 99,755
Securities available-for-sale				
Corporate debt .....	—	137,835	—	137,835
Trading securities .....				
Corporate debt .....	—	31,120	—	31,120
U.S. Treasuries .....	—	55,305	—	55,305
Mutual funds held in rabbi trust .....	—	6,217	—	6,217
Foreign currency forward position .....	—	(2,772)	—	(2,772)
Total .....	<u>\$ 99,755</u>	<u>\$ 227,705</u>	<u>\$ —</u>	<u>\$ 327,460</u>
<b><u>As of December 31, 2018</u></b>				
Money market funds .....	\$ 112,529	\$ —	\$ —	\$ 112,529
Securities available-for-sale				
Corporate debt .....	—	146,966	—	146,966
Trading securities				
Corporate debt .....	—	71,861	—	71,861
U.S. Treasuries .....	—	17,178	—	17,178
Mutual funds held in rabbi trust .....	—	4,100	—	4,100
Foreign currency forward position .....	—	(1,021)	—	(1,021)
Total .....	<u>\$ 112,529</u>	<u>\$ 239,084</u>	<u>\$ —</u>	<u>\$ 351,613</u>

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

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. There were no financial assets classified within Level 3 during the years ended December 31, 2019 and 2018.

The Company enters into foreign currency forward contracts to hedge the net investment in the Company's U.K. subsidiaries. The Company designates each foreign currency forward contract as a hedge and assesses the risk management objective and strategy, including identification of the hedging instrument, the hedged item and the risk exposure and how effectiveness is to be assessed prospectively and retrospectively. These hedges are for a one-month period and are used to limit exposure to foreign currency exchange rate fluctuations. The fair value of the asset is included in prepaid expenses and other assets and the fair value of the liability is included in accounts payable, accrued expenses and other liabilities in the Consolidated Statements of Financial Condition. Gains or losses on foreign currency forward contracts designated as hedges are included in accumulated other comprehensive loss in the Consolidated Statements of Financial Condition. A summary of the foreign currency forward position is as follows:

	<b>As of December 31,</b>	
	<b>2019</b>	<b>2018</b>
	<b>(In thousands)</b>	
Notional value.....	\$ 155,885	\$ 106,306
Fair value of notional.....	158,657	107,327
Fair value of the (liability).....	\$ (2,772)	\$ (1,021)

The following is a summary of the Company's investments:

	<b>Amortized cost</b>	<b>Gross unrealized gains</b>	<b>Gross unrealized losses</b>	<b>Estimated fair value</b>
	<b>(In thousands)</b>			
<b><u>As of December 31, 2019</u></b>				
Securities available-for-sale				
Corporate debt.....	\$ 137,119	\$ 721	\$ (5)	\$ 137,835
Trading securities				
Corporate debt.....	31,120	14	(14)	31,120
U.S. Treasuries.....	54,738	567	—	55,305
Mutual funds held in rabbi trust.....	5,173	1,044	—	6,217
Total trading securities.....	91,031	1,625	(14)	92,642
Total investments.....	\$ 228,150	\$ 2,346	\$ (19)	\$ 230,477
<b><u>As of December 31, 2018</u></b>				
Securities available-for-sale				
Corporate debt.....	\$ 147,556	\$ 27	\$ (617)	\$ 146,966
Trading securities				
Corporate debt.....	72,274	8	(421)	71,861
U.S. Treasuries.....	16,953	225	—	17,178
Mutual funds held in rabbi trust.....	4,347	—	(247)	4,100
Total trading securities.....	93,574	233	(668)	93,139
Total investments.....	\$ 241,130	\$ 260	\$ (1,285)	\$ 240,105

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

The following table summarizes the fair value of the investments based upon the contractual maturities:

	<b>As of December 31,</b>	
	<b>2019</b>	<b>2018</b>
	<b>(In thousands)</b>	
Less than one year .....	\$ 120,850	\$ 134,255
Due in 1 - 5 years.....	109,627	105,850
Total .....	<u>\$ 230,477</u>	<u>\$ 240,105</u>

Proceeds from the sales and maturities of investments during the years ended December 31, 2019, 2018 and 2017 were \$262.1 million, \$409.3 million and \$219.2 million, respectively. Net unrealized gains on trading securities were \$0.8 million for the year ended December 31, 2019 and were immaterial for the years ended December 31, 2018 and 2017. Net realized gains and losses were immaterial for the three years ended December 31, 2019.

The following table provides fair values and unrealized losses on corporate debt investments and by the aging of the securities' continuous unrealized loss position as of December 31, 2019 and 2018 respectively:

	<b>Less than Twelve Months</b>		<b>Twelve Months or More</b>		<b>Total</b>	
	<b>Estimated fair value</b>	<b>Gross unrealized losses</b>	<b>Estimated fair value</b>	<b>Gross unrealized losses</b>	<b>Estimated fair value</b>	<b>Gross unrealized losses</b>
	<b>(In thousands)</b>					
<b><u>As of December 31, 2019</u></b>						
Corporate debt .....	\$ 27,999	\$ (18)	\$ 4,406	\$ (1)	\$ 32,405	\$ (19)
<b><u>As of December 31, 2018</u></b>						
Corporate debt .....	\$ 80,282	\$ (256)	\$ 87,028	\$ (782)	\$ 167,310	\$ (1,038)

## 5. Acquisition

On November 1, 2019, the Company and one of its subsidiaries completed their acquisition (the “Acquisition”) of all of the outstanding equity interests of LiquidityEdge LLC (“LiquidityEdge”) pursuant to the terms and conditions of a Unit Purchase Agreement entered into among the Company, LiquidityEdge, the holders of all the outstanding equity interests in LiquidityEdge and certain other persons named therein on August 12, 2019 (as amended, the “Agreement”). The aggregate consideration for the Acquisition was \$152.7 million, comprised of approximately \$103.9 million in cash and 146,450 shares of common stock of the Company (valued at approximately \$48.8 million as of the closing date of the Acquisition, as described below). The aggregate consideration is subject to customary adjustments for cash on hand, outstanding debt, transaction expenses and working capital as set forth in the Agreement. A portion of the stock consideration, amounting to 43,937 shares of common stock, was placed in escrow for up to 18 months to secure the sellers’ indemnification obligations under the Agreement. In addition, under the Agreement, the sellers are generally prohibited from transferring any of the Company common stock received in the Acquisition for a period of six months following the November 1, 2019 closing date. The value ascribed to the shares by the Company was discounted from the market value on the date of closing to reflect the non-marketability of such shares during the restriction period.

LiquidityEdge is a limited liability company organized in the state of Delaware and is a broker-dealer registered with the SEC and the Financial Industry Regulatory Authority. LiquidityEdge offers an electronic trading platform for U.S. Treasuries.

The Company has completed a preliminary allocation of the purchase price to the fair value of assets acquired and liabilities assumed at the date of acquisition. The Company utilized an independent third-party to determine the fair value of the acquired intangible assets. It is possible that the purchase price allocation will be adjusted upon finalization of the accounting for the acquired assets. The preliminary purchase price allocation is as follows (in thousands):

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

Purchase price .....	\$	152,677
Less: acquired cash .....		(2,935)
Purchase price, net of acquired cash .....		<u>149,742</u>
Accounts receivable .....		(1,811)
Intangible assets .....		(58,780)
Prepaid expenses and other assets .....		(4,168)
Accounts payable, accrued expenses and other liabilities .....		2,165
Goodwill .....	<u>\$</u>	<u>87,148</u>

The acquired intangible assets are as follows (in thousands, except for useful lives):

	<u>Costs</u>	<u>Useful Lives</u>
Customer relationships .....	\$ 58,690	15 years
Tradename - finite life .....	90	1 year
<b>Total</b> .....	<u>\$ 58,780</u>	

**6. Goodwill and Intangible Assets**

The following is a summary of changes in goodwill and intangible assets with indefinite lives for the year ended December 31, 2019 (in thousands):

Balance at beginning of period .....	\$	59,713
Goodwill from LiquidityEdge acquisition .....		87,148
Balance at end of period .....	<u>\$</u>	<u>146,861</u>

Intangible assets that are subject to amortization, including the related accumulated amortization, are comprised of the following:

	<u>December 31, 2019</u>			<u>December 31, 2018</u>		
	<u>Cost</u>	<u>Accumulated amortization</u>	<u>Net carrying amount</u>	<u>Cost</u>	<u>Accumulated amortization</u>	<u>Net carrying amount</u>
	(In thousands)					
Technology .....	\$ 5,770	\$ (5,770)	\$ —	\$ 5,770	\$ (5,770)	\$ —
Customer relationships .....	64,332	(3,451)	60,881	5,634	(2,672)	2,962
Non-competition agreements .....	380	(380)	—	380	(380)	—
Tradenames and patents .....	490	(385)	105	370	(370)	—
<b>Total</b> .....	<u>\$ 70,972</u>	<u>\$ (9,986)</u>	<u>\$ 60,986</u>	<u>\$ 12,154</u>	<u>\$ (9,192)</u>	<u>\$ 2,962</u>

Amortization expense associated with identifiable intangible assets was \$0.8 million, \$0.4 million and \$ 0.4 million for the years ended December 31, 2019, 2018 and 2017, respectively. Annual estimated total amortization expense is \$3.3 million, \$5.7 million, \$6.9 million, \$7.9 million and \$6.7 million for 2020 through 2024.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**7. 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,	
	2019	2018
	(In thousands)	
Software development costs.....	\$ 119,911	\$ 97,113
Computer hardware and related software.....	48,379	42,705
Office hardware.....	5,725	5,909
Furniture and fixtures.....	5,000	5,385
Leasehold improvements.....	27,966	32,527
	206,981	183,639
Accumulated depreciation and amortization.....	(135,186)	(120,629)
Total.....	\$ 71,795	\$ 63,010

During the years ended December 31, 2019 and 2018, software development costs totaling \$22.4 million and \$11.7 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.

**8. Income Taxes**

The provision for income taxes consists of the following:

	Year Ended December 31,		
	2019	2018	2017
	(In thousands)		
Current:			
Federal.....	\$ 28,928	\$ 31,617	\$ 36,045
State and local.....	7,686	5,928	3,848
Foreign.....	13,234	8,862	7,234
Total current provision.....	49,848	46,407	47,127
Deferred:			
Federal.....	2,579	(1,416)	6,171
State and local.....	403	(272)	661
Foreign.....	(308)	515	(280)
Total deferred provision.....	2,674	(1,173)	6,552
Provision for income taxes.....	\$ 52,522	\$ 45,234	\$ 53,679

Pre-tax income from U.S. operations was \$190.4 million, \$168.5 million and \$165.2 million for the years ended December 31, 2019, 2018 and 2017, respectively. Pre-tax income from foreign operations was \$67.0 million, \$49.6 million and \$36.6 million for the years ended December 31, 2019, 2018 and 2017, respectively.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

On December 22, 2017, the Tax Cut and Jobs Act (“Tax Act”) was enacted into law. The Tax Act significantly revised the U.S. corporate income tax regime by, among other things, lowering the U.S. federal corporate income tax rate from 35% to 21%, implementing a territorial tax system and imposing a repatriation tax on deemed earnings of foreign subsidiaries. The Company recorded a provisional tax charge in 2017 of \$11.7 million, composed of \$6.7 million to re-measure U.S. deferred tax assets and \$5.0 million for the repatriation tax on accumulated undistributed foreign earnings. In 2018, the Company reduced the provisional tax charge by \$0.4 million as a result of new regulatory guidance and changes in interpretations and assumptions made by the Company.

The difference between the Company’s reported provision for income taxes and the U.S. federal statutory rate of 21% is as follows:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
U.S. federal tax at statutory rate .....	21.0 %	21.0 %	35.0 %
State and local taxes - net of federal benefit .....	2.5	2.0	1.5
Credits and deductions related to research activities .....	(0.3)	(0.3)	(1.2)
Foreign rate differential benefit.....	(0.5)	(0.5)	(2.9)
Excess tax benefit from stock-based compensation.....	(3.5)	(2.1)	(11.6)
Tax Cuts and Jobs Act provisional tax charge .....	—	(0.2)	5.8
Other, net.....	1.2	0.8	—
Provision for income taxes .....	20.4 %	20.7 %	26.6 %

The following is a summary of the Company’s net deferred tax assets:

	<b>As of December 31,</b>	
	<b>2019</b>	<b>2018</b>
	<b>(In thousands)</b>	
Deferred tax assets:		
Stock compensation expense .....	\$ 4,926	\$ 4,967
Operating lease liabilities .....	20,227	—
Other .....	892	3,569
Total deferred tax assets.....	26,045	8,536
Valuation allowance .....	—	—
Net deferred tax assets .....	26,045	8,536
Deferred tax liabilities:		
Depreciation and amortization.....	(4,085)	(1,847)
Capitalized software development costs.....	(5,306)	(3,776)
Goodwill and intangible assets .....	(1,120)	(898)
Operating lease right-of-use assets .....	(16,515)	—
Deferred tax (liability) asset, net.....	\$ (981)	\$ 2,015

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

A summary of the changes in the valuation allowance is as follows:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
		<b>(In thousands)</b>	
Valuation allowance at beginning of year .....	\$ —	\$ 4,648	\$ 7,235
(Decrease) to valuation allowance attributable to:			
Expiration of capital loss carryforwards .....	—	(4,648)	—
Federal and state tax rate changes .....	—	—	(2,587)
Valuation allowance at end of year .....	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 4,648</u>

The Company and certain of its subsidiaries file U.S. federal, state and foreign income tax returns. The Company is currently under a New York State income tax examination for tax years 2010 through 2017. 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, the Company is no longer subject to tax examinations by tax authorities for years prior to 2016.

A reconciliation of the unrecognized tax benefits is as follows:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
		<b>(In thousands)</b>	
Balance at beginning of year.....	\$ 4,718	\$ 2,650	\$ 29
Additions attributable to state and local apportionment.....	2,113	2,068	2,650
Reductions for tax positions of prior years .....	—	—	(29)
Balance at end of year.....	<u>\$ 6,831</u>	<u>\$ 4,718</u>	<u>\$ 2,650</u>

As of December 31, 2019, the Company recorded \$6.8 million of 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 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, 2019, 2018 and 2017, the Company recognized \$0.6 million, \$0.4 million and \$0.2 million, respectively, in penalties and interest. The Company had \$1.2 million and \$0.6 million accrued for the payment of interest and penalties at December 31, 2019 and 2018, respectively.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**9. Stockholders' Equity**

***Common Stock***

As of December 31, 2019 and 2018, 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 change in the Company's outstanding shares of voting common stock:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
	<b>(In thousands)</b>		
Outstanding shares of voting common stock at the beginning of year.....	37,640	37,621	37,544
Exercise of stock options .....	107	121	262
Issuance of restricted stock, net of shares withheld for withholding tax payments and cancellations.....	103	22	39
Treasury shares used for acquisition .....	146	—	—
Repurchases.....	(60)	(124)	(224)
Outstanding shares of voting common stock at the end of year .....	<u>37,936</u>	<u>37,640</u>	<u>37,621</u>

In January 2016, the Board of Directors authorized a share repurchase program for up to \$25.0 million of the Company's common stock. In October 2016, the Board of Directors approved a \$50.0 million increase in the size of the repurchase program. This program expired in September 2017. In September 2017, the Board of Directors authorized a fifteen-month share repurchase program for up to \$100.0 million that commenced in October 2017. The expiration date of this program was subsequently extended to March 31, 2019. 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. Shares repurchased under each program will be held in treasury for future use.

***Dividends***

During 2019, 2018 and 2017, the Company paid quarterly cash dividends of \$0.51 per share, \$0.42 per share and \$0.33 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, capital requirements, contractual obligations, 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.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**10. Stock-Based Compensation Plans**

The Company maintains a stock incentive plan which provides for the grant of stock options, stock appreciation rights, restricted stock, performance shares, performance units, or other stock-based awards as incentives and rewards to encourage employees, consultants and non-employee directors to participate in the long-term success of the Company. As of December 31, 2019, there were 93,946 shares available for grant under the stock incentive plan.

Total stock-based compensation expense was as follows:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
	<b>(In thousands)</b>		
Employees:			
Restricted stock and performance shares.....	\$ 20,182	\$ 12,559	\$ 11,566
Stock options .....	4,032	2,193	1,882
	24,214	14,752	13,448
Non-employee directors:			
Restricted stock.....	1,080	1,098	973
Total stock-based compensation .....	\$ 25,294	\$ 15,850	\$ 14,421

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 2019, 2018 and 2017 was \$58.37, \$56.11 and \$40.08, 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 discussed below:

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
Expected life (years) .....	5.0	5.0	5.0
Risk-free interest rate .....	2.6%	2.2%	1.9%
Expected volatility .....	25.9%	26.9%	28.0%
Expected dividend yield.....	0.8%	0.8%	0.8%

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

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 the grantee’s continued employment 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 employment 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, 2019 and the intrinsic value as of December 31, 2019:

	<b>Number of Shares</b>	<b>Weighted- Average Exercise Price (\$)</b>	<b>Remaining Contractual Term</b>	<b>Intrinsic Value (\$)  (In thousands)</b>
Outstanding at December 31, 2016 .....	855,740	\$ 36.80		
Granted .....	54,838	156.85		
Canceled .....	—	—		
Exercised .....	<u>(380,967)</u>	11.26		
Outstanding at December 31, 2017 .....	529,611	67.60		
Granted .....	168,217	261.19		
Canceled .....	(1,676)	142.69		
Exercised .....	<u>(120,588)</u>	24.66		
Outstanding at December 31, 2018 .....	575,564	132.93		
Granted .....	82,474	279.57		
Canceled .....	(548)	198.67		
Exercised .....	<u>(106,899)</u>	28.24		\$ 33,639
Outstanding at December 31, 2019 .....	<u>550,591</u>	175.16	2.8	112,294
Exercisable at December 31, 2019 .....	<u>171,782</u>	96.71	1.5	48,512

The intrinsic value is the amount by which the closing price of the Company’s common stock on December 31, 2019 of \$379.11 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, 2019, there was \$7.8 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 2.6 years.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

***Restricted Stock and Performance Shares***

Restricted stock generally vests over a three or five-year period. Compensation expense is measured at the grant date and recognized ratably over the vesting period. Annual performance share awards are granted to certain officers and senior managers. Each performance share award is earned or forfeited based on the level of achievement by the Company of pre-tax operating income, as defined. The pay-out ranges from zero to 150% of the performance share award. For each performance share earned, a participant is awarded an equal number of shares of restricted stock. Any restricted stock awarded to a participant vests in two equal installments on each of the second and third anniversaries of the date of grant of the applicable performance share award. Compensation expense for performance shares is measured at the grant date and recognized on a graded basis over the vesting period.

The following table reports performance share activity for annual awards for the three years ended December 31, 2019:

Performance year:	<u>2019</u>	<u>2018</u>	<u>2017</u>
Target share pay-out.....	16,716	10,479	12,971
Actual share pay-out (paid in following year) .....	19,400	10,479	8,094
Weighted average fair value per share on grant date .....	\$ 223.81	\$ 202.04	\$ 155.53

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 employment 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 employment 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%.

In April 2017, the Company granted 9,367 multi-year performance shares to a certain officer. The performance share awards are earned or forfeited based on attaining certain cumulative operating income thresholds of the Company and select subsidiaries over the two-year period beginning January 1, 2017. The pay-out ranges were from zero to 150% of the performance award value. Any restricted stock awarded will vest 50% on April 1, 2020 and 50% on April 1, 2021. The fair value per share of the awards on the grant date was \$186.74. The actual share payout was 38.8% or 3,634 shares.

In January 2016, the Company granted 33,509 multi-year performance shares to certain officers and senior managers. Each performance share award is earned or forfeited based on the level of achievement by the Company of aggregate operating income over the four-year period beginning January 1, 2016. The pay-out ranges were from zero to 150% of the performance award value. Any restricted stock awarded will vest 50% on January 31, 2020 and 50% on January 31, 2021. The fair value per share of the awards on the grant date was \$103.30. The actual share payout was 106.5% or 35,680 shares.

**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, 2019:

	<u>Number of Restricted Shares</u>	<u>Weighted-Average Grant Date Fair Value</u>
Outstanding at December 31, 2016 .....	383,978	\$ 71.50
Granted .....	61,434	
Performance share pay-out .....	21,422	
Canceled .....	(4,590)	
Vested .....	<u>(142,645)</u>	
Outstanding at December 31, 2017 .....	319,599	\$ 88.77
Granted .....	59,179	
Performance share pay-out .....	8,094	
Canceled .....	(4,046)	
Vested .....	<u>(110,956)</u>	
Outstanding at December 31, 2018 .....	271,870	\$ 112.47
Granted .....	118,632	
Performance share pay-out .....	87,163	
Canceled .....	(2,321)	
Vested .....	<u>(129,312)</u>	
Outstanding at December 31, 2019 .....	<u><u>346,032</u></u>	\$ 154.27

As of December 31, 2019, there was \$31.0 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 1.6 years.

***Employee Stock Purchase Plan***

The Company offers a non-qualified employee stock purchase plan for non-executive employees. Under the plan, participants are granted the right to purchase shares of common stock based on the fair market value on the last day of the six-month offering period. On the purchase date, the Company grants to the participants a number of shares of common stock equal to 20% of the aggregate shares purchased by the participant. These matching shares vest over a one-year period. The Company issued 617, 989 and 1,034 matching shares in connection with the plan for the years ended December 31, 2019, 2018, and 2017, respectively.

**11. Earnings Per Share**

The following table sets forth basic and diluted weighted average shares outstanding used to compute earnings per share:

	<u>Year Ended December 31,</u>		
	<u>2019</u>	<u>2018</u>	<u>2017</u>
	<b>(In thousands)</b>		
Basic weighted average shares outstanding .....	37,083	36,958	36,864
Dilutive effect of stock options and restricted stock .....	873	897	1,174
Diluted weighted average shares outstanding .....	<u><u>37,956</u></u>	<u><u>37,855</u></u>	<u><u>38,038</u></u>

Stock options and restricted stock totaling 146,822 shares, 83,718 shares and 31,766 shares for the years ended December 31, 2019, 2018 and 2017, 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.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**12. Credit Agreement**

In October 2015, the Company entered into a two-year amended and restated credit agreement (the “Credit Agreement”) that provided for revolving loans and letters of credit up to an aggregate of \$100.0 million. The Company amended the Credit Agreement in October 2017 and extended the maturity date to October 2018. The amended Credit Agreement also provided for two additional one-year extension options and modified certain borrowing terms and covenants. Following the exercise of the first option to extend the maturity date by one year in October 2018, the Company exercised its second option in October 2019 to extend the maturity date to October 2020. Subject to satisfaction of certain specified conditions, the Company is permitted to upsize the borrowing capacity under the Credit Agreement by an additional \$50.0 million. As of December 31, 2019, the Company had \$1.0 million in letters of credit outstanding and \$99.0 million in available borrowing capacity under the Credit Agreement.

Borrowings under the 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 Credit Agreement requires that the Company satisfies certain covenants, which includes leverage ratios, a minimum net regulatory capital balance for certain subsidiaries and minimum earnings before interest, tax, depreciation and amortization requirements. The Company was in compliance with all applicable covenants at December 31, 2019 and December 31, 2018.

The Company’s existing and future domestic subsidiaries (other than any regulated subsidiary) have guaranteed the Company’s obligations under the Credit Agreement. Subject to customary exceptions and exclusions, the Company’s borrowings under the Credit Agreement are collateralized by first priority pledges (subject to permitted liens) of substantially all of the Company’s personal property assets and the personal property assets of the Company’s domestic subsidiaries that have guaranteed the Credit Agreement, including the equity interests of the Company’s domestic subsidiaries and the equity interests of certain of the Company’s foreign subsidiaries (limited, in the case of the voting equity interests of the foreign subsidiaries, to a pledge of 65% of those equity interests).

If an event of default occurs, including failure to pay principal or interest due on the loan balance, a voluntary or involuntary proceeding seeking liquidation, change in control of the Company, or one or more material judgments against the Company in excess of \$10.0 million, the lenders would be entitled to accelerate the borrowings under the Credit Agreement and take various other actions, including all actions permitted to be taken by a secured creditor. If certain bankruptcy events of default occur, the borrowings under the Credit Agreement will automatically accelerate.

**13. 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 occupancy expense for the year ended December 31, 2019:

<b>Lease cost:</b>	<b>Classification</b>	<b>2019</b>	
		<b>(In thousands)</b>	
Operating lease cost .....	Occupancy	\$	10,875
Operating lease cost for subleased/assigned properties .....	Other, net		2,422
Variable lease costs .....	Occupancy		169
Sublease income for subleased/assigned properties.....	Other, net		(2,422)
Net lease cost.....		<u>\$</u>	<u>11,044</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 were 13.3 years and 5.9%, respectively, for operating leases as of December 31, 2019.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

The following table presents the maturity of lease liabilities as of December 31, 2019:

	<b>(In thousands)</b>
2020.....	\$ 10,955
2021.....	11,667
2022.....	10,379
2023.....	10,149
2024.....	10,816
2025 and thereafter.....	89,690
Total lease payments.....	143,656
Less: interest.....	45,665
Present value of lease liabilities.....	<u>\$ 97,991</u>

Minimum lease commitments as of December 31, 2018 that had an initial term or remaining lease term in excess of one-year are as follows:

	<b>(In thousands)</b>
2019.....	\$ 9,764
2020.....	10,919
2021.....	10,114
2022.....	9,067
2023.....	8,738
2024 and thereafter.....	95,467
	<u>\$ 144,069</u>

In September 2019, the Company entered into a lease agreement for approximately 15,646 square feet of office space in London, which commenced on December 1, 2019 and expires on January 15, 2027. At commencement, the aggregate minimum rental commitment under such lease was \$8.3 million. The Company recorded a new right-of-use asset and corresponding lease liability of approximately \$7.0 million.

The Company has entered into agreements that assign the Company's lease obligations on two properties to third parties and is contingently liable should the third parties default on future lease obligations through the lease termination dates of November 2020 and February 2022. The aggregate amount of the future lease obligations under these arrangements is \$3.8 million as of December 31, 2019.

#### **14. 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 would establish an accrual for the loss. Once established, the accrual would 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.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

*Other*

The Company, through certain of its subsidiaries, executes 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 settle through third-party clearing brokers. 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 securities clearing agreements with third party clearing brokers, the Company maintains collateral deposits with each clearing broker in the form of cash. As of December 31, 2019 and 2018, the amount of the collateral deposits, which are disclosed in the Consolidated Statements of Cash Flows as restricted cash, and included in prepaid expenses and other assets in the Consolidated Statements of Financial Condition was \$4.1 million and \$1.1 million, respectively. The Company is exposed to credit risk in the event a counterparty does not fulfill its obligation to complete a transaction or if there is a miscommunication or other 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 this right for the years ended December 31, 2019, 2018 and 2017.

In the normal course of business, the Company enters into contracts that contain a variety of representations, warranties and general indemnifications. 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.

**15. Segment and Geographic Information**

The Company operates an electronic multi-party platform for the trading of fixed-income securities and provides related data, analytics, compliance tools and post-trade services. The Company's operations constitute a single business segment because of the highly integrated nature of these products and services, of the financial markets in which the Company competes and of 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, 2019, 2018 and 2017, 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 geographic area based on the location of the particular subsidiary. Long-lived assets are defined as furniture, equipment, leasehold improvements and capitalized software. Information regarding revenue for the three years ended December 31, 2019, 2018 and 2017 and long-lived assets as of December 31, 2019 and 2018 follows:

	Year Ended December 31,		
	2019	2018	2017
	(In thousands)		
Revenues			
United States .....	\$ 424,731	\$ 367,373	\$ 332,982
United Kingdom .....	84,076	66,241	58,991
Other .....	2,545	1,951	1,449
Total .....	<u>\$ 511,352</u>	<u>\$ 435,565</u>	<u>\$ 393,422</u>

	As of December 31,	
	2019	2018
	(In thousands)	
Long-lived assets, as defined		
United States .....	\$ 62,356	\$ 55,200
United Kingdom .....	9,410	7,787
Other .....	29	23
Total .....	<u>\$ 71,795</u>	<u>\$ 63,010</u>

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**16. 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, 2019, 2018 and 2017, the Company contributed \$3.3 million, \$2.6 million and \$1.8 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, 2019 and 2018, the fair value of the mutual fund investments and deferred compensation obligations were \$6.2 million and \$4.1 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.

**17. Parent Company Information**

The following tables present Parent Company-only financial information and should be read in conjunction with the consolidated financial statements of the Company.

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**MarketAxess Holdings Inc.**  
**(Parent Company Only)**  
**Condensed Statements of Financial Condition**

	<b>As of</b>	
	<b>December 31, 2019</b>	<b>December 31, 2018</b>
	<b>(In thousands)</b>	
<b>ASSETS</b>		
Cash and cash equivalents .....	\$ 48,241	\$ 95,840
Investments, at fair value .....	141,318	149,266
Accounts receivable .....	63	59
Receivable from subsidiaries .....	5,997	—
Intangible assets, net of accumulated amortization .....	30	—
Furniture, equipment, leasehold improvements and capitalized software, net of accumulated depreciation and amortization.....	25,247	25,742
Operating lease right-of-use assets .....	68,559	—
Investments in subsidiaries .....	570,145	356,363
Prepaid expenses and other assets.....	3,506	4,439
Deferred tax assets, net .....	3,472	5,039
Income and other tax receivable .....	3,219	—
<b>Total assets</b> .....	<b>\$ 869,797</b>	<b>\$ 636,748</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>Liabilities</b>		
Accrued employee compensation.....	\$ 6,543	\$ 5,667
Income and other tax liabilities .....	—	2,612
Payable to subsidiaries .....	—	3
Accounts payable, accrued expenses and other liabilities.....	9,254	20,588
Operating lease liabilities .....	83,909	—
<b>Total liabilities</b> .....	<b>99,706</b>	<b>28,870</b>
<b>Stockholders' equity</b>		
Preferred stock .....	—	—
Series A Preferred Stock .....	—	—
Common stock voting .....	122	122
Common stock non-voting.....	—	—
Additional paid-in capital .....	342,541	341,860
Treasury stock.....	(153,388)	(184,962)
Retained earnings.....	591,086	463,252
Accumulated other comprehensive loss.....	(10,270)	(12,394)
<b>Total stockholders' equity</b> .....	<b>770,091</b>	<b>607,878</b>
<b>Total liabilities and stockholders' equity</b> .....	<b>\$ 869,797</b>	<b>\$ 636,748</b>

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**MarketAxess Holdings Inc.**  
**(Parent Company Only)**  
**Condensed Statements of Operations and Comprehensive Income**

	<b>Year Ended December 31,</b>		
	<b>2019</b>	<b>2018</b>	<b>2017</b>
	<b>(In thousands)</b>		
<b>Dividends from subsidiary</b> .....	\$ 165,000	\$ 130,000	\$ 120,000
<b>Expenses</b>			
Employee compensation and benefits .....	16,100	10,785	11,289
Depreciation and amortization .....	1,919	1,760	1,971
Technology and communications.....	13	43	41
Professional and consulting fees .....	6,523	4,932	4,185
Occupancy .....	850	7,381	143
General and administrative.....	2,252	1,513	852
<b>Total expenses</b> .....	<b>27,657</b>	<b>26,414</b>	<b>18,481</b>
<b>Operating income</b> .....	<b>137,343</b>	<b>103,586</b>	<b>101,519</b>
<b>Other income (expense)</b>			
Investment income .....	5,305	3,835	2,608
Other, net.....	(1,344)	(711)	(685)
<b>Total other income</b> .....	<b>3,961</b>	<b>3,124</b>	<b>1,923</b>
<b>Income before income taxes and equity in undistributed income of subsidiaries</b> .....	<b>141,304</b>	<b>106,710</b>	<b>103,442</b>
Provision for income taxes .....	(9,442)	(7,350)	(13,935)
Income before equity in undistributed income of subsidiaries.....	150,746	114,060	117,377
Equity in undistributed income of subsidiaries.....	54,156	58,792	30,712
<b>Net income</b> .....	<b>204,902</b>	<b>172,852</b>	<b>148,089</b>
Other comprehensive income (loss), net.....	2,124	(2,168)	2,002
<b>Comprehensive income</b> .....	<b>\$ 207,026</b>	<b>\$ 170,684</b>	<b>\$ 150,091</b>

**MARKETAXESS HOLDINGS INC.**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

**MarketAxess Holdings Inc.**  
**(Parent Company Only)**  
**Condensed Statements of Cash Flows**

	Year Ended December 31,		
	2019	2018	2017
	(In thousands)		
<b>Cash flows from operating activities</b>			
Net income .....	\$ 204,902	\$ 172,852	\$ 148,089
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization.....	1,919	1,760	1,971
Amortization of operating lease right-of-use assets .....	4,027	—	—
Stock-based compensation expense.....	21,800	14,257	13,071
Deferred taxes.....	1,255	(2,515)	5,004
Equity in undistributed income of subsidiaries .....	(54,156)	(58,792)	(30,712)
Other .....	328	710	1,581
Changes in operating assets and liabilities:			
(Increase) decrease in accounts receivable .....	(4)	(14)	205
(Increase) decrease in receivable from subsidiaries.....	(6,000)	7,529	17,518
Decrease (increase) in prepaid expenses and other assets .....	933	(782)	687
(Increase) in mutual funds held in rabbi trust .....	(1,183)	(470)	(949)
Increase in accrued employee compensation .....	876	567	607
(Increase) in income and other tax receivable.....	(3,219)	—	—
(Decrease) increase in income and other tax liabilities.....	(2,612)	469	(825)
(Decrease) increase in accounts payable, accrued expenses and other liabilities.....	(2,039)	13,619	(261)
Increase in operating lease liabilities .....	1,191	—	—
<b>Net cash provided by operating activities</b> .....	<b>168,018</b>	<b>149,190</b>	<b>155,986</b>
<b>Cash flows from investing activities</b>			
Acquisition of business, net of cash and cash equivalents acquired .....	(102,320)	—	—
Repayment from subsidiary.....	—	—	5,000
Available-for-sale investments.....			
Proceeds from maturities and sales .....	170,936	333,791	187,794
Purchases.....	(160,827)	(336,533)	(215,831)
Purchases of furniture, equipment and leasehold improvements .....	(1,424)	(24,786)	(2,160)
Purchase of intangible asset.....	(30)	—	—
<b>Net cash (used in) investing activities</b> .....	<b>(93,665)</b>	<b>(27,528)</b>	<b>(25,197)</b>
<b>Cash flows from financing activities</b>			
Cash dividend on common stock.....	(76,231)	(62,432)	(48,888)
Exercise of stock options.....	1,207	2,973	1,972
Withholding tax payments on restricted stock vesting and stock option exercises.....	(25,820)	(8,043)	(27,691)
Repurchases of common stock .....	(17,256)	(25,171)	(42,461)
<b>Net cash (used in) financing activities</b> .....	<b>(118,100)</b>	<b>(92,673)</b>	<b>(117,068)</b>
<b>Effect of exchange rate changes on investments</b> .....	<b>(3,852)</b>	<b>4,129</b>	<b>(4,687)</b>
<b>Cash and cash equivalents including restricted cash</b>			
Net (decrease) increase for the period .....	(47,599)	33,118	9,034
Beginning of period .....	95,840	62,722	53,688
<b>End of period</b> .....	<b>\$ 48,241</b>	<b>\$ 95,840</b>	<b>\$ 62,722</b>
<b>Supplemental cash flow information:</b>			
Cash paid during the year for income taxes .....	\$ 41,025	\$ 37,721	\$ 37,769
<b>Non-cash investing and financing activity:</b>			
Treasury stock used for acquisition of business .....	\$ (48,830)	\$ —	\$ —

**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, 2019. 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, 2019 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.

## 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 2020. We intend to file the Proxy Statement within 120 days after the end of our fiscal year (i.e., on or before April 30, 2020). Our Code of Conduct applicable to directors and all employees, including senior financial officers, is available on our website at [www.marketaxess.com](http://www.marketaxess.com). If we make any amendments to our Code of Conduct 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 Committee of the Board of Directors,” “Executive Compensation” and “Corporate Governance and Board Matters – Directors’ 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 sections entitled “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information” in the Company’s Proxy Statement.

### **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
2.1	Unit Purchase Agreement, dated as of August 12, 2019, by and among MarketAxess Holdings Inc., LiquidityEdge LLC, each of the Sellers identified therein, RF7 LLC (as the Sellers' Representative) and David Rutter (solely for purposes of Section 6.7 thereof) (incorporated by reference to Exhibit 2.1 to the registrant's Quarterly Report on Form 10-Q dated October 25, 2019)
2.1(a)*	Amendment No. 1 to Unit Purchase Agreement, dated as of November 1, 2019, by and between MarketAxess Holdings Inc. and RF7 LLC (as the Sellers' Representative)
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
10.1(a)	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)#
10.1(b)	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)#
10.1(c)	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)#
10.2	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))#

Number	Description
10.3	MarketAxess Holdings Inc. 2016 Code Section 162(m) Executive Performance Incentive Plan (incorporated by reference to Appendix B to the registrant's Proxy Statement for its Annual Meeting for Stockholders held on June 7, 2016, filed on April 25, 2016)#
10.4	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)#
10.5	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)#
10.6(a)	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)#
10.6(b)	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)#
10.6(c)	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)#
10.6(d)	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)#
10.7(a)	Form of Performance Share Award Agreement for executive officers pursuant to 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 22, 2016)#
10.7(b)	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)#
10.8(a)	Form of Incentive Stock Option Agreement for Employees other than Richard M. McVey 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 15, 2008)#
10.8(b)	Form of Incentive Stock Option Agreement 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 22, 2016)#
10.8(c)	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)#
10.9(a)	MarketAxess Holdings Inc. Severance Pay Plan, as amended (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated January 6, 2017)#
10.9(b)	Form of Notice of Eligibility to Participate (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated January 6, 2017)#
10.10(a)	Incentive Stock Option Agreement, dated January 19, 2011, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.6 to the registrant's Current Report on Form 8-K dated January 19, 2011)#

Number	Description
10.10(b)	Restricted Stock Unit Agreement, dated January 19, 2011, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.8 to the registrant's Current Report on Form 8-K dated January 19, 2011)#
10.10(c)	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)#
10.10(d)	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)#
10.10(e)	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)#
10.10(f)	Incentive Stock Option Agreement, dated as of January 15, 2015, 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 January 15, 2015)#
10.10(g)	Performance Award Agreement, dated as of January 15, 2015, 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 January 15, 2015)#
10.10(h)	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)#
10.10(i)	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)#
10.10(j)	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)#
10.10(k)	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)#
10.11(a)	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)#
10.11(b)*	Restricted Stock Agreement Pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan, dated as of April 1, 2017, by and between MarketAxess Holdings, Inc. and Christophe Roupie#
10.11(c)	Amendment, dated as of August 14, 2017, to the Restricted Stock Agreement, dated April 1, 2017, between MarketAxess Holdings Inc. and Christophe Roupie (incorporated by reference to Exhibit 10.1 to the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017)#
10.12	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)#
10.13	Form of Proprietary Information and Non-Competition Agreement for U.S. based Executive Officers (incorporated by reference to Exhibit 10.12 to the registrant's Annual Report on Form 10-K/A for the year ended December 31, 2017)

Number	Description
10.14(a)	Amended and Restated Credit Agreement, dated as of October 30, 2015, 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 November 3, 2015)
10.14(b)	Amended and Restated Guarantee Agreement, dated as of October 30, 2015, by and among MarketAxess Technologies Inc., as initial guarantor, and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated November 3, 2015)
10.14(c)	Amended and Restated Pledge and Security Agreement, dated as of October 30, 2015, by and between MarketAxess Holdings Inc., a Delaware corporation, as borrower, MarketAxess Technologies Inc., as guarantor, and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated November 3, 2015)
10.14(d)	Omnibus Amendment, dated October 19, 2017, by and among MarketAxess Holdings Inc., the other loan parties party hereto, the lenders party hereto and JPMorgan Chase Bank, N.A. (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated October 18, 2017)
10.14(e)	Second Amendment, dated October 14, 2019, to Amended and Restated Credit Agreement by and among MarketAxess Holdings Inc., the other loan parties party thereto, 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 17, 2019)
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
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, 2019 has been formatted in Inline XBRL and is included in Exhibits 101.

\* Filed herewith.

# 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 18, 2020

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 18, 2020
<u>/s/ ANTONIO L. DELISE</u> Antonio L. DeLise	Chief Financial Officer (principal financial and accounting officer)	February 18, 2020
<u>/s/ CHRISTOPHER R. CONCANNON</u> Christopher R. Concannon	Director, President and Chief Operating Officer	February 18, 2020
<u>/s/ NANCY ALTOBELLO</u> Nancy Altobello	Director	February 18, 2020
<u>/s/ STEVEN L. BEGLEITER</u> Steven L. Begleiter	Director	February 18, 2020
<u>/s/ STEPHEN P. CASPER</u> Stephen P. Casper	Director	February 18, 2020
<u>/s/ JANE CHWICK</u> Jane Chwick	Director	February 18, 2020
<u>/s/ WILLIAM CRUGER</u> William Cruger	Director	February 18, 2020
<u>/s/ JUSTIN GMELICH</u> Justin Gmelich	Director	February 18, 2020
<u>/s/ RICHARD G. KETCHUM</u> Richard G. Ketchum	Director	February 18, 2020
<u>/s/ EMILY PORTNEY</u> Emily Portney	Director	February 18, 2020
<u>/s/ RICHARD PRAGER</u> Richard Prager	Director	February 18, 2020
<u>/s/ JOHN STEINHARDT</u> John Steinhardt	Director	February 18, 2020

[THIS PAGE INTENTIONALLY LEFT BLANK]

[THIS PAGE INTENTIONALLY LEFT BLANK]

[THIS PAGE INTENTIONALLY LEFT BLANK]





MarketAxess®

NYC Headquarters

55 Hudson Yards Floor 15  
New York NY 10001 USA

T +1 212 813 6000  
[marketaxess.com](http://marketaxess.com)