Interactive Brokers Group, Inc.
Form 10-K
February 28, 2019
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

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

For the year ended December 31, 2018

Commission File Number: 001-33440

INTERACTIVE BROKERS GROUP, INC.
(Exact name of registrant as specified in its charter)

Delaware	**30-0390693**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

One Pickwick Plaza
Greenwich, Connecticut 06830
(Address of principal executive office)

(203) 618-5800
(Registrant's telephone number, including area code)

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

Title of each class	**Name of the each exchange on which registered**
Common Stock, par value $.01 per share	The Investors Exchange LLC

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark whether the registrant is a well-known seasoned issuer, as defined in Rule 405 of the securities act. Yes No o

Indicate by check mark whether the registrant is not required to file reports pursuant to Section 13 or 15(d) of the act. Yes o 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 o

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 during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

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

Large accelerated filer Accelerated filer o Non-accelerated filer o Smaller reporting company o Emerging growth company o

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

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

The aggregate market value of the voting and non-voting common equity stock held by non-affiliates of the registrant was approximately $4,653,486,080 computed by reference to the $64.41 closing sale price of the common stock on the NASDAQ Global Select Market, on June 30, 2018, the last business day of the registrant s most recently completed second fiscal quarter.

As of February 25, 2019, there were 75,100,952 shares of the issuer s Class A common stock, par value $0.01 per share, outstanding and 100 shares of the issuer s Class B common stock, par value $0.01 per share, outstanding.

Documents Incorporated by Reference: Portions of Registrant s definitive proxy statement for its 2019 annual meeting of shareholders are incorporated by reference in Part III of this Form 10-K.

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ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2018

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

We have included or incorporated by reference in this Annual Report on Form 10-K, and from time to time our management may make statements that may constitute forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not historical facts, but instead represent only our beliefs regarding future events, many of which, by their nature, are inherently uncertain and outside our control. These statements include statements other than historical information or statements of current condition and may relate to our future plans and objectives and results, among other things, and may also include our belief regarding the effect of various legal proceedings, as set forth under Legal Proceedings and Regulatory Matters in Part I, Item 3 of this Annual Report on Form 10-K, as well as statements about the objectives and effectiveness of our liquidity policies, statements about trends in or growth opportunities for our businesses, included in Management s Discussion and Analysis of Financial Condition and Results of Operations in Part II, Item 7 of this Annual Report on Form 10-K. By identifying these statements for you in this manner, we are alerting you to the possibility that our actual results may differ, possibly materially, from the anticipated results indicated in these forward-looking statements. Important factors that could cause actual results to differ from those in the forward-looking statements include, among others, those discussed below and under Risk Factors in Part I, Item 1A of this Annual Report on Form 10-K and Management s Discussion and Analysis of Financial Condition and Results of Operations in Part II, Item 7 of this Annual Report on Form 10-K.

Factors that could cause actual results to differ materially from any future results, expressed or implied, in these forward-looking statements include, but are not limited to, the following:

- general economic conditions in the markets where we operate;
- increased industry competition and downward pressures on electronic brokerage commissions and on bid/offer spreads in the remaining market making business we operate;
- risks inherent to the electronic brokerage and market making businesses;
- implied versus actual price volatility levels of the products in which we continue to make markets;
- the general level of interest rates;
- failure to protect or enforce our intellectual property rights in our proprietary technology;
- our ability to keep up with rapid technological change;
- system failures and disruptions;
- non-performance of third-party vendors;
- conflicts of interest and other risks due to our ownership and holding company structure;
- the loss of key executives and failure to recruit and retain qualified personnel;
- the risks associated with the expansion of our business;
- our possible inability to integrate any businesses we acquire;
- compliance with laws and regulations, including those relating to the securities industry; and
- other factors discussed under Risk Factors in Part I, Item 1A of this Annual Report on Form 10-K or elsewhere in this Annual Report on Form 10-K.

We undertake no obligation to publicly update or revise any forward-looking statements to reflect events or circumstances that may arise after the date of this Annual Report on Form 10-K.

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PART I

ITEM 1. BUSINESS

Overview

Interactive Brokers Group, Inc. (IBG, Inc. or the Company) is an automated global electronic broker and market maker (although, we have substantially exited the options market making business - see Note 2 - Discontinued Operations and Costs Associated with Exit or Disposal Activities to the audited consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K). We custody and service accounts for hedge and mutual funds, registered investment advisors, proprietary trading groups, introducing brokers and individual investors. We specialize in routing orders while striving to achieve best executions and processing trades in securities, futures, foreign exchange instruments, bonds and mutual funds on more than 120 electronic exchanges and market centers around the world. In the United States of America (U.S.), we conduct our business primarily from our headquarters in Greenwich, Connecticut and from Chicago, Illinois. Abroad, we conduct our business through offices located in Canada, the United Kingdom, Switzerland, India, China (Hong Kong and Shanghai), Japan, and Australia. As of December 31, 2018 we had 1,413 employees worldwide.

IBG, Inc. is a holding company whose primary asset is the ownership of approximately 18.1% of the membership interests of IBG LLC (the Group), the current holding company for our businesses. IBG, Inc. is the sole managing member of IBG LLC. On May 3, 2007, IBG, Inc. priced its initial public offering (the IPO) of shares of common stock. In connection with the IPO, IBG, Inc. purchased 10.0% of the membership interests in IBG LLC and began to consolidate IBG LLC s financial results into its financial statements.

When we use the terms we, us, and our, we mean IBG LLC and its subsidiaries for periods prior to the IPO, and IBG, Inc. and its subsidiaries (including IBG LLC) for periods from and after the IPO. Unless otherwise indicated, the term common stock refers to the Class A common stock of IBG, Inc.

We are a successor to the market making business founded by our Chairman and Chief Executive Officer, Mr. Thomas Peterffy, on the floor of the American Stock Exchange in 1977. Since our inception, we have focused on developing proprietary software to automate broker-dealer functions. During that time, we have been a pioneer in developing and applying technology as a financial intermediary to increase liquidity and transparency in the capital markets in which we operate. The proliferation of electronic exchanges in the last 28 years has provided us with the opportunity to integrate our software with an increasing number of exchanges and market centers to create one automatically functioning, computerized platform that requires minimal human intervention. Over four decades of developing our automated trading platforms and our automation of many middle and back office functions have allowed us to become one of the lowest cost providers of broker-dealer services and significantly increase the volume of trades we handle.

Our activities are divided into two principal business segments: (1) electronic brokerage and (2) market making (being discontinued):

- As a direct market access broker, we serve the customers of both traditional brokers and prime brokers, including hedge funds, individuals, proprietary traders, financial advisors and introducing brokers. We provide our customers with an advanced order management, trade execution and portfolio management platform at a very low cost. Our customers can simultaneously access many financial markets worldwide and trade across multiple asset classes (stocks, options, futures, foreign exchange (forex), bonds and mutual funds) denominated in 24 different currencies, on one screen, from a single account based in any major currency. Our large financial advisor and broker-dealer customers may white brand our trading interface (i.e., make our trading interface available to their customers without referencing our name), or they can select from among our modular functionalities, such as order routing, trade reporting or clearing on specific products or exchanges where they may not have up-to-date technology to offer their customers a comprehensive, global range of services and products. The emerging complexity of multiple market centers provided us with the opportunity of building and continuously adapting our order routing software to secure excellent execution prices for our customers.

- As a market maker, in the few select markets in which we operate, we provide liquidity by offering competitively tight bid/offer spreads over a broad base of tradable, exchange-listed products. Our quotes are driven by proprietary mathematical models that assimilate market data and reevaluate our outstanding quotes many times per second. In the past several years our market making business has

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suffered from competitive pressures and, along with the rapid increase in our electronic brokerage business, we decided to discontinue our market making activities globally. As previously announced, we transferred our U.S. options market making operations to Two Sigma Securities, LLC effective September 29, 2017 and also exited the majority of our options market making activities outside the U.S. by December 31, 2017. We intend to continue conducting certain proprietary trading activities in stocks and related instruments to facilitate our electronic brokerage customers trading in products such as ETFs, ADRs, CFDs and other financial instruments, as well as exchange-traded options market making activities in a few select markets outside of the U.S. However, we do not expect the facilitation activity to be of sufficient size as to require reporting as a separate segment after we discontinue our options market making activities.

Our electronic brokerage business benefits from our scale and volume, as well as from our proprietary technology, and expertise developed over the last 40 years. Our focus on the development and maintenance of our unique technology for trading, risk management, clearing, settlement, banking and regulatory compliance enables us to provide lower transaction costs to our customers than our competitors. In addition, we believe we gain a competitive advantage by applying the software features we have developed for a specific product or market to newly-introduced products and markets over others who may have less automated facilities or who operate only in a subset of the exchanges and market centers on which we operate. Our brokerage system contains unique architectural aspects that may impose a significant barrier to entry for firms wishing to compete in this business and permit us to compete favorably against our competitors. In addition, many of our regulatory and compliance functions have been built into our integrated order routing and custodial systems.

Our internet address is www.interactivebrokers.com and the investor relations section of our website is located at www.interactivebrokers.com/ir. We make available free of charge, on or through the investor relations section of our website, this Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, related Interactive Data exhibits, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as well as proxy statements, registration statements, prospectus supplements, and Section 16 filings for our directors and officers, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the U.S. Securities and Exchange Commission (SEC). The SEC maintains an internet site, www.sec.gov, that contains annual, quarterly and current reports, proxy and information statements and other information that issuers file electronically with the SEC. Our electronic SEC filings are made available to the public on the SEC s internet site. In addition, posted on our website are our Bylaws, our Amended and Restated Certificate of Incorporation, charters for the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee of our board of directors, our Accounting Matters Complaint Policy, our Whistle Blower Hotline, our Corporate Governance Guidelines and our Code of Business Conduct and Ethics governing our directors, officers and employees. Within the time periods required by SEC and the Investors Exchange LLC (IEX), we will post on our website any amendment to the Code of Business Conduct and Ethics and any waiver applicable to any executive officer, director or senior financial officer. In addition, our website includes information concerning purchases and sales of our equity securities by our executive officers and directors, as well as disclosure relating to certain non-GAAP financial measures, if any, (as defined in Regulation G) promulgated under the Securities Act of 1933, as amended (the Securities Act) and the Securities Exchange Act of 1934, as amended (the Exchange Act) that we may make public orally, telephonically, by webcast, by broadcast or by similar means from time to time.

Our Investor Relations Department can be contacted at Interactive Brokers Group, Inc., Eight Greenwich Office Park, Greenwich, Connecticut 06831, Attn: Investor Relations, telephone: 203-618-4070, e-mail: investor-relations@interactivebrokers.com.

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Our Organizational Structure and Overview of Recapitalization Transactions

The graphic below illustrates our current ownership structure and reflects current ownership percentages. The graphic below does not display the subsidiaries of IBG LLC.

(1) In connection with redemption transactions in 2018, as of December 31, 2018, IBG Holdings LLC held for sale for the benefit of certain of its members 887,708 shares of IBG, Inc. Class A common stock, representing an additional 0.21% of the voting interests in IBG, Inc. See Use of Proceeds in Part II, Item 5 of this Annual Report on Form 10-K.

Prior to the IPO, we had historically conducted our business through a limited liability company structure. Our primary assets are our ownership of approximately 18.1% of the membership interests of IBG LLC, the current holding company for our businesses, and our controlling interest and related contractual rights as the sole managing member of IBG LLC. The remaining approximately 81.9% of IBG LLC membership interests are held by IBG Holdings LLC (Holdings), a holding company that is owned directly and indirectly by our founder, Chairman and Chief Executive Officer, Mr. Thomas Peterffy and his affiliates, management and other employees of IBG LLC, and certain other members. The IBG LLC membership interests held by Holdings will be subject to purchase by us over time in connection with offerings by us of shares of our common stock.

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The below table shows the amount of IBG LLC membership interests held by IBG, Inc. and Holdings as of December 31, 2018.

	IBG, Inc.		Holdings		Total	
Ownership %	18.1	%	81.9	%	100.0	%
Membership interests	75,100,955		338,691,717		413,792,672	

Purchases of IBG LLC membership interests, held by Holdings, by the Company are governed by the exchange agreement among us, IBG LLC, Holdings and the historical members of IBG LLC, (the Exchange Agreement), a copy of which was filed as an exhibit to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009 and filed with the SEC on November 9, 2009. The Exchange Agreement, as amended June 6, 2012, provides that the Company may facilitate the redemption by Holdings of interests held by its members through the issuance of shares of common stock through a public offering in exchange for the interests in IBG LLC being redeemed by Holdings. The June 6, 2012 amendment (the Amendment), which was filed as an exhibit to our Form 8-K filed with the SEC on June 6, 2012, eliminated from the Exchange Agreement an alternative funding method, which provided that upon approval by the board of directors and by agreement of the Company, IBG LLC and Holdings, redemptions could be made in cash.

At the time of the Company s IPO in 2007, three hundred sixty (360) million shares of authorized common stock were reserved for future sales and redemptions. From 2008 through 2010, Holdings redeemed 5,013,259 IBG LLC shares for a total of $114 million, which redemptions were funded using cash on hand at IBG LLC. Upon cash redemption these IBG LLC shares were retired.

In June 2011, with the consent of Holdings and the Company (on its own behalf and acting as the sole managing member of IBG LLC), IBG LLC agreed to redeem certain membership interests from Holdings through the sale of common stock and to distribute the proceeds of such sale to the beneficial owners of such membership interests. On August 4, 2011, November 12, 2013, and July 28, 2017 the Company filed shelf Registration Statements on Form S-3 (File Number 333-176053, 333-192275 and 333-219552) with the SEC for the issuance of additional shares in connection with Holdings requesting redemption of a portion of its member interests in IBG LLC. Under these shelf registration statements, the Company issued 15,396,082 shares of common stock (with a fair value of $505 million) to Holdings in exchange for an equivalent number of shares of member interests in IBG LLC.

Business Segments

Electronic Brokerage - Interactive Brokers

Electronic brokerage represented 96% of net revenues and 97% of income before income taxes from electronic brokerage and market making combined during 2018. We conduct our electronic brokerage business through certain Interactive Brokers (IB) subsidiaries. As an electronic broker, we execute, clear and settle trades globally for both institutional and individual customers. Capitalizing on our proprietary technology originally developed for our market making business, our systems provide our customers with the capability to monitor multiple markets around the world simultaneously and to execute trades electronically in these markets at a low cost in multiple products and currencies from a single trading account.

Since launching this business in 1993, we have grown to approximately 598 thousand institutional and individual brokerage customers. We provide our customers with what we believe to be one of the most effective and efficient electronic brokerage platforms in the industry. The following are key highlights of our electronic brokerage business:

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Low Costs - We provide our customers with among the industry's lowest overall transaction costs in two ways. First, we offer among the lowest execution, commission and financing costs in the industry. Second, our customers benefit from our advanced routing of orders designed to achieve the best available trade price. In order to illustrate this advantage, we publish monthly brokerage metrics including our customers' average net trade cost for Reg.-NMS stocks. In 2018, customers' total all-in cost of executing and clearing U.S. Reg.-NMS stocks through IB, including brokerage commissions, regulatory and exchange fees and market impact, was 0.9 basis points of trade money, as measured against a daily volume-weighted average price (VWAP) benchmark.

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- *Automated Risk Controls* - Throughout the trading day, we calculate margin requirements for each of our customers on a real-time basis across all product classes (stocks, options, futures, bonds, forex and mutual funds) and across all currencies. Our customers are alerted to approaching margin violations and if a customer's equity falls below what is required to support that customer's margin, we attempt to automatically liquidate positions on a real-time basis to bring the customer's account into margin compliance. This is done to protect IB, as well as the customer, from excessive losses.
- *IBKR Integrated Investment Account* - From a single point of entry in one IBKR Integrated Investment Account our customers are able to transact in 24 currencies, across multiple classes of tradable, primarily exchange-listed products, including stocks, options, futures, bonds, forex and mutual funds traded on more than 120 exchanges and market centers in 29 countries around the world seamlessly.
- *IB SmartRouting*^{SM} - Our customers benefit from our advanced order routing technology. IB SmartRouting^{SM} retains control of the customer's order, continuously searches for the best available price and, unlike most other routers, dynamically routes and re-routes all or parts of a customer's order to achieve optimal execution and among the lowest execution and commission costs in the industry. To highlight the quality of our price executions, we publish on our website independent measurements performed by a third party provider of transaction analysis to illustrate IB's net price improvement versus the industry. We also offer Transaction Cost Analysis reporting to allow customers to track execution performance using multiple criteria.
- *Flexible and Customizable System* - Our platform is designed to provide an efficient customer experience, beginning with a highly automated account opening process and ending with a fast trade execution. Our sophisticated interface provides interactive real-time views of account balances, positions, profits or losses, buying power and what-if scenarios to enable our customers to more easily make informed investment decisions and trade efficiently. Our system is configured to remember the user's preferences and is specifically designed for multi-screen systems. When away from their main workstations, customers are able to access their accounts through our IB WebTrader^{SM} or MobileTrader^{SM} interfaces for a seamless experience.
- *Interactive Analytics*^{SM} *and IB Option Analytics*^{SM} - We offer our customers state-of-the-art tools, which include a customizable trading platform, advanced analytic tools and over 60 sophisticated order types and algorithms. We also provide a real-time option analytics window which displays values that reflect the rate of change of an option's price with respect to a unit change in each of a number of risk dimensions.
- *Probability Lab® (Patent Pending)* - The Probability Lab provides customers with an intuitive, visual method to analyze market participants' future stock price forecasts based on current option prices. This tool compares a customer's stock price forecast versus that of the market, and scans the entire option universe for the highest Sharpe ratio multi-leg option strategies that take advantage of the customer's forecast.
- *IB Risk Navigator*^{SM} - We offer free to all customers our real-time market risk management platform that unifies exposure across multiple asset classes around the globe. The system is capable of identifying overexposure to risk by starting at the portfolio level and drilling down into successively greater detail within multiple report views. Report data is updated every ten seconds or upon changes to portfolio composition. Predefined reports allow the summarization of a portfolio from different risk perspectives, and allow views of Exposure, Value at Risk (VaR), Delta, Gamma, Vega and Theta, profit and loss and position quantity measures for the different portfolio views. The system also offers the customer the ability to modify positions through what-if scenarios that show hypothetical changes to the risk summary.
- *White Branding* - Our large financial advisor and broker-dealer customers may white brand our trading interface, account management and reports with their firm's identity. Broker-dealer customers can also select from among our modular functionalities, such as order routing, trade reporting or clearing, on specific products or exchanges where they may not have up-to-date technology, in order to offer to their customers a complete global range of services and products.

- *Securities Financing Services* - We offer a suite of automated Stock Borrow and Lending tools, including our depth of availability, transparent rates, global reach and dedicated service representatives. Our Stock Yield Enhancement Program allows our customers to lend their fully-paid stock shares to us in exchange for cash collateral. In turn, we lend these stocks in exchange for collateral and earn stock lending fees. We pay our customers a rebate on the cash collateral generally equal to 50% of the income we earn from lending the shares. This allows customers holding fully-paid long stock positions to enhance their returns.
- *Investors' Marketplace* - The Investors' Marketplace is an expansion of our Money Manager Marketplace and our Hedge Fund Capital Introduction program. This program is the first electronic meeting place that brings together individual investors, financial advisors, money managers, fund managers, research analysts, technology providers, business developers and administrators, allowing them to interact to form connections and conduct business.
- *Trade Desk* - We offer broker-assisted trading through our block trade desk, which is ideal when customers are away from their computer; and through our corporate bond desk, for times when large customer orders need access to more liquidity than is currently available electronically.
- *Model Portfolios* - Model Portfolios offer advisors an efficient and time-saving approach to investing customer assets. They allow advisors to create groupings of financial instruments based on specific investment themes, and then invest customer funds into these models.
- *Portfolio Builder* - Portfolio Builder allows our customers to set up an investment strategy based on research and rankings from top buy-side providers and fundamental data; use filters to define the universe of equities that will comprise their strategy and back-test their strategy using up to three years of historical performance; work in hypothetical mode to adjust the strategy until the historical performance meets their standards; and with the click of a button let the system create the orders to invest in a strategy and track its performance in their portfolio.
- *Greenwich Compliance* - Greenwich Advisor Compliance Services (Greenwich Compliance) offers direct expert registration and start-up compliance services, as well as answers to basic day-to-day compliance questions for experienced investors and traders looking to start their own investment advisor firms. Greenwich Compliance professionals have regulatory and industry experience, and can help investment advisors trading on the IB platform meet their registration and compliance needs.
- *IBKR Asset Management* - IBKR Asset Management (formerly known as Covestor) recruits registered financial advisors, vets them, analyzes their investment track records, and groups them by their risk profile. Retail investors who are interested in having their individual accounts robo-traded are grouped by their risk and return preferences. Retail investors can assign their accounts to be traded by one or more advisors. IBKR Asset Management also offers to IB customers Smart Beta Portfolios which combine the benefits of actively managed fund stock selection techniques with passive ETF low cost automation to provide broad market exposure and potentially higher returns.
- *Interactive Brokers Debit Mastercard®* - Interactive Brokers Debit Mastercard® allows customers to spend and borrow directly against their account at lower rates than credit cards, personal loans and home equity lines of credit, with no monthly minimum payments and no late fees. Customers can use their card to make purchases and ATM withdrawals anywhere Debit Mastercard® is accepted around the world.
- *Insured Bank Deposit Sweep Program* - Our Insured Bank Deposit Sweep Program provides eligible IB customers with up to $2,500,000 of Federal Deposit Insurance Corporation (FDIC) insurance on their eligible cash balances in addition to the existing $250,000 Securities Investor Protection Corporation (SIPC) coverage for total coverage of $2,750,000. Customers continue earning the same competitive interest rates currently applied to cash held in IB accounts. IB sweeps each participating customer's eligible credit balances daily to one or more banks, up to $246,500 per bank, allowing for the accrual of interest and keeping within the FDIC protected threshold. Cash balances above $2,750,000 remain subject to safeguarding under the SEC's Customer Protection Rule 15c3-3.

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- *Bill Pay* – Our Bill Pay program allows customers to make electronic or check payments to almost any company or individual in the United States. It can be configured for one-time or recurring payments and permits customers to schedule future payments.
- *Direct Deposit* – Our Direct Deposit program allows customers to automatically deposit paychecks, pension distributions and other recurring payments to their IB (non-retirement) brokerage account.
- *PortfolioAnalyst* – Our PortfolioAnalyst reporting tool is designed to allow customers to evaluate the performance of their portfolio by creating and saving reports based on a set of measurement criteria and optionally comparing their data to selected industry benchmarks.

We are able to provide our customers with high-speed trade execution at low commission rates, in large part because of our proprietary technology. As a result of our advanced electronic brokerage platform, we attract sophisticated and active investors. No single customer represented more than 1% of our commissions in 2018.

Market Making - Timber Hill

Market making represented 4% of net revenues from electronic brokerage and market making combined during 2018. We have conducted our market making business historically through our Timber Hill (TH) subsidiaries. As previously announced, we transferred our U.S. options market making operations to Two Sigma Securities, LLC effective September 29, 2017 and also exited the majority of our options market making activities outside the U.S. by December 31, 2017. We intend to continue conducting certain proprietary trading activities in stocks and related instruments to facilitate our electronic brokerage customers trading in products such as ETFs, ADRs, CFDs and other financial instruments, as well as exchange-traded market making activities in a few select markets outside of the U.S. However, we do not expect the facilitation activity to be of sufficient size as to require reporting as a separate segment after we discontinue our options market making activities.

As a market maker, we provide liquidity by offering competitively tight bid/offer spreads over a broad base of tradable, exchange-listed products, including equity derivative products, equity index derivative products, equity securities and futures. As principal, we commit our own capital and derive revenues or incur losses from the difference between the price paid when securities are bought and the price received when those securities are sold. Historically, our profits have been principally a function of transaction volume and price volatility of electronic exchange-traded products rather than the direction of price movements. Other factors, including the ratio of actual to implied volatility and shifts in foreign currency exchange rates, can also have a meaningful impact on our results, as described further in Business Environment in Part II, Item 7 of this Annual Report on Form 10-K.

Our strategy is to calculate quotes at which supply and demand for a particular security are likely to be in balance a few seconds ahead of the market and execute small trades at tiny but favorable differentials. Because we provide continuous bid and offer quotations and we are continuously both buying and selling quoted securities, we may have either a long or a short position in a particular product at a given point in time. As a matter of practice, we will generally not take portfolio positions in either the broad market or the financial instruments of specific issuers in anticipation that prices will either rise or fall. Our entire portfolio is evaluated many times per second and continuously rebalanced throughout the trading day, thus minimizing the risk of our portfolio at all times. This real-time rebalancing of our portfolio, together with our real-time proprietary risk management system, enables us to curtail risk and trade efficiently. Our quotes are based on our proprietary model rather than customer order flow.

As of December 31, 2018, we continued to conduct market making operations in Canada through our subsidiary, Timber Hill Canada Company (THC) at the Toronto Stock Exchange and Canadian Derivatives Exchange Bourse de Montreal Inc.; in India through our subsidiary, Interactive Brokers (India) Private Limited (IBI), which is a member of the National Stock Exchange of India Ltd. and the Bombay Stock Exchange; and in Hong Kong through our subsidiary, Interactive Brokers Hong Kong Limited (IBHK), a member of the cash and derivatives markets of the Hong Kong Exchange. All other options market making operations we previously conducted were discontinued during

2017. We expect to continue assessing whether and when to discontinue the remaining operations.

Most of the above trading activities take place on exchanges, and all securities and commodities that we trade are cleared by exchange owned or authorized clearing houses.

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Technology

Our proprietary technology is the key to our success. We believe that integrating our system with electronic exchanges and market centers results in transparency, liquidity and efficiencies of scale. Together with the IB SmartRouting^{SM} system and our low commissions, this approach reduces overall transaction costs to our customers and, in turn, increases our transaction volume and profits. Over the past 40 years, we have developed an integrated trading system and communications network and have positioned our company as an efficient conduit for the global flow of risk capital across asset and product classes on electronic exchanges around the world, permitting us to have one of the lowest cost structures in the industry. We believe that developing, maintaining and continuing to enhance our proprietary technology provides us and our customers with the competitive advantage of being able to adapt quickly to the changing environment of our industry and to take advantage of opportunities presented by new exchanges, products or regulatory changes before our competitors.

Our proprietary technology infrastructure enables us to provide our customers with the ability to execute trades at among the lowest commission costs in the industry. Customer trades are both automatically captured and reported in real time in our system. Our customers trade on more than 120 exchanges and market centers in 29 countries around the world. These exchanges and market centers are all partially or fully electronic, meaning that a customer can buy or sell a product traded on that exchange via an electronic link from his or her computer terminal through our system to the exchange. We offer our products and services through a global communications network that is designed to provide secure, reliable and timely access to the most current market information. We provide our customers with a variety of means to connect to our brokerage systems, including dedicated point-to-point data lines, virtual private networks and the Internet.

Specifically, our customers receive worldwide electronic access connectivity through our Trader Workstation (our real-time Java-based trading platform), our proprietary Application Programming Interface (API), and/or industry standard Financial Information Exchange (FIX) connectivity. Customers who want a professional quality trading application with a sophisticated user interface utilize our Trader Workstation, which can be accessed through a desktop or variety of mobile devices. Customers interested in developing program trading applications in Python, Java, C++, .NET (C#), ActiveX and Excel technologies utilize our API. Large institutions with FIX infrastructure prefer to use our FIX solution for seamless integration of their existing order gathering and reporting applications.

While many brokerages, including some online brokerages, rely on manual procedures to execute many day-to-day functions, we employ proprietary technology to automate, or otherwise facilitate, many of the following functions:

- account opening process;
- order routing and best execution;
- seamless trading across all types of securities and currencies around the world from one account;
- order types and analytical tools offered to customers;
- delivery of customer information, such as confirmations, customizable real-time account statements and audit trails;
- compliance;
- customer service; and
- risk management through automated real-time credit management of all new orders and margin monitoring.

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Research and Development

One of our core strengths is our expertise in the rapid development and deployment of automated technology for the financial markets. Our core software technology is developed internally, and we do not generally rely on outside vendors for software development or maintenance. To achieve optimal performance from our systems, we are continuously rewriting and upgrading our software. Use of the best available technology not only improves our performance but also helps us attract and retain talented developers. Our software development costs are relatively low because the employees who oversee the development of the software are often the same employees who design the application, evaluate its performance, and participate along with our quality assurance professionals in our robust quality assurance testing procedures. The involvement of our developers in each of these processes enables us to add features and further refine our software rapidly.

Our internally-developed, fully integrated trading and risk management systems are unique and transact across all product classes on more than 120 electronic exchanges and market centers and in 24 currencies around the world. These systems have the flexibility to assimilate new exchanges and new product classes without compromising transaction speed or fault tolerance. Fault tolerance, or the ability to maintain system performance despite exchange malfunctions or hardware failures, is crucial to ensuring best executions for our customers. Our systems are designed to detect exchange malfunctions and quickly take corrective actions by re-routing pending orders.

Our company is technology-focused, and our management team is hands-on and technology-savvy. Most members of the management team write detailed program specifications for new applications. The development queue is prioritized and highly disciplined. Progress on programming initiatives is generally tracked on a bi-weekly basis by a steering committee consisting of senior executives. This enables us to prioritize key initiatives and achieve rapid results. All new business starts as a software development project. We generally do not engage in any business that we cannot automate and incorporate into our platform prior to entering into the business.

The rapid software development and deployment cycle is achieved by our ability to leverage a highly integrated, object-oriented development environment. The software code is modular, with each object providing a specific function and being reusable in multiple applications. New software releases are tracked and tested with proprietary automated testing tools. We are not hindered by disparate and often limiting legacy systems assembled through acquisitions. Virtually all of our software has been developed and maintained with a unified purpose.

For over 40 years, we have built and continuously refined our automated and integrated, real-time systems for world-wide trading, risk management, clearing and cash management, among others. We have also assembled a proprietary connectivity network between us and exchanges around the world. Efficiency and speed in performing prescribed functions are always crucial requirements for our systems. As a result, our brokerage and trading systems are able to assimilate market data, disseminate market prices to customers and update risk management information in real time, across tradable products in all available product classes.

Risk Management Activities

The core of our risk management philosophy is the utilization of our fully integrated computer systems to perform critical risk-management activities on a real-time basis. In our electronic brokerage business, integrated risk management seeks to ensure that each customer s positions are continuously credit checked and brought into compliance if equity falls short of margin requirements, curtailing bad debt losses. In our market making business, our real-time integrated risk management system seeks to ensure that our overall positions are continuously hedged at all times, curtailing risk.

We actively manage our global currency exposure on a continuous basis by maintaining our equity in a basket of currencies we call the GLOBAL. We define the GLOBAL as consisting of fractions of a U.S. dollar, Euro, Japanese yen, British pound, Swiss franc, Hong Kong dollar, Indian rupee, Canadian dollar, Chinese renminbi, Australian dollar, Mexican peso, Swedish krona, Norwegian krone, and Danish krone. We currently transact business and are required to manage balances in each of these 14 currencies. The currencies comprising the GLOBAL and their relative proportions can change over time. Additional information regarding our currency diversification strategy is set forth in Quantitative and Qualitative Disclosures about Market Risk in Part II, Item 7A of this Annual Report on Form 10-K.

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Electronic Brokerage

We calculate margin requirements for each of our customers on a real-time basis across all product classes (stocks, options, futures, forex, bonds and mutual funds) and across all currencies. Recognizing that our customers are experienced investors, we expect our customers to manage their positions proactively and we provide tools to facilitate our customers position management. However, if a customer s equity falls below what is required to support that customer s margin, we will automatically liquidate positions on a real-time basis to bring the customer s account into margin compliance. We do this to protect us, as well as the customer, from excessive losses. These systems further contribute to our low-cost structure. The entire credit management process is completely automated.

As a safeguard, all liquidations are displayed on custom built liquidation monitoring screens that are part of the toolset our technical staff uses to monitor performance of our systems at all times the markets around the world are open. In the event our systems absorb erroneous market data from exchanges, which prompts liquidations, risk specialists on our technical staff have the capability to halt liquidations that meet specific criteria. The liquidation halt function is highly restricted.

Our customer interface includes color coding on the account screen and pop-up warning messages to notify customers that they are approaching their margin limits. This feature allows customers to take action, such as entering margin reducing trades, to avoid having us liquidate their positions. These tools and real-time margining aid our customers in understanding their trading risk at any moment of the day and help us maintain low commissions.

Market Making

We employ certain hedging and risk management techniques to protect us from a severe market dislocation. Our risk management policies are developed and implemented by our Chairman and our steering committee, which is comprised of senior executives of our various companies. Our strategy is to calculate quotes a few seconds ahead of the market and execute small trades at a tiny but favorable differential as a result. This strategy is made possible by our proprietary pricing model, which evaluates and monitors the risks inherent in our portfolio, assimilates market data and reevaluates the outstanding quotes in our portfolio many times per second. Our model automatically rebalances our positions throughout each trading day to manage risk exposures both on our options and futures positions and the underlying securities, and it will price the increased risk that a position would add to the overall portfolio into the bid and offer prices we post. Under risk management policies implemented and monitored primarily through our computer systems, reports to management, including risk profiles, profit and loss analysis and trading performance, are prepared on a real-time basis as well as daily and periodical bases. Although our market making is completely automated, the trading process and our risk are monitored by a team of individuals who, in real-time, observe various risk parameters of our consolidated positions. Our assets and liabilities are marked-to-market daily for financial reporting purposes and re-valued continuously throughout the trading day for risk management and asset/liability management purposes.

Operational Controls

We have automated the full cycle of controls surrounding our businesses. Key automated controls include the following:

- Our technical operations team continuously monitors our network and the proper functioning of each of our nodes (exchanges and market centers, internet service providers (ISPs), leased customer lines and our own data centers) around the world.
- Our real-time credit manager software provides pre and post-execution controls by:
  -

testing every customer order to ensure that the customer's account holds enough equity to support the execution of the order, rejecting the order if equity is insufficient or directing the order to an execution destination without delay if equity is sufficient; and

- continuously updating a customer account's equity and margin requirements and, if the account's equity falls below its minimum margin requirements, automatically issuing liquidating orders in a smart sequence designed to minimize the impact on the account's equity.

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- Our clearing system captures trades in real-time and performs automated reconciliation of trades and positions, corporate action processing, customer account transfer, options exercise, securities lending and inventory management, allowing us to effectively manage operational risk.
- Our accounting system operates with automated data feeds from clearing and banking systems, allowing us to produce financial statements for all parts of our business every day by mid-day on the day following trade date.
- Software developed to interface with the accounting and market making systems performs daily profit and loss reconciliations, which provide tight financial controls over market making functions.
- Our market making system continuously evaluates securities and futures products in which we provide bid and offer quotes and changes our bids and offers in such a way as to maintain an overall hedge and a low-risk profile. The speed of communicating with exchanges and market centers is maximized through continuous software and network engineering maintenance, thereby allowing us to achieve real-time controls over market exposure.

Transaction Processing

Our transaction processing is automated over the full life cycle of a trade. Our fully automated smart router system searches for the best possible combination of prices available at the time a customer order is placed and immediately seeks to execute that order electronically or send it where the order has the highest possibility of execution at the best price. Our market making software generates and disseminates to the exchanges and market centers, in which we still operate, continuous bid and offer quotes on tradable, exchange-listed products.

At the moment a trade is executed, our systems capture and deliver this information back to the source, either to the customer via the brokerage system or the market making system, in most cases within a fraction of a second. Simultaneously, the trade record is written into our clearing system, where it flows through a chain of control accounts that allow us to reconcile trades, positions and money until the final settlement occurs. Our integrated software tracks other important activities, such as dividends, corporate actions, options exercises, securities lending, margining, risk management and funds receipt and disbursement.

IB SmartRouting^{SM}

IB SmartRouting^{SM} searches for the best destination price in view of the displayed prices, sizes and accumulated statistical information about the behavior of market centers at the time an order is placed, and IB SmartRouting^{SM} immediately seeks to execute that order electronically. Unlike other smart routers, IB SmartRouting^{SM} never relinquishes control of the order, and constantly searches for the best price. It continuously evaluates fast-changing market conditions and dynamically re-routes all or parts of the order seeking to achieve optimal execution. IB SmartRouting^{SM} represents each leg of a spread order independently and enters each leg at the best possible venue. IB SmartRouting Autorecovery^{SM} re-routes a customer s U.S. options order in the case of an exchange malfunction, and we undertake the risk of double executions. In addition, IB SmartRouting^{SM} checks each new order to see if it could be executed against any of its pending orders. As the system gains more users, this feature becomes more important for customers in a world of multiple exchanges, market centers and penny priced orders because it increases the possibility of best executions for our customers ahead of customers of other brokers. As a result of this feature, our customers have a greater chance of executing limit orders and can do so sooner than those who use other routers.

Clearing and Margining

Our activities in the U.S. are entirely self-cleared. We are a clearing member of OCC (the Options Clearing Corporation), the Chicago Mercantile Exchange Clearing House (CMECH), The Depository Trust & Clearing Corporation and ICE Clear U.S.

In addition, we are fully or partially self-cleared in Canada, the United Kingdom, Switzerland, France, Germany, Belgium, Austria, the Netherlands, Norway, Sweden, Denmark, Finland, India, Hong Kong, and Australia.

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Customers

We established our electronic brokerage subsidiary, Interactive Brokers LLC (IB LLC), in 1993 to enhance the use of our global network of trading interfaces, exchange and clearinghouse memberships, and regulatory registrations assembled over the prior 16 years to serve our market making business. We realized that electronic access to market centers worldwide through our network could easily be utilized by the very same floor traders and trading desk professionals who, in the coming years, would be displaced by the conversion of exchanges from open outcry to electronic systems.

We currently service approximately 598 thousand cleared customer accounts. Our customers reside in over 200 countries and territories around the world. Our target customer is one that requires the latest in trading technology, worldwide access and expects low overall transaction costs. Our customers are mainly comprised of self-service individuals, former floor traders, trading desk professionals, electronic retail brokers, hedge funds, mutual funds, financial advisors who are comfortable with technology, proprietary trading firms, as well as introducing brokers and banks that require global access.

Our customers primarily fall into two groups based on services provided: cleared customers and non-cleared customers, the latter also known as trade execution customers. By offering portfolio margining and other institutional services, we have been able to persuade many of our trade execution hedge fund customers to utilize our cleared business solution, which benefits the hedge funds in terms of cost savings. Prime brokers may offer increased leverage over Regulation T credit limitations and the Financial Industry Regulatory Authority (FINRA) margin requirements through offshore entities and joint back office arrangements. Through portfolio margining, we are able to offer similar leverage with lower margin requirements that reflect the reduced risk of a hedged portfolio.

- Cleared Customers: We provide trade execution and clearing services to our cleared customers who are generally attracted to our low commissions, low financing rates, high interest paid and best price execution. From small market making groups and individual market makers, our cleared customer base has expanded over the years to include institutional and individual traders and investors, hedge funds, financial advisors and introducing brokers.
- Trade Execution Customers: We offer trade execution for customers who choose to clear with another prime broker or a custodian bank; these customers are able to take advantage of our low commissions for trade execution as well as our best price execution.

Our non-cleared customers include online brokers and the customer trading units of commercial banks. These customers are attracted by our IB SmartRouting^{SM} technology as well as our direct access to stock, options, futures, forex, bond and mutual fund markets worldwide.

Our customers receive worldwide electronic access connectivity in one of three ways: the Trader Workstation via desktop or mobile device, our proprietary API, and/or industry standard FIX connectivity.

Employees and Culture

We take pride in our technology-focused company culture and embrace it as one of our fundamental strengths. We remain committed to improving our technology and we try to minimize corporate hierarchy to facilitate efficient communication among employees. We have assembled what we believe is a highly talented group of employees. As we grow, we expect to continue to provide significant rewards for our employees who provide substantial value to us and the world s financial markets.

As of December 31, 2018, we had 1,413 employees, of which 1,369 own either vested shares of the Company, unvested restricted stock units or both, all of whom were employed on a full-time basis. None of our employees are covered by collective bargaining agreements. We believe that our relations with our employees are good.

Competition

Electronic Brokerage

The market for electronic brokerage services is rapidly evolving and highly competitive. We believe that we fit neither within the definition of a traditional broker nor that of a traditional prime broker. Our primary competitors include the prime brokerage and electronic brokerage arms of major commercial and investment

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banks and brokers, such as Goldman Sachs, Morgan Stanley and JP Morgan, and offerings to target professional traders by large online retail brokers. We also encounter competition to a lesser extent from full commission brokerage firms, including Merrill Lynch and Morgan Stanley, as well as other financial institutions, most of which provide online brokerage services. The electronic brokerage businesses of many of our competitors are relatively insignificant in the totality of their firms business.

Market Making

The competitive environment for market makers has evolved considerably in the past several years, most notably with the rise in high frequency traders (HFTs), which transact significant trading volume on electronic exchanges by using complex algorithms and high-speed execution software that analyzes market conditions. HFTs that are not registered market makers operate with fewer regulatory restrictions and are able to move more quickly and trade more cheaply. This issue has been an area of focus amongst regulators who examine the practices of HFTs and their impact on market structure.

As previously described we are in the process of discontinuing our options market making activities globally.

Regulation

Our securities and derivatives businesses are extensively regulated by U.S. federal and state regulators, foreign regulatory agencies, numerous exchanges and self-regulatory organizations of which our subsidiaries are members. In the current era of heightened regulation of financial institutions, we expect to incur increasing compliance costs, along with the industry as a whole. Our approach has been to build many of our regulatory and compliance functions into our integrated order routing, custodial and market making systems.

Overview

As a registered U.S. broker-dealer, IB LLC and Timber Hill LLC (TH LLC) are subject to the rules and regulations of the Exchange Act, and as members of various exchanges, we are also subject to such exchanges rules and requirements. Additionally, IB LLC is subject to the Commodity Exchange Act and rules promulgated by the Commodity Futures Trading Commission (CFTC) and the various commodity exchanges of which it is a member. We are also subject to the requirements of various self-regulatory organizations such as FINRA and the National Futures Association (NFA). Our foreign affiliates are similarly regulated under the laws and institutional framework of the countries in which they operate.

U.S. broker-dealers and futures commission merchants are subject to laws, rules and regulations that cover all aspects of the securities and derivatives business, including:

- sales methods;
- trade practices;
- use and safekeeping of customers' funds and securities;
- capital structure;
- risk management;
- record-keeping;
- financing of customers' purchases; and
- conduct of directors, officers and employees.

In addition, the businesses that we may conduct are limited by our agreements with and our oversight by regulators. Participation in new business lines, including trading of new products or participation on new exchanges or in new countries often requires governmental and/or exchange approvals, which may take significant time and resources. As a result, we may be prevented from entering new businesses that may be profitable in a timely manner, or at all.

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As certain of our subsidiaries are members of FINRA, we are subject to certain regulations regarding changes in control of our ownership. FINRA Rule 1017 generally provides that FINRA approval must be obtained in connection with any transaction resulting in a change in control of a member firm. FINRA defines control as ownership of 25% or more of the firm s equity by a single entity or person and would include a change in control of a parent company. As a result of these regulations, our future efforts to sell shares or raise additional capital may be delayed or prohibited by FINRA.

Net Capital Rule

The SEC, FINRA, CFTC and various other regulatory agencies within the U.S. have stringent rules and regulations with respect to the maintenance of specific levels of net capital by regulated entities. Generally, a broker-dealer s capital is its net worth plus qualified subordinated debt less deductions for certain types of assets. The Net Capital Rule requires that at least a minimum part of a broker-dealer s assets be maintained in a relatively liquid form.

If these net capital rules are changed or expanded, or if there is an unusually large charge against our net capital, our operations that require the intensive use of capital would be limited. A large operating loss or charge against our net capital could adversely affect our ability to expand or even maintain these current levels of business, which could have a material adverse effect on our business and financial condition.

The U.S. regulators impose rules that require notification when net capital falls below certain predefined criteria. These rules also dictate the ratio of debt-to-equity in the regulatory capital composition of a broker-dealer, and constrain the ability of a broker-dealer to expand its business under certain circumstances. If a firm fails to maintain the required net capital, it may be subject to suspension or revocation of registration by the applicable regulatory agency, and suspension or expulsion by these regulators could ultimately lead to the firm s liquidation. Additionally, the Net Capital Rule and certain FINRA rules impose requirements that may have the effect of prohibiting a broker-dealer from distributing or withdrawing capital and requiring prior notice to U.S. regulators and approval from FINRA for certain capital withdrawals.

As of December 31, 2018, aggregate excess regulatory capital for all of the operating companies was $5.8 billion.

IB LLC and TH LLC are subject to the Uniform Net Capital Rule (Rule 15c3-1) under the Exchange Act and IB LLC to the CFTC s minimum financial requirements (Regulation 1.17) under the Commodities Exchange Act. Additionally, IBKR Financials Services AG (IBKRFS), formerly Timber Hill Europe AG, is subject to the Swiss Financial Market Supervisory Authority (FINMA) eligible equity requirement; IBHK is subject to the Hong Kong Securities and Futures Commission (SFC) financial resource requirement; Interactive Brokers Australia Pty Limited (IBA) is subject to the Australian Securities Exchange liquid capital requirement; THC and Interactive Brokers Canada Inc. (IBC) are subject to the Investment Industry Regulatory Organization of Canada (IIROC) risk adjusted capital requirement; Interactive Brokers (U.K.) Limited (IBUK) is subject to the U.K. Financial Conduct Authority (FCA) financial resources requirement; IBI is subject to the National Stock Exchange of India net capital requirements; and Interactive Brokers Securities Japan, Inc. (IBSJ) is subject to the Japanese Financial Services Agency (FSA) capital requirements.

The following table summarizes capital, capital requirements and excess regulatory capital:

	Net Capital/ Eligible Equity	Requirement	Excess
		(in millions)	
IB LLC	$ 4,882	$ 416	$ 4,466
TH LLC	159	—	159

IBKRFS	584	93	491
Other regulated Operating Companies	810	116	694
	$ 6,435	$ 625	$ 5,810

As of December 31, 2018, all of the operating companies were in compliance with their respective regulatory capital requirements. For additional information regarding our net capital requirements see Note 15 to the audited consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K.

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Protection of Customer Assets

To conduct customer activities, IB LLC is obligated under rules mandated by its primary regulators, the SEC and the CFTC, to segregate cash or qualified securities belonging to customers. In accordance with the Securities Exchange Act of 1934, IB LLC is required to maintain separate bank accounts for the exclusive benefit of customers. In accordance with the Commodity Exchange Act, IB LLC is required to segregate all monies, securities and property received from commodities customers in specially designated accounts. IBC, IBUK, IBHK, IBSJ, IBI and IBA are subject to similar requirements within their respective jurisdictions.

To further enhance the protection of our customers assets, in 2011, IB LLC sought and received approval from FINRA to perform the customer reserve computation on a daily basis, instead of once per week. IB LLC has been performing daily computations since December 2011, along with daily adjustments of the money set aside in safekeeping for our customers.

Supervision and Compliance

Our Compliance Department supports and seeks to ensure proper operations of our electronic brokerage and market making businesses. The philosophy of the Compliance Department, and our company as a whole, is to build automated systems to try to eliminate manual steps in the compliance process and then to augment these systems with experienced staff members who apply their judgment where needed. We have built automated systems to handle wide-ranging compliance issues such as trade and audit trail reporting, financial operations reporting, enforcement of short sale rules, enforcement of margin rules and pattern day trading restrictions, review of employee correspondence, archival of required records, execution quality and order routing reports, approval and documentation of new customer accounts, and anti-money laundering and anti-fraud surveillance. In light of our automated operations and our automated compliance systems, we have a smaller and more efficient Compliance Department than many traditional securities firms. Nonetheless, we have increased the staffing in our Compliance Department over the past several years to meet the increased regulatory burdens faced by all industry participants.

Our electronic brokerage companies have Chief Compliance Officers who report to the Company s CEO, Global Chief Regulatory Officer and Deputy General Counsel and its Audit and Compliance Committee. In the U.S., these Chief Compliance Officers, plus certain other senior staff members, are FINRA and NFA registered principals with supervisory responsibility over the various aspects of our businesses. Similar roles are undertaken by staff in certain non-U.S. locations as well. Staff members in the Compliance Department and in other departments of the firm are also registered with FINRA, NFA or other regulatory organizations.

Patriot Act and Increased Anti-Money Laundering (AML) and Know Your Customer Obligations

Registered broker-dealers traditionally have been subject to a variety of rules that require that they know their customers and monitor their customers transactions for potential suspicious activities. With the passage of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (the USA Patriot Act), broker-dealers are subject to even more stringent requirements. Likewise, the SEC, CFTC, foreign regulators, and the various exchanges and self-regulatory organizations, of which IB companies are members, have passed numerous AML and customer due diligence rules. Significant criminal and civil penalties can be imposed for violations of the USA Patriot Act, and significant fines and regulatory penalties can also be imposed for violations of other governmental and self-regulatory organization AML rules.

As required by the USA Patriot Act and other rules, we have established comprehensive anti-money laundering and customer identification procedures, designated AML compliance officers, trained our employees and conducted independent audits of our programs. Our anti-money laundering screening is conducted using a mix of automated and manual reviews and has been structured to comply with regulations in various jurisdictions. We collect required information through our new account opening process and screen accounts against databases for the purposes of identity verification and for review of negative information and appearance on government lists, including the Office of Foreign Assets and Control, Specially Designated Nationals and Blocked Persons lists. Additionally, we have developed methods for risk control and continue to add upon specialized processes, queries and automated reports designed to identify money laundering, fraud and other suspicious activities.

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Dodd-Frank Reform Act

The Dodd-Frank Wall Street Reform and Consumer Protection Act imposes strict reporting and disclosure requirements on the financial services industry. We have enhanced the evidence of our supervisory review of controls over financial reporting and management continues to monitor accounting and regulatory rulemaking developments for their potential effect on our financial statements and internal controls over financial reporting.

Business Continuity Planning

Federal regulators and industry self-regulatory organizations have passed a series of rules in the past several years requiring regulated firms to maintain business continuity plans that describe what actions firms would take in the event of a disaster (such as a fire, natural disaster or terrorist incident) that might significantly disrupt operations. We have developed business continuity plans that describe steps that we and our employees would take in the event of various scenarios. We have built backup capabilities for key operations performed at our regional offices in North America, Europe and Asia that would be utilized in the event of a significant outage at our main data center or primary office locations. In addition, we have strengthened our technical infrastructure and have built redundancy of systems so that certain operations can be handled from multiple offices or remotely. We continually evaluate opportunities to further our business continuity planning efforts.

Foreign Regulation

Our international subsidiaries are subject to extensive regulation in the various jurisdictions where they have operations. The most significant of our international subsidiaries are: IBC and THC, registered to do business in Canada as an investment dealer and securities dealer, respectively; IBUK, registered to do business in the U.K. as a broker; IBKRFS, registered to do business in Switzerland as a securities dealer; IBI, registered to do business in India as a stock broker; IBHK, registered to do business in Hong Kong as a securities dealer; IBA, registered to do business in Australia as a securities dealer and futures broker; and IBSJ, registered in Japan as a financial instruments firm.

In Canada, both THC and IBC are subject to the IIROC risk adjusted capital requirement. In the United Kingdom, IBUK is subject to the FCA financial resources requirement. In Switzerland, IBKRFS is subject to the FINMA eligible equity requirement. In India, IBI is subject to the National Stock Exchange and Bombay Stock Exchange capital requirements. In Hong Kong, IBHK is subject to the SFC rules with respect to net capital requirements and stockholder s equity requirements. In Australia, IBA is subject to the Australian Securities Exchange liquid capital requirement. In Japan, IBSJ is subject to the FSA, the Osaka Securities Exchange, and the Tokyo Stock Exchange capital requirements.

Executive Officers and Directors of Interactive Brokers Group, Inc.

The following table sets forth the names, ages and positions of our current directors and executive officers:

Name	Age	Position
Thomas Peterffy	74	Chairman of the Board of Directors and Chief Executive Officer
Earl H. Nemser	72	Vice Chairman and Director
Milan Galik	52	President and Director
Paul J. Brody	58	Chief Financial Officer, Treasurer, Secretary and Director
Thomas A. Frank	63	Executive Vice President and Chief Information Officer
Lawrence E. Harris	62	Director

Richard Gates	47	Director
Gary Katz	58	Director
John M. Damgard	79	Director

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Thomas Peterffy - Mr. Peterffy has been at the forefront of applying computer technology to automate trading and brokerage functions since he emigrated from Hungary to the United States in 1965. In 1977, after purchasing a seat on the American Stock Exchange and trading as an individual marker maker in equity options, Mr. Peterffy was among the first to apply a computerized mathematical model to continuously value equity option prices. By 1986, Mr. Peterffy developed and employed a fully integrated, automated market making system for stocks, options and futures. As this pioneering system extended around the globe, online brokerage functions were added and, in 1993, Interactive Brokers was formed.

Earl H. Nemser - Mr. Nemser has been our Vice Chairman since November 2006. Mr. Nemser has been the Vice Chairman of the Company since 1988 and also serves as a director and/or officer for various subsidiaries of IBG LLC. Mr. Nemser serves as an Independent Advisor to the law firm of Dechert LLP. Mr. Nemser served as Special Counsel to the law firm Dechert LLP from January 2005 to October 2018. Prior to such time Mr. Nemser served as Partner at the law firms of Swidler Berlin Shereff Friedman, LLP from 1995 to December 2004 and Cadwalader, Wickersham & Taft LLP prior to 1995. Mr. Nemser received a Bachelor of Arts degree in economics from New York University in 1967 and a Juris Doctor, magna cum laude, from Boston University School of Law in 1970.

Milan Galik - Mr. Galik joined us in 1990 as a software developer and has served as President of the Company and IBG LLC since October 2014. Mr. Galik served as Senior Vice President, Software Development of IBG LLC from October 2003 to October 2014. In addition, Mr. Galik has served as Vice President of Timber Hill LLC since April 1998 and serves as a member of the board of directors of the Boston Options Exchange. Mr. Galik received a Master of Science degree in electrical engineering from the Technical University of Budapest in 1990.

Paul J. Brody - Mr. Brody has been our Chief Financial Officer, Treasurer and Secretary since November 2006. Mr. Brody joined the Company in 1987 and has served as Chief Financial Officer of IBG LLC since December 2003. Mr. Brody serves as a director and/or officer for various subsidiaries of IBG LLC. From 2005 to 2012, Mr. Brody served as a director, and for a portion of the time as member Vice Chairman, of The Options Clearing Corporation, of which Timber Hill LLC and Interactive Brokers LLC are members. He also served as a director of Quadriserv Inc., an electronic securities lending platform provider, from 2009 to 2015. Mr. Brody received a Bachelor of Arts degree in economics from Cornell University in 1982.

Thomas A. Frank - Dr. Frank joined us in 1985 and has served since July 1999 as Executive Vice President and Chief Information Officer of Interactive Brokers LLC. In addition, Dr. Frank has served as Vice President of Timber Hill LLC since December 1990. Mr. Frank has served as a director of The Options Clearing Corporation, since 2015. Dr. Frank received a Ph.D. in physics from the Massachusetts Institute of Technology in 1985.

Lawrence E. Harris - Dr. Harris has been a director since July 2007. He is a professor of Finance and Business Economics at the University of Southern California, where he holds the Fred V. Keenan Chair in Finance at the Marshall School of Business. Dr. Harris also serves as trustee of the Clipper Fund, director of the Selected Funds, and as the research coordinator of the Institute for Quantitative Research in Finance. Dr. Harris formerly served as Chief Economist of the U.S. Securities and Exchange Commission. Dr. Harris earned his Ph.D. in Economics from the University of Chicago, and is a CFA charterholder. He is an expert in the economics of securities market microstructure and the uses of transactions data in financial research. He has written extensively about trading rules, transaction costs, index markets, and market regulation. Dr. Harris is also the author of the widely respected textbook *Trading and Exchanges: Market Microstructure for Practitioners*.

Richard Gates - Mr. Gates has been a director since April 2012. Mr. Gates co-founded TFS Capital, a registered investment advisor from 1997-2017 that focused on the equity markets. During those 20 years, TFS won several awards, including the first-ever *Morningstar Alternatives Fund Manager of the Year*. While at TFS, Mr. Gates worked with the SEC on market structure, short selling regulations, and other issues. In 2014, Mr. Gates co-founded Elmagin

Capital LLC, an asset manager focused on the wholesale power markets. Mr. Gates graduated from the University of Virginia in 1994 with a bachelor s degree in Chemical Engineering.

Gary Katz - Mr. Katz has been a director since January 2017. He was the President and Chief Executive Officer of the International Securities Exchange (ISE) and a co-founder of ISE. Mr. Katz was one of the principal developers of the unique options market structure – an auction market on an electronic platform – used by all three options exchanges; ISE, ISE Gemini and ISE Mercury and was named as inventor or co-inventor on six patents that the ISE received or applied for relating to its proprietary trading system and technology. He served

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on the Executive Board of Eurex and on the Board of Directors of The Options Clearing Corporation and chaired the Board s newly formed technology committee. Mr. Katz also served on the Board of Directors of Direct Edge. Mr. Katz graduated from New York University with a master s degree in Statistics with Distinction and a bachelor s degree from Queens College. Mr. Katz is currently chairman of the board of Farmer s Pantry LLC, a start-up in the consumer goods industry and also serves on the board of STRS, LLC, a start-up in the financial industry meeting the unique needs of credit card issuers and merchants.

John M. Damgard - Mr. Damgard has been a director since December 2018. He served as President of the Futures Industry Association (FIA) from 1982 to 2013 and was a founder, past president and a member of the board of the Institute for Financial Markets. Prior to joining FIA in 1982, Mr. Damgard directed the Washington office of ACLI International, a leading commodity merchant firm active in cash and futures markets worldwide. Mr. Damgard served as Deputy Assistant and Acting Assistant Secretary of Agriculture and was responsible for the major marketing and regulatory functions at the U.S. Department of Agriculture (USDA). While at the USDA, Mr. Damgard led the Administration s efforts during the creation of the Commodity Futures Trading Commission, a new independent regulatory agency. Mr. Damgard studied at the University of Virginia for two years and received a B.A. from Knox College in 1964 with a major in Political Science and a minor in Economics.

ITEM 1A. RISK FACTORS

We face a variety of risks that are substantial and inherent in our businesses, including market, liquidity, credit, operational, legal and regulatory. In addition to the risks identified elsewhere in this Annual Report on Form 10-K, the following risk factors apply to our business results of operations and financial condition:

Risks Related to Our Company Structure

Control by Mr. Thomas Peterffy of a majority of the combined voting power of our common stock may give rise to conflicts of interests and could discourage a change of control that other stockholders may favor, which could negatively affect our stock price, and adversely affect stockholders in other ways.

Mr. Thomas Peterffy, our founder, Chairman and Chief Executive Officer, and his affiliates beneficially own approximately 89.6% of the economic interests and all of the voting interests in Holdings, which owns all of our Class B common stock, representing approximately 81.9% of the combined voting power of all classes of our voting stock. As a result, Mr. Thomas Peterffy has the ability to elect all of the members of our board of directors and thereby to control our management and affairs, including determinations with respect to acquisitions, dispositions, material expansions or contractions of our business, entry into new lines of business, borrowings, issuances of common stock or other securities, and the declaration and payment of dividends on our common stock. In addition, Mr. Thomas Peterffy is able to determine the outcome of all matters requiring stockholder approval and will be able to cause or prevent a change of control of our company or a change in the composition of our board of directors and could preclude any unsolicited acquisition of our company. The concentration of ownership could discourage potential takeover attempts that other stockholders may favor and could deprive stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company and this may adversely affect the market price of our common stock.

Moreover, because of Mr. Thomas Peterffy s substantial ownership, we are eligible to be and are, treated as a controlled company for purposes of the IEX Rules. As a result, we are not required by IEX to have a majority of independent directors or to maintain Compensation and Nominating and Corporate Governance Committees composed entirely of independent directors to continue to list the shares of our common stock on IEX. Our Compensation Committee is comprised of Messrs. Thomas Peterffy (Chairman of the Compensation Committee) and Earl H. Nemser (our Vice Chairman). Mr. Thomas Peterffy s membership on the Compensation Committee may give rise to conflicts of interests in that Mr. Thomas Peterffy is able to influence all matters relating to executive compensation, including his own compensation.

We are dependent on IBG LLC to distribute cash to us in amounts sufficient to pay our tax liabilities and other expenses.

We are a holding company and our primary assets are our approximately 18.1% equity interest in IBG LLC and our controlling interest and related rights as the sole managing member of IBG LLC and, as such, we operate and control all of the business and affairs of IBG LLC and are able to consolidate IBG LLC s financial results

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into our financial statements. We have no independent means of generating revenues. IBG LLC is treated as a partnership for U.S. federal income tax purposes and, as such, is not subject to U.S. federal income tax. Instead, its taxable income is allocated on a pro rata basis to Holdings and us. Accordingly, we incur income taxes on our proportionate share of the net taxable income of IBG LLC, and also incur expenses related to our operations. We intend to cause IBG LLC to distribute cash to its members in amounts at least equal to that necessary to cover their tax liabilities, if any, with respect to the earnings of IBG LLC. To the extent we need funds to pay such taxes, or for any other purpose, and IBG LLC is unable to provide such funds, it could have a material adverse effect on our business, financial condition and results of operations.

We are required to pay Holdings for the benefit relating to additional tax depreciation or amortization deductions we claim as a result of the tax basis step-up our subsidiaries received in connection with our IPO and certain subsequent redemptions of Holdings membership interests.

In connection with our IPO, we purchased interests in IBG LLC from Holdings for cash. In connection with redemptions of Holdings membership interests, we acquired additional interests in IBG LLC by issuing shares of Class A common stock in exchange for an equivalent number of shares of member interests in IBG LLC (the Redemptions). In addition, IBG LLC membership interests held by Holdings may be sold in the future to us and financed by our issuances of shares of our common stock. The initial purchase and the Redemptions did, and the subsequent purchases may, result in increases in the tax basis of the tangible and intangible assets of IBG LLC and its subsidiaries that otherwise would not have been available. Such increase will be approximately equal to the amount by which our stock price at the time of the purchase exceeds the income tax basis of the assets of IBG LLC underlying the IBG LLC interests acquired by us. These increases in tax basis will result in increased deductions in computing our taxable income and resulting tax savings for us generally over the 15 year period which commenced with the initial purchase. We have agreed to pay 85% of these tax savings, if any, to Holdings as they are realized as additional consideration for the IBG LLC interests that we acquire.

As a result of the IPO and the Redemptions by Holdings, the increase in the tax basis attributable to our interest in IBG LLC is $1.3 billion. The tax savings that we would actually realize as a result of this increase in tax basis likely would be significantly less than this amount multiplied by our effective tax rate due to a number of factors, including the allocation of a portion of the increase in tax basis to foreign or non-depreciable fixed assets, the impact of the increase in the tax basis on our ability to use foreign tax credits and the rules relating to the amortization of intangible assets, for example. Based on facts and assumptions as of December 31, 2018, including that subsequent purchases of IBG LLC interests will occur in fully taxable transactions, the potential tax basis increase resulting from the historical and future purchases of the IBG LLC interests held by Holdings could be as much as $12.8 billion. The Tax Receivable Agreement requires 85% of such tax savings, if any, to be paid to Holdings, with the balance to be retained by us. The actual increase in tax basis depends, among other factors, upon the price of shares of our common stock at the time of the purchase and the extent to which such purchases are taxable and, as a result, could differ materially from this amount. Our ability to achieve benefits from any such increase, and the amount of the payments to be made under the Tax Receivable Agreement, depends upon a number of factors, as discussed above, including the timing and amount of our future income.

The tax basis of $12.8 billion assumes that (a) all remaining IBG LLC membership interests held by Holdings are purchased by us in a taxable transaction and (b) such purchases in the future are made at prices that reflect the closing share price as of December 31, 2018. In order to have a $12.8 billion tax basis, the offering price per share of Class A common stock in such future public offering will need to exceed the then current cost basis per share of Class A common stock by approximately $39.36.

If either immediately before or immediately after any purchase or the related issuance of our stock, the Holdings members own or are deemed to own, in the aggregate, more than 20% of our outstanding common stock, then all or part of any increase in the tax basis of goodwill may not be amortizable and, thus, our ability to realize the annual tax savings that otherwise would have resulted if such tax basis were amortizable may be significantly reduced. Although the Holdings members are prohibited under the Exchange Agreement from purchasing shares of Class A common stock in a public offering, grants of our common stock to employees and directors who are also members or related to members of Holdings and the application of certain tax attribution rules, such as among family members and partners in a partnership, could result in Holdings members being deemed for tax purposes to own shares of Class A common stock.

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If the Internal Revenue Services (IRS) successfully challenges the tax basis increase, under certain circumstances, we could be required to make payments to Holdings under the Tax Receivable Agreement in excess of our cash tax savings.

Future sales of our common stock in the public market could lower our stock price, and any additional capital raised by us through the sale of equity or convertible securities may dilute your ownership in us.

The members of Holdings have the right to cause the redemption of their Holdings membership interests over time in connection with offerings of shares of our common stock. We intend to sell additional shares of common stock in public offerings in the future, which may include offerings of our common stock to finance future purchases of IBG LLC membership interests which, in turn, will finance corresponding redemptions of Holdings membership interests. These offerings and related transactions are anticipated to occur at least annually into the future. The size and occurrence of these offerings may be affected by market conditions. We may also issue additional shares of common stock or convertible debt securities to finance future acquisitions or business combinations. We currently have approximately 75 million outstanding shares of common stock. Assuming no anti-dilution adjustments based on combinations or divisions of our common stock, the offerings referred to above could result in the issuance by us of up to an additional approximately 339 million shares of common stock. It is possible, however, that such shares could be issued in one or a few large transactions.

We cannot predict the size of future issuances of our common stock or the effect, if any, that future issuances and sales of shares of our common stock may have on the market price of our common stock. Sales of substantial amounts of our common stock (including shares issued in connection with an acquisition), or the perception that such sales could occur, may cause the market price of our common stock to decline.

Certain provisions in our amended and restated certificate of incorporation may prevent efforts by our stockholders to change our direction or management.

Provisions contained in our amended and restated certificate of incorporation could make it more difficult for a third party to acquire us, even if doing so might be beneficial to our stockholders. For example, our amended and restated certificate of incorporation authorizes our board of directors to determine the rights, preferences, privileges and restrictions of unissued series of preferred stock, without any vote or action by our stockholders. We could issue a series of preferred stock that could impede the completion of a merger, tender offer or other takeover attempt. These provisions may discourage potential acquisition proposals and may delay, deter or prevent a change of control of us, including through transactions, and, in particular, unsolicited transactions, that some or all of our stockholders might consider to be desirable. As a result, efforts by our stockholders to change our direction or management may be unsuccessful.

Risks Related to Our Business

Our business may be harmed by global events beyond our control, including overall slowdowns in securities trading.

Like other brokerage and financial services firms, our business and profitability are directly affected by elements that are beyond our control, such as economic and political conditions, broad trends in business and finance, changes in volume of securities and futures transactions, changes in the markets in which such transactions occur and changes in how such transactions are processed. A weakness in equity markets, such as a slowdown causing reduction in trading volume in U.S. or foreign securities and derivatives, has historically resulted in reduced transaction revenues and would have a material adverse effect on our business, financial condition and results of operations.

Our business could be harmed by a systemic market event.

Some market participants could be overleveraged. In case of sudden, large price movements, such market participants may not be able to meet their obligations to brokers who, in turn, may not be able to meet their obligations to their counterparties. As a result, the financial system or a portion thereof could collapse, and the impact of such an event could be catastrophic to our business.

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Our future success will depend on our response to the demand for new services, products and technologies.

The demand for market making services, particularly services that rely on electronic communications gateways, is characterized by:

- rapid technological change;
- changing customer demands;
- the need to enhance existing services and products or introduce new services and products; and
- evolving industry standards.

New services, products and technologies may render our existing services, products and technologies less competitive. Our future success will depend, in part, on our ability to respond to the demand for new services, products and technologies on a timely and cost-effective basis and to adapt to technological advancements and changing standards to address the increasingly sophisticated requirements and varied needs of our customers and prospective customers. We cannot assure you that we will be successful in developing, introducing or marketing new services, products and technologies. In addition, we may experience difficulties that could delay or prevent the successful development, introduction or marketing of these services and products, and our new service and product enhancements may not achieve market acceptance. Any failure on our part to anticipate or respond adequately to technological advancements, customer requirements or changing industry standards, or any significant delays in the development, introduction or availability of new services, products or enhancements could have a material adverse effect on our business, financial condition and results of operations.

Our reliance on our computer software could cause us great financial harm in the event of any disruption or corruption of our computer software. We may experience technology failures while developing our software.

We rely on our computer software to receive and properly process internal and external data. Any disruption for any reason in the proper functioning or any corruption of our software or erroneous or corrupted data may cause us to make erroneous trades or suspend our services and could cause us great financial harm. To maintain our competitive advantage, our software is under continuous development. As we identify and enhance our software, there is risk that software failures may occur and result in service interruptions and have other unintended consequences.

We depend on our proprietary technology, and our future results may be impacted if we cannot maintain technological superiority in our industry.

Our success in the past has largely been attributable to our sophisticated proprietary technology that has taken many years to develop. We have benefited from the fact that the type of proprietary technology equivalent to that which we employ has not been widely available to our competitors. If our technology becomes more widely available to our current or future competitors for any reason, our operating results may be adversely affected. Additionally, adoption or development of similar or more advanced technologies by our competitors may require that we devote substantial resources to the development of more advanced technology to remain competitive. The markets in which we compete are characterized by rapidly changing technology, evolving industry standards and changing trading systems, practices and techniques. Although we have been at the forefront of many of these developments in the past, we may not be able to keep up with these rapid changes in the future, develop new technology, realize a return on amounts invested in developing new technologies or remain competitive in the future.

The loss of our key employees would materially adversely affect our business.

Our key executives have substantial experience and have made significant contributions to our business, and our continued success is dependent upon the retention of our key management executives, as well as the services provided by our staff of trading system, technology and programming specialists and a number of other key managerial, marketing, planning, financial, technical and operations personnel. The loss of such key personnel could have a material adverse effect on our business. Growth in our business is dependent, to a large degree, on our ability to retain and attract such employees.

We may not pay dividends on our common stock at any time in the foreseeable future.

As a holding company for our interest in IBG LLC, we will be dependent upon the ability of IBG LLC to generate earnings and cash flows and distribute them to us so that we may pay any dividends to our stockholders. To the extent (if any) that we have excess cash, any decision to declare and pay dividends in the future will be made at the discretion of our board of directors and will depend on, among other things, our results of operations, financial conditions, cash requirement, contractual restrictions and other factors that our board of directors may deem relevant. Since the second quarter of 2011, we have declared and paid a quarterly cash dividend of $0.10 per share. Although not required, we currently intend to pay quarterly dividends of $0.10 per share to our common stockholders for the foreseeable future.

Our future efforts to sell shares or raise additional capital may be delayed or prohibited by regulations.

As certain of our subsidiaries are members of FINRA, we are subject to certain regulations regarding changes in control of our ownership. FINRA Rule 1017 generally provides that FINRA approval must be obtained in connection with any transaction resulting in a change in control of a member firm. FINRA defines control as ownership of 25% or more of the firm s equity by a single entity or person and would include a change in control of a parent company. IBUK, THC, IBC, and IBHK are subject to similar change in control regulations promulgated by the FCA in the United Kingdom, the IIROC in Canada and the SFC in Hong Kong, respectively. As a result of these regulations, our future efforts to sell shares or raise additional capital may be delayed or prohibited. We may be subject to similar restrictions in other jurisdictions in which we operate.

Regulatory and legal uncertainties could harm our business.

The securities and derivatives businesses are heavily regulated. Firms in financial service industries have been subject to an increasingly regulated environment over recent years, and penalties and fines sought by regulatory authorities have increased accordingly. This regulatory and enforcement environment has created uncertainty with respect to various types of transactions that historically had been entered into by financial services firms and that were generally believed to be permissible and appropriate. Our broker-dealer subsidiaries are subject to regulations in the U.S. and abroad covering all aspects of their business. Regulatory bodies include, in the U.S., the SEC, FINRA, the Board of Governors of the Federal Reserve System, the Chicago Board Options Exchange, the Chicago Mercantile Exchange, the CFTC, and the NFA; in Canada, the IIROC and various Canadian securities commissions; in the United Kingdom, the FCA; in Switzerland, FINMA; in India, the Securities and Exchange Board of India; in Hong Kong, the SFC; in Australia, the Australian Securities and Investment Commission; and in Japan, the FSA and the Japan Securities Dealers Association. Our mode of operation and profitability may be directly affected by additional legislation changes in rules promulgated by various domestic and foreign government agencies and self-regulatory organizations that oversee our businesses, and changes in the interpretation or enforcement of existing laws and rules, including the potential imposition of transaction taxes. Noncompliance with applicable laws or regulations could result in sanctions being levied against us, including fines and censures, suspension or expulsion from a certain jurisdiction or market or the revocation or limitation of licenses. Noncompliance with applicable laws or regulations could adversely affect our reputation, prospects, revenues and earnings. In addition, changes in current laws or regulations or in governmental policies could adversely affect our business, financial condition and results of operations.

Domestic and foreign stock exchanges, other self-regulatory organizations and state and foreign securities commissions can censure, fine, issue cease-and-desist orders, suspend or expel a broker-dealer or any of its officers or employees. Our ability to comply with all applicable laws and rules is largely dependent on our internal system to ensure compliance, as well as our ability to attract and retain qualified compliance personnel. We could be subject to disciplinary or other actions in the future due to claimed noncompliance, which could have a material adverse effect on our business, financial condition and results of operations. To continue to operate and to expand our services internationally, we may have to comply with the regulatory controls of each country in which we conduct, or intend to conduct business, the requirements of which may not be clearly defined. The varying compliance requirements of these different regulatory jurisdictions, which are often unclear, may limit our ability to continue existing international operations and further expand internationally.

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Our direct market access clearing and non-clearing brokerage operations face intense competition.

With respect to our direct market access brokerage business, the market for electronic and interactive bidding, offering and trading services in connection with equities, options and futures is rapidly evolving and intensely competitive. We expect competition to continue and intensify in the future. Our current and potential future competition principally comes from five categories of competitors:

- prime brokers who, in an effort to satisfy the demands of their customers for hands-on electronic trading facilities, universal access to markets, smart routing, better trading tools, lower commissions and financing rates, have embarked upon building such facilities and product enhancements;
- direct market access and online options and futures firms;
- direct market access and online equity brokers;
- software development firms and vendors who create global trading networks and analytical tools and make them available to brokers; and
- traditional brokers.

In addition, we compete with financial institutions, mutual fund sponsors and other organizations, many of which provide online, direct market access or other investing services. A number of brokers provide our technology and execution services to their customers, and these brokers will become our competitors if they develop their own technology. Some of our competitors in this area have greater name recognition, longer operating histories and significantly greater financial, technical, marketing and other resources than we have and offer a wider range of services and financial products than we do. Some of our competitors may also have an ability to charge lower commissions. We cannot assure you that we will be able to compete effectively or efficiently with current or future competitors. These increasing levels of competition in the online trading industry could significantly harm this aspect of our business.

We are subject to potential losses as a result of our clearing and execution activities.

As a clearing member firm providing financing services to certain of our brokerage customers, we are ultimately responsible for their financial performance in connection with various stock, options and futures transactions. Our clearing operations require a commitment of our capital and, despite safeguards implemented by our software, involve risks of losses due to the potential failure of our customers to perform their obligations under these transactions. If our customers default on their obligations, we remain financially liable for such obligations, and although these obligations are collateralized, we are subject to market risk in the liquidation of customer collateral to satisfy those obligations. There can be no assurance that our risk management procedures will be adequate. Any liability arising from clearing operations could have a material adverse effect on our business, financial condition and results of operations.

As a clearing member firm of securities and commodities clearing houses in the U.S. and abroad, we are also exposed to clearing member credit risk. Securities and commodities clearing houses require member firms to deposit cash and/or government securities to a clearing fund. If a clearing member defaults in its obligations to the clearing house in an amount larger than its own margin and clearing fund deposits, the shortfall is absorbed pro rata from the deposits of the other clearing members. Many clearing houses of which we are members also have the authority to assess their members for additional funds if the clearing fund is depleted. A large clearing member default could result in a substantial cost to us if we are required to pay such assessments.

We are exposed to risks associated with our international operations.

During 2018, approximately 21% of our net revenues were generated by our operating companies outside the U.S. We are exposed to risks and uncertainties inherent in doing business in international markets, particularly in the heavily regulated brokerage industry. Such risks and uncertainties include political, economic and financial instability; unexpected changes in regulatory requirements, tariffs and other trade barriers; exchange rate fluctuations; applicable currency controls; and difficulties in staffing, including reliance on newly hired local experts, and managing foreign operations. These risks could cause a material adverse effect on our business, financial condition and results of operations.

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We do not have fully redundant systems. System failures could harm our business.

If our systems fail to perform, we could experience unanticipated disruptions in operations, slower response times or decreased customer service and customer satisfaction. Our ability to facilitate transactions successfully and provide high quality customer service also depends on the efficient and uninterrupted operation of our computer and communications hardware and software systems. Our service has experienced periodic system interruptions, which we believe will continue to occur from time to time. Our systems and operations also are vulnerable to damage or interruption from human error, natural disasters, power loss, telecommunication failures, break-ins, sabotage, computer viruses, intentional acts of vandalism and similar events. While we currently maintain redundant servers to provide limited service during system disruptions, we do not have fully redundant systems, and our formal disaster recovery plan does not include restoration of all services. For example, we have backup facilities at our disaster recovery site that enable us, in the case of complete failure of our main North America data center, to recover and complete all pending transactions, provide customers with access to their accounts to deposit or withdraw money, transfer positions to other brokers and manage their risk by continuing trading through the use of marketable orders. These backup services are currently limited to U.S. markets. We do not currently have separate backup facilities dedicated to our non-U.S. operations. It is our intention to provide for and progressively deploy backup facilities for our global facilities over time. In addition, we do not carry business interruption insurance to compensate for losses that could occur to the extent not required. Any system failure that causes an interruption in our service or decreases the responsiveness of our service could impair our reputation, damage our brand name and materially adversely affect our business, financial condition and results of operations.

Failure of third-party systems on which we rely could adversely affect our business.

We rely on certain third-party computer systems or third-party service providers, including clearing systems, exchange systems, Internet service, communications facilities and other facilities. Any interruption in these third-party services, or deterioration in their performance, could be disruptive to our business. If our arrangement with any third party is terminated, we may not be able to find an alternative source of systems support on a timely basis or on commercially reasonable terms. This could have a material adverse effect on our business, financial condition and results of operations.

Internet-related issues may reduce or slow the growth in the use of our services in the future.

Critical issues concerning the commercial use of the Internet, such as ease of access, security, privacy, reliability, cost, and quality of service, remain unresolved and may adversely impact the growth of Internet use. If Internet usage continues to increase rapidly, the Internet infrastructure may not be able to support the demands placed on it by this growth, and its performance and reliability may decline. Although our larger institutional customers use leased data lines to communicate with us, our ability to increase the speed with which we provide services to consumers and to increase the scope and quality of such services is limited by and dependent upon the speed and reliability of our customers access to the Internet, which is beyond our control. If periods of decreased performance, outages or delays on the Internet occur frequently or other critical issues concerning the Internet are not resolved, overall Internet usage or usage of our web based products could increase more slowly or decline, which could have a material adverse effect on our business, financial condition and results of operations.

Our computer infrastructure may be vulnerable to security breaches. Any such problems could jeopardize confidential information transmitted over the Internet, cause interruptions in our operations or cause us to have liability to third persons.

Our computer infrastructure is potentially vulnerable to physical or electronic computer break-ins, viruses and similar disruptive problems and security breaches. Any such problems or security breaches could cause us to have liability to one or more third parties, including our customers, and disrupt our operations. A party able to circumvent our security measures could misappropriate proprietary information or customer information, jeopardize the confidential nature of information transmitted over the Internet or cause interruptions in our operations. Concerns over the security of Internet transactions and the privacy of users could also inhibit the growth of the Internet or the electronic brokerage industry in general, particularly as a means of conducting commercial transactions. To the extent that our activities involve the storage and transmission of proprietary information such as personal financial information, security breaches could expose us to a risk of financial loss, litigation and other liabilities. Our estimated annual losses from reimbursements to customers whose accounts

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have been negatively affected by unauthorized access have historically been less than $500,000 annually and effectively zero since the widespread introduction of our Secure Login System. Our current insurance program may protect us against some, but not all, of such losses. Any of these events, particularly if they (individually or in the aggregate) result in a loss of confidence in our company or electronic brokerage firms in general, could have a material adverse effect on our business, financial condition and results of operations.

We may not be able to protect our intellectual property rights or may be prevented from using intellectual property necessary for our business.

We rely primarily on trade secret, contract, copyright, patent and trademark laws to protect our proprietary technology. It is possible that third parties may copy or otherwise obtain and use our proprietary technology without authorization or otherwise infringe on our rights. We may also face claims of infringement that could interfere with our ability to use technology that is material to our business operations.

In the future, we may have to rely on litigation to enforce our intellectual property rights, protect our trade secrets, determine the validity and scope of the proprietary rights of others or defend against claims of infringement or invalidity. Any such litigation, whether successful or unsuccessful, could result in substantial costs and the diversion of resources and the attention of management, any of which could negatively affect our business.

We are subject to risks relating to litigation and potential securities laws liability.

We are exposed to substantial risks of liability under federal and state securities laws, other federal and state laws and court decisions, as well as rules and regulations promulgated by the SEC, the CFTC, the Federal Reserve, state securities regulators, self-regulatory organizations and foreign regulatory agencies. We are also subject to the risk of litigation and claims that may be without merit. We could incur significant legal expenses in defending ourselves against and resolving lawsuits or claims. An adverse resolution of any future lawsuits or claims against us could result in a negative perception of the Company and have a material adverse effect on our business, financial condition and results of operations. See Legal Proceedings and Regulatory Matters in Part I, Item 3 of this Annual Report on Form 10-K.

We are subject to counterparty risk whereby defaults by parties with whom we do business can have an adverse effect on our business, financial condition and results of operations.

In our electronic brokerage business, our customer margin credit exposure is to a great extent mitigated by our policy of automatically evaluating each account throughout the trading day and closing out positions automatically for accounts that are found to be under-margined. While this methodology is effective in most situations, it may not be effective in situations in which no liquid market exists for the relevant securities or commodities or in which, for any reason, automatic liquidation for certain accounts has been disabled. If no liquid market exists or automatic liquidation has been disabled, we are subject to risks inherent in extending credit, especially during periods of rapidly declining markets. Any loss or expense incurred due to defaults by our customers in failing to repay margin loans or to maintain adequate collateral for these loans would cause harm to our business, financial condition and results of operations.

Any future acquisitions may result in significant transaction expenses, integration and consolidation risks and risks associated with entering new markets, and we may be unable to profitably operate our consolidated company.

Although our growth strategy has not focused historically on acquisitions, we may in the future engage in evaluations of potential acquisitions and new businesses. We may not have the financial resources necessary to consummate any acquisitions in the future or the ability to obtain the necessary funds on satisfactory terms. Any future acquisitions may result in significant transaction expenses and risks associated with entering new markets in addition to integration and consolidation risks. Because acquisitions historically have not been a core part of our growth strategy, we have little experience in successfully utilizing acquisitions. We may not have sufficient management, financial and other resources to integrate any such future acquisitions or to successfully operate new businesses and we may be unable to profitably operate our expanded company.

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Because our revenues and profitability depend on trading volume, they are prone to significant fluctuations and are difficult to predict.

Our revenues are dependent on the level of trading activity on securities and derivatives exchanges in the U.S. and abroad. In the past, our revenues and operating results have varied significantly from period to period primarily due to the willingness of market maker competitors to trade more aggressively by decreasing their bid/offer spreads and thereby assuming more risk in order to acquire market share, to movements and trends in the underlying markets, to fluctuations in trading levels and also due to the curtailing of our market making activities. As a result, period to period comparisons of our revenues and operating results may not be meaningful, and future revenues and profitability may be subject to significant fluctuations or declines.

We may incur material trading losses from our market making activities.

A portion of our revenues and operating profits is derived from our trading as principal in our role as a market maker. We may incur trading losses relating to these activities since each primarily involves the purchase or sale of securities for our own account. In any period, we may incur trading losses in a significant number of securities for a variety of reasons including:

- price changes in securities;
- lack of liquidity in securities in which we have positions; and
- the required performance of our market making obligations.

These risks may limit or restrict our ability to either resell securities we purchased or to repurchase securities we sold. In addition, we may experience difficulty borrowing securities to make delivery to purchasers to whom we sold short, or lenders from whom we have borrowed. From time to time, we have large position concentrations in securities of a single issuer or issuers engaged in a specific industry or traded in a particular market. Such a concentration could result in higher trading losses than would occur if our positions and activities were less concentrated.

In our role as a market maker, we attempt to derive a profit from the difference between the prices at which we buy and sell, or sell and buy, securities. However, competitive forces often require us to match the quotes other market makers display and to hold varying amounts of securities in inventory. By having to maintain inventory positions, we are subjected to a high degree of risk. We cannot assure you that we will be able to manage such risk successfully or that we will not experience significant losses from such activities, which could have a material adverse effect on our business, financial condition and results of operations.

Reduced spreads in securities pricing, levels of trading activity and trading through market makers could harm our business.

Computer-generated buy/sell programs and other technological advances and regulatory changes in the marketplace may continue to tighten spreads on securities transactions. Tighter spreads and increased competition could make the execution of trades and market making activities less profitable. In addition, alternative trading systems such as ECNs are an alternative for individual and institutional investors, as well as broker-dealers, to avoid directing their trades through market makers, and could result in reduced revenues derived from our market making business.

We may incur losses in our market making activities in the event of failures of our proprietary pricing model.

The success of our market making business is substantially dependent on the accuracy of our proprietary pricing mathematical model, which continuously evaluates and monitors the risks inherent in our portfolio, assimilates market data and reevaluates our outstanding quotes many times per second. Our model is designed to automatically rebalance our positions throughout the trading day to manage risk exposures on our positions in options, futures and the underlying securities. In the event of a flaw in our pricing model and/or a failure in the related software, our pricing model may lead to unexpected and/or unprofitable trades, which may result in material trading losses.

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The valuation of the financial instruments we hold may result in large and occasionally anomalous swings in the value of our positions and in our earnings in any period.

The market prices of our long and short positions are reflected on our books at closing prices which are typically the last trade price before the official close of the primary exchange on which each such security trades. Given that we manage a globally integrated portfolio, we may have large and substantially offsetting positions in securities that trade on different exchanges that close at different times of the trading day. As a result, there may be large and occasionally anomalous swings in the value of our positions daily and, accordingly, in our earnings in any period. This is especially true on the last business day of each calendar quarter.

We are exposed to losses due to lack of perfect information.

As market makers, we provide liquidity by buying from sellers and selling to buyers. Quite often, we trade with others who have different information than we do, and as a result, we may accumulate unfavorable positions preceding large price movements in companies. Should the frequency or magnitude of these events increase, our losses will likely increase correspondingly.

Rules governing designated market makers may require us to make unprofitable trades or prevent us from making profitable trades.

Designated market makers are granted certain rights and have certain obligations to make a market in a particular security. They agree to specific obligations to maintain a fair and orderly market. In acting as a designated market maker, we are subjected to a high degree of risk by having to support an orderly market. In this role, we may at times be required to make trades that adversely affect our profitability. In addition, we may at times be unable to trade for our own account in circumstances in which it may be to our advantage to trade, and we may be obligated to act as a principal when buyers or sellers outnumber each other. In those instances, we may take a position counter to the market, buying or selling securities to support an orderly market. Additionally, the rules of the markets which govern our activities as a designated market maker are subject to change. If these rules are made more stringent, our trading revenues and profits as designated market maker could be adversely affected.

We face competition in our market making activities.

In our market making activities, we compete with other firms based on our ability to provide liquidity at competitive prices and to attract order flow. These firms include registered market makers as well as HFTs that act as market makers. Both types of competitors range from sole proprietors with very limited resources to a few highly sophisticated groups which have substantially greater financial and other resources, including research and development personnel, than we do. These larger and better capitalized competitors may be better able to respond to changes in the market making industry, to compete for skilled professionals, to finance acquisitions, to fund internal growth and to compete for market share generally. HFTs that are not registered market makers have certain advantages over registered market making firms that may allow them to bypass regulatory restrictions and trade more quickly and cheaply than registered market makers at some exchanges. We may not be able to compete effectively against HFTs or market makers with greater financial resources, and our failure to do so could materially and adversely affect our business, financial condition and results of operations. As in the past, we may in the future face enhanced competition, resulting in narrowing bid/offer spreads in the marketplace that may adversely impact our financial performance. This is especially likely if HFTs continue to receive advantages in capturing order flow or if others can acquire systems that enable them to predict markets or process trades more efficiently than we can.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our headquarters are located in Greenwich, Connecticut. We also lease facilities in 21 other locations throughout parts of the world where we conduct our operations as set forth below. Unless otherwise indicated, all properties are used by both our electronic brokerage and market making segments. We believe our present facilities, together with our current options to extend lease terms, are adequate for our current needs.

The following table sets forth certain information with respect to our leased facilities:

Location	Space (sq. feet)	Expiration	Principal Usage
North America			
Greenwich, CT	163,510	2030	Headquarters and data center
Greenwich, CT	42,196	2019	Office space
Chicago, IL	60,276	2026	Office space
Chicago, IL	4,000	2021	Data center
Washington, D.C.	8,884	2024	Office space
West Palm Beach, FL	8,509	2026	Office space
Montreal, Canada	4,566	2019	Office space
Vancouver, Canada	2,737	2021	Office space
Boston, MA	2,348	2021	Office space
San Francisco, CA	833	2019	Office space
Secaucus, NJ	5,785	2022	Data center and office space
Europe			
Zug, Switzerland	19,246	2019	Office space
Zug, Switzerland	4,435	2021	Office space
Zurich, Switzerland	4,000	2019	Data center
London, United Kingdom	12,969	2023	Office space
Tallinn, Estonia	11,010	2023	Office space
Luxembourg City, Luxembourg	8,533	2023	Office space
Budapest, Hungary	6,412	2019	Office space
St. Petersburg, Russia	2,742	2019	Office space
Vaduz, Liechtenstein	2,368	2021	Office space
Asia - Pacific			
Mumbai, India	30,985	2023	Office space
Mumbai, India	12,061	2020	Office space
Mumbai, India	11,229	2022	Office space
Hong Kong	10,826	2021	Office space
Hong Kong	6,739	2022	Office space
Hong Kong	4,000	2020	Data center
Shanghai, China	7,648	2021	Office space

Sydney, Australia	3,358	2023	Office space
Tokyo, Japan	2,161	2019	Office space

ITEM 3. LEGAL PROCEEDINGS AND REGULATORY MATTERS

The securities and commodities industry is highly regulated and many aspects of our business involve substantial risk of liability. In recent years, there has been an increasing incidence of litigation involving the brokerage industry, including class action suits that generally seek substantial damages, including in some cases punitive damages. Compliance and trading problems that are reported to federal, state and provincial regulators, exchanges or other self-regulatory organizations by dissatisfied customers are investigated by such regulatory bodies, and, if pursued by such regulatory body or such customers, may rise to the level of arbitration or disciplinary action. We are also subject to periodic regulatory audits and inspections.

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Like other brokerage firms, we have been named as a defendant in lawsuits and from time to time we have been threatened with, or named as a defendant in arbitrations and administrative proceedings. The following contains information regarding potentially material pending litigation and pending regulatory inquiries. We may in the future become involved in additional litigation or regulatory proceedings in the ordinary course of our business, including litigation or regulatory proceedings that could be material to our business.

Trading Technologies Matter

On February 3, 2010, Trading Technologies International, Inc. (Trading Technologies) filed a complaint in the U.S. District Court for the Northern District of Illinois, Eastern Division, against IBG, Inc., IBG LLC, Holdings, and IB LLC. Thereafter, Trading Technologies dismissed IBG, Inc. and Holdings from the case, leaving only IBG LLC and IB LLC as defendants (Defendants). The operative complaint, as amended, alleges that the Defendants have infringed and continue to infringe twelve U.S. patents held by Trading Technologies. Trading Technologies is seeking, among other things, unspecified damages and injunctive relief (the Litigation). The Defendants filed an answer to Trading Technologies amended complaint, as well as related counterclaims. The Defendants deny Trading Technologies claims, assert that the asserted patents are not infringed and are invalid, and assert several other defenses as well. Trading Technologies also filed patent infringement lawsuits against approximately a dozen other companies in the same court. The Litigation was consolidated with the other lawsuits filed by Trading Technologies.

The Defendants and/or certain codefendants filed petitions with the United States Patent and Trademark Office (USPTO) for Covered Business Method Review (CBM Review) on the asserted patents. The District Court granted the Defendants motion to stay the Litigation pending the CBM Reviews. The USPTO Patent Trial and Appeal Board (PTAB) found all claims of ten of the twelve asserted patents to be invalid. Of the remaining two patents, 53 of the 56 claims of one patent were held invalid and the other patent survived CBM Review proceedings. Appeals were filed by either Defendants or Trading Technologies on all PTAB determinations.

On February 13, 2019, the United States Court of Appeals for the Federal Circuit issued opinions in the appeals on four patents from the CBM Review determinations. The Federal Circuit vacated the CBM Review determinations of invalidity for these four patents, concluding that these patents were not eligible for CBM Review. At the Federal Circuit s request, the parties filed letter briefs on February 22, 2019, stating how the Federal Circuit should proceed with the other pending appeals. On February 26, 2019, the District Court ordered that the stay be lifted with respect to the four patents that are the subject of the Federal Circuit decision and scheduled trial for February 2020.

While it is difficult to predict the outcome of the matter, the Company believes it has meritorious defenses to the allegations made in the complaint and intends to defend itself vigorously against them. However, litigation is inherently uncertain and there can be no guarantee that the Company will prevail or that the Litigation can be settled on favorable terms.

Class Action Matter

On December 18, 2015, a former individual customer filed a purported class action complaint against IB LLC, IBG, Inc., and Thomas Frank, PhD, the Company s Executive Vice President and Chief Information Officer, in the U.S. District Court for the District of Connecticut. The complaint alleges that the former customer and members of the purported class of IB LLC s customers were harmed by alleged flaws in the computerized system used by the Company to close out (i.e., liquidate) positions in customer brokerage accounts that have margin deficiencies. The complaint seeks, among other things, undefined compensatory damages and declaratory and injunctive relief.

On September 28, 2016, the District Court issued an order granting the Company s motion to dismiss the complaint in its entirety, and without providing plaintiff leave to amend. On September 28, 2017, plaintiff appealed to the United

States Court of Appeals for the Second Circuit. On September 26, 2018 the Court of Appeals affirmed the dismissal of plaintiff s claims of breach of contract and commercially unreasonable liquidation but vacated and remanded back to the District Court plaintiff s claims for negligence. On November 30, 2018, the plaintiff filed a Second Amended Complaint. The Company filed a motion to dismiss the new complaint on January 15, 2019 requesting that the District Court dismiss the remaining negligence claims. Regardless of the ultimate outcome of the motion to dismiss, we do not believe that a purported class action is appropriate given the great differences in portfolios, markets and many other circumstances surrounding

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the liquidation of any particular customer s margin-deficient account. IB LLC and the related defendants intend to continue to defend themselves vigorously against the case and, consistent with past practice in connection with this type of unwarranted action, any potential claims for counsel fees and expenses incurred in defending the case shall be fully pursued against the plaintiff.

Pending Regulatory Inquiries

Our businesses are heavily regulated by state, federal and foreign regulatory agencies as well as numerous exchanges and self-regulatory organizations. Most of our companies are regulated under some or all of the following: state securities laws, U.S. and foreign securities, commodities and financial services laws and the rules of the more than 120 exchanges, market centers and self-regulatory organizations of which one or more of our companies may be members. In the current era of dramatically heightened regulatory scrutiny of financial institutions, we have incurred increased compliance costs, along with the industry as a whole. Increased regulation also creates increased barriers to entry. We have built and continue to build human and automated infrastructure to handle increased regulatory scrutiny, which provides us with a possible advantage over potential newcomers to the business.

We receive thousands of regulatory inquiries each year in addition to being subject to frequent regulatory examinations. The great majority of these inquiries do not lead to fines or any further action against us. Most often, regulators do not inform us as to when and if an inquiry has been concluded. We are currently the subject of active or dormant regulatory inquiries regarding subjects including, but not limited to: audit trail reporting, trade reporting, best execution and order execution procedures, short sales, margin lending, anti-money laundering, procedures for trading and handling low-priced securities, procedures for accounts introduced by financial advisors and other referrers, technology development practices, business continuity planning and other topics of recent regulatory interest. The Company has procedures for evaluating whether potential regulatory fines are probable, estimable and material and for updating its contingency reserves and disclosures accordingly. In the current climate, we expect to pay significant and increasing regulatory fines on various topics on an ongoing basis, as other regulated financial services businesses do. The amount of any fines, and when and if they will be incurred, typically is impossible to predict given the nature of the regulatory process.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY; RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Common Stock Information

Interactive Brokers Group Inc. s Class A common stock trades under the symbol IBKR on the Investors Exchange LLC. As of February 22, 2019, there were six holders of record, which does not reflect those shares held beneficially or those shares held in street name. Accordingly, the number of beneficial owners of our common stock exceeds this number

Dividends and Other Restrictions

We currently intend to pay quarterly dividends of $0.10 per share to our common stockholders for the foreseeable future.

Stockholder Return Performance Graph

The following graph compares cumulative total stockholder return on our common stock, the S&P 500 Index and the NASDAQ Financial-100 Index from December 31, 2013 to December 31, 2018. The comparison assumes $100 was invested on December 31, 2013 in our common stock and each of the foregoing indices and assumes reinvestment of dividends before consideration of income taxes.

(1) The NASDAQ Financial-100 Index includes 100 of the largest domestic and international financial securities listed on The NASDAQ Stock Market based on market capitalization. They include companies classified according to the Industry Classification Benchmark as Financials, which are included within the NASDAQ Bank, NASDAQ Insurance, and NASDAQ Other Finance Indexes.

(2) The S&P 500 Index includes 500 large cap common stocks actively traded in the U.S. The stocks included in the S&P 500 are those of large publicly held companies that trade on either of the two largest American stock markets, the New York Stock Exchange and NASDAQ.

The stock performance depicted in the graph above is not to be relied upon as indicative of future performance. The stock performance graph shall not be deemed to be incorporated by reference into any of our filings under the Securities Act or the Exchange Act, except to the extent that we specifically incorporate the same by reference, nor shall it be deemed to be soliciting material or to be filed with the SEC or subject to Regulations 14A or 14C or to the liabilities of Section 18 of the Exchange Act.

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Use of Proceeds

Purchases of IBG LLC membership interests, held by Holdings, by the Company are governed by the Exchange Agreement, a copy of which was filed as an exhibit to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009 and filed with the SEC on November 9, 2009. The Exchange Agreement, as amended June 6, 2012 and July 23, 2015, provides that the Company may facilitate the redemption by Holdings of interests held by its members through the issuance of shares of common stock through a public offering in exchange for the interests in IBG LLC being redeemed by Holdings. On an annual basis, each holder of a membership interest may request that Holdings redeem the liquefiable portion of that holder s interest. We expect Holdings to use the net proceeds it receives from such sales to redeem an identical number of Holdings membership interests from the requesting holders.

At the time of the Company s IPO in 2007, three hundred sixty (360) million shares of authorized common stock were reserved for future sales and redemptions. From 2008 through 2017, Holdings redeemed 18,871,614 IBG LLC shares with an approximate total value of $525 million, which redemptions were funded using cash on hand at IBG LLC and through issuances of common stock.

On July 27, 2018, the Company issued 1,537,727 shares of Class A common stock (with a fair value of $94 million) to Holdings, for sale for the benefit of, certain of its members in exchange for membership interests in IBG LLC equal in number to such number of shares of common stock issued by the Company. The acquired shares are to be sold for the benefit of certain of the members of Holdings who elected to redeem a portion of their Holdings membership interests in open market transactions pursuant to one or more Rule 10b5-1 trading plans (collectively, the Plans). A portion of the acquired shares was sold during 2018 pursuant to the Plans, in open market transactions. The remaining shares are held for sale under certain conditions, pursuant to the Plans. All sales made pursuant to the Plans are disclosed publicly in accordance with applicable securities laws, rules and regulations through appropriate filings with the SEC, as applicable.

As a consequence of this transaction, IBG, Inc. s interest in IBG LLC increased to approximately 18.1%, with Holdings owning the remaining 81.9%. The redemptions also resulted in an increase in the Holdings interest held by Mr. Thomas Peterffy and his affiliates from approximately 89.2% to approximately 89.6%.

On October 13, 2015, the Company filed a Post-Effective Amendment to multiple Registration Statements filed under the Securities Act of 1933, as amended (the Securities Act) on Form S-8. The Post-Effective Amendment contained a reoffer prospectus that registered 6,400,000 shares of the Company s Class A common stock representing the Company s estimate of shares that will be withheld from employees related to the vesting of restricted stock units, under the amended 2007 Stock Incentive Plan (the SIP Plan), over the next nine years from the time of the filing, based on the tax rates at that time and historical employee elections. The above shares are being issued by the SIP Plan under the following registration statements: Registration No. 333-142686, filed on May 7, 2007; Registration No. 333-174913, filed on June 15, 2011; and Registration No. 333-203358, filed on April 10, 2015.

The SIP Plan provides employees with two options to pay for their withholding tax obligations, which become due when restricted stock units vest into shares: either (1) reimburse the Company via cash payment, or (2) elect to have the Selling Stockholder withhold a portion of the vesting shares. In the case of employees who elect to have IBG LLC withhold shares to cover their tax obligations, those shares are transferred to IBG LLC, which in turn, sells those shares in open market transactions to recover the amount paid to the tax authorities on the employees behalf. For the year ended December 31, 2018 the Company sold 564,141 shares of its Class A common stock withheld from employees (with a fair value of $45 million) in open market transactions. The proceeds were used to reimburse the Company for withholding taxes paid by the Company on the employees behalf.

As per General Instruction C of Form S-8, the sale of the shares described above constitutes a resale or reoffer of the Company s Class A common stock. The Company has re-issued 2,081,152 shares under this reoffer prospectus. The reoffer prospectus allows for future sales by IBG LLC, on a continuous or delayed basis, to the public without restriction.

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Securities Authorized for Issuance under Equity Compensation Plans

The following table provides information about shares of common stock available for future awards under all of the Company s equity compensation plans as of December 31, 2018. The Company has not made grants of common stock outside of its equity compensation plans.

	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options warrants and rights	Number of securities remaining available for future awards under equity compensation plans(1)
Equity compensation plans approved by security holders	N/A	N/A	5,943,616
Equity compensation plans not approved by security holders	N/A	N/A	—
Total	—	—	5,943,616

(1) Amount represents restricted stock units available for future issuance of grants under the Company’s 2007 Stock Incentive Plan.

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ITEM 6. SELECTED FINANCIAL DATA

The following tables set forth selected historical consolidated financial and other data of the Company. They are presented for the years ended, and as of, December 31, 2014, 2015, 2016, 2017, and 2018.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
	(in millions, except share and per share amounts)				
Consolidated Statement of Comprehensive Income Data					
Revenues					
Commissions	$ 777	$ 647	$ 612	$ 617	$ 549
Interest income	1,392	908	606	492	416
Trading gains	39	40	163	269	261
Other (loss) income[(1)]	158	332	94	(122)	(111)
Total revenues	2,366	1,927	1,475	1,256	1,115
Interest expense	463	225	79	67	72
Total net revenues	1,903	1,702	1,396	1,189	1,043
Non-interest expenses					
Execution, clearing and distribution fees	269	241	244	231	212
Fixed expenses	434	410	385	354	322
Customer bad debt[(2)]	4	2	6	146	3
Total non-interest expenses	707	653	635	731	537
Income before income taxes	1,196	1,049	761	458	506
Income tax expense[(1)]	71	256	62	43	47
Net income	1,125	793	699	415	459
Less net income attributable to noncontrolling interests	956	717	615	366	414
Net income available for common stockholders	$ 169	$ 76	$ 84	$ 49	$ 45
Earnings per share					
Basic	$ 2.30	$ 1.09	$ 1.28	$ 0.80	$ 0.79
Diluted	$ 2.28	$ 1.07	$ 1.25	$ 0.78	$ 0.77
Comprehensive income available for common stockholders	$ 156	$ 87	$ 80	$ 39	$ 30
Comprehensive income attributable to	$ 890	$ 771	$ 594	$ 313	$ 322

noncontrolling interests										
Comprehensive earnings per share										
Basic	$	2.12	$	1.24	$	1.21	$	0.64	$	0.52
Diluted	$	2.09	$	1.22	$	1.19	$	0.62	$	0.51
Weighted average common shares outstanding										
Basic		73,438,209		69,926,933		66,013,247		61,043,071		56,492,381
Diluted		74,266,370		70,904,921		67,299,413		62,509,796		57,709,668

(1) The results for 2017 include the impact of the Tax Cuts and Job Act (Tax Act) which was enacted on December 22, 2017. The Tax Act resulted in additional income tax expense of $62 million for the one-time transition tax on deemed repatriation of earnings of some of our foreign subsidiaries and $115 million from the remeasurement of the Company's deferred tax assets at the reduced corporate income tax rate of 21%. Other income includes a $93 million gain from the remeasurement of Tax Receivable Agreement liability, payable to Holdings, which is associated with and offsetting to the expense on remeasurement of deferred tax assets. See Note 4 and Note 11 to the audited consolidated financial statements, in Part II, Item 8 of this Annual Report on Form 10-K.

(2) The results for 2015 include an unusual loss of $137 million. On January 15, 2015, in an unprecedented action, the Swiss National Bank removed a previously instituted and repeatedly confirmed cap of the currency relative to the euro, causing a sudden move in the value of the Swiss franc. Several of our customers holding currency futures and spot positions suffered losses in excess of their deposits with us. We took immediate action to hedge our exposure to the foreign currency receivables from these customers. As of December 31, 2018, we have incurred cumulative losses, net of hedging activity and debt collection efforts, of $116 million. We continue to actively pursue collection of the debts. The ultimate effect of this incident on our results will depend upon the outcome of our debt collection efforts.

	December 31,				
	2018	2017	2016	2015	2014
	(in millions)				
Consolidated Statement of Financial Condition Data					
Cash, cash equivalents and short-term investments(1)	$ 26,937	$ 23,999	$ 26,053	$ 23,105	$ 17,059
Total assets(2),(3)	$ 60,547	$ 61,162	$ 54,673	$ 48,734	$ 43,385
Total liabilities(3)	$ 53,391	$ 54,729	$ 48,853	$ 43,390	$ 38,200
Stockholders' equity	$ 1,282	$ 1,090	$ 974	$ 863	$ 766
Noncontrolling interests	$ 5,874	$ 5,343	$ 4,846	$ 4,481	$ 4,419

(1) Cash, cash equivalents and short-term investments represent cash and cash equivalents, cash and securities segregated under federal and other regulations, short-term investments and securities purchased under agreements to resell.

(2) As of December 31, 2018, approximately $60.2 billion, or 99.5%, of total assets were considered liquid and consisted primarily of cash, marketable securities and collateralized receivables.

(3) As a result of the Company's acquisition from Holdings of IBG LLC membership interests, the Company received not only an interest in IBG LLC but also, for federal income tax purposes, a step-up to the federal income tax basis of the assets of IBG LLC underlying such additional interest. This increased tax basis is expected to result in tax benefits as a result of increased amortization deductions. The Company will retain 15% of the tax benefits actually realized. As set forth in the Tax Receivable Agreement the Company entered into with Holdings, the Company will pay the remaining 85% of the realized tax benefits relating to any applicable tax year to Holdings. The deferred tax asset was $140 million, $146 million, $273 million, $288 million, and $279 million and the corresponding payable to Holdings was $171 million, $187 million, $285 million, $291 million, and $277 million as of December 31, 2018, 2017, 2016, 2015, and 2014, respectively. See Management's Discussion and Analysis of Financial Condition and Results of Operations in Part II, Item 7 of this Annual Report on Form 10-K for additional details related to the impact of the Tax Act on the Company.

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the audited consolidated financial statements and the related notes in Part II, Item 8, of this Annual Report on Form 10-K. In addition to historical information, the following discussion also contains forward-looking statements that include risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of certain factors, including those set forth under the heading Risk Factors in Part I, Item 1A of this Annual Report on Form 10-K.

Business Overview

We are an automated global electronic broker and market maker (although, we have substantially exited our options market making business - see Note 2 - Discontinued Operations and Costs Associated with Exit or Disposal Activities to the audited consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K). We custody and service accounts for hedge and mutual funds, registered investment advisers, proprietary trading groups, introducing brokers and individual investors. We specialize in routing orders and executing and processing trades in securities, futures and foreign exchange instruments on more than 120 electronic exchanges and market centers around the world. Since our inception in 1977, we have focused on developing proprietary software to automate broker-dealer functions. The proliferation of electronic exchanges over nearly the last three decades has provided us with the opportunity to integrate our software with an increasing number of exchanges and market centers into one automatically functioning, computerized platform that requires minimal human intervention.

In connection with our IPO priced on May 3, 2007, IBG, Inc. purchased 10.0% of the membership interests in IBG LLC, became the sole managing member of IBG LLC and began to consolidate IBG LLC s financial results into its financial statements. Our primary assets are our ownership of approximately 18.1% of the membership interests of IBG LLC, the current holding company for our businesses, and our controlling interest and related contractual rights as the sole managing member of IBG LLC. The remaining approximately 81.9% of IBG LLC membership interests are held by Holdings, a holding company that is owned by our founder, Chairman and Chief Executive Officer, Mr. Thomas Peterffy and his affiliates, management and other employees of IBG LLC, and certain other members. The IBG LLC membership interests held by Holdings will be subject to purchase by us over time in connection with offerings by us of shares of our common stock.

Business Segments

We report our results in two operating business segments, electronic brokerage and market making (being discontinued). These segments are analyzed separately as these are the two principal business activities from which we derive our revenues and to which we allocate resources.

Electronic Brokerage. We conduct our electronic brokerage business through certain Interactive Brokers (IB) subsidiaries. As an electronic broker, we execute, clear and settle trades globally for both institutional and individual customers. Capitalizing on our proprietary technology, IB s systems provide our customers with the capability to monitor multiple markets around the world simultaneously and to execute trades electronically in these markets at a low cost, in multiple products and currencies from a single trading account. We offer our customers access to all classes of tradable, primarily exchange-listed products, including stocks, bonds, options, futures, forex and mutual funds traded on more than 120 exchanges and market centers in 29 countries and in 24 currencies seamlessly around the world. The emerging complexity of multiple market centers has provided us with the opportunity of building and continuously adapting our order routing software to secure excellent execution prices.

Our customer base is diverse with respect to geography and segments. Currently, approximately 68% of our customers reside outside the U.S. in over 200 countries and territories, and over 50% of new customers come from outside the

U.S. Approximately 65% of our customers equity is in institutional accounts such as hedge funds, financial advisors, proprietary trading desks and introducing brokers. Specialized products and services that we have developed are successfully attracting these accounts. For example, we offer prime brokerage services, including capital introduction and securities lending to hedge funds; our model portfolio technology and automated share allocation and rebalancing tools are particularly attractive to financial advisors; and our trading platform and low pricing attract introducing brokers.

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We provide a host of analytical and business tools such as Investors Marketplace℠, which allows wealth advisors to search for money managers and assign them to customer accounts based on their investment strategy. EmployeeTrack℠ is widely used by compliance officers of financial institutions to streamline the process of tracking their employees brokerage activities. The Probability Lab® allows our customers to analyze option strategies under various market assumptions. Risk Navigator℠ is a real-time market risk management platform that allows our customers to measure risk exposure across multiple asset classes around the globe. Portfolio Builder℠ allows our customers to set up an investment strategy based on research and rankings from top research providers and fundamental data. IBKR Asset Management recruits registered financial advisors, vets them, analyzes their investment track records, groups them by their risk profile, and allows retail investors to assign their accounts to be traded by one or more advisors. In addition, our Greenwich Compliance affiliate offers direct expert registration and start-up compliance services, as well as answers to basic day-to-day compliance questions for experienced investors and traders looking to start their own investment advisor firms. Greenwich Compliance professionals have regulatory and industry experience, and they can help investment advisors trading on the IB platform meet their registration and compliance needs.

We have recently expanded the range of financial services we offer our customers through our Integrated Investment Management program, where customers can perform many different types of transactions from a single account. Our Interactive Brokers Debit Mastercard® allows customers to spend and borrow directly against their account and to make purchases and ATM withdrawals anywhere Debit Mastercard® is accepted around the world. Our Insured Bank Deposit Sweep Program provides customers with up to $2,500,000 of Federal Deposit Insurance Corporation (FDIC) insurance on their eligible cash balances in addition to the existing $250,000 Securities Investor Protection Corporation (SIPC) coverage, for a maximum coverage of $2,750,000. Bill Pay allows customers to make electronic or check payments in the U.S. It can be configured for one-time or recurring payments and permits customers to schedule future payments. In addition, our customers can now have their paychecks or other recurring payments directly deposited into their brokerage account.

Market Making. As previously announced, we transferred our U.S. options market making operations to Two Sigma Securities, LLC effective September 29, 2017 and also exited the majority of our options market making activities outside the U.S. by December 31, 2017. We intend to continue conducting certain proprietary trading activities in stocks and related instruments to facilitate our electronic brokerage customers trading in products such as ETFs, ADRs, CFDs and other financial instruments, as well as exchange-traded market making activities in a few select markets outside of the U.S. However, we do not expect the facilitation activity to be of sufficient size as to require reporting as a separate segment after we discontinue our options market making activities.

As a market maker, in the few select markets in which we operate, we provide liquidity by offering competitively tight bid/offer spreads over a broad base of tradable, exchange-listed products. As principal, we commit our own capital and derive revenues or incur losses from the difference between the price paid when securities are bought and the price received when those securities are sold. Because we provide continuous bid and offer quotations and we are continuously both buying and selling quoted securities, we may have either a long or a short position in a particular product at a given point in time. Our entire portfolio is evaluated many times per second and continuously rebalanced throughout the trading day, thus minimizing the risk of our portfolio at all times.

The operating business segments are supported by our corporate segment which provides centralized services and executes our currency diversification strategy.

Business Environment

During 2018, U.S. market volatility was significantly higher than in the prior year, reflecting greater geopolitical and economic uncertainty. Equity market indices around the globe were predominantly down, with the S&P 500 index declining 6%, less than the more substantial declines in most European and Asian markets. U.S. interest rates continued on an upward path, while trends in benchmark rates of other currencies were mixed.

Among our customer base, volatility is strongly correlated with customer trading activity across product types. With positive customer account and asset growth, we would expect our customers trading activity to outpace general market volume measures, especially in periods with higher volatility. In addition, higher benchmark interest rates give us an opportunity to earn more net interest income on fully interest-sensitive assets.

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Amid this uncertain market environment, customer account growth remained robust, with total customer accounts increasing 24% from 2017 to 598 thousand. Customer equity increased 3% to $128.4 billion as healthy inflows from customers more than offset securities market declines impacting customers existing positions. Institutional customers, such as hedge funds, mutual funds, introducing brokers, proprietary trading groups and financial advisors, comprised approximately 51% of total accounts and approximately 65% of total customer equity at the end of 2018. We continue to attract large customers that seek our superior technology and execution capabilities, high interest rates on cash balances, and low costs, as well as our securities finance services, including margin lending and short sale support.

The following is a summary of the key profit drivers that affect our business and how they compared to 2017:

Global trading volumes. According to data received from exchanges worldwide, volumes in exchange-listed equity-based options increased by approximately 27% globally and 23% in the U.S. for the year ended December 31, 2018, compared to 2017. During 2018 we accounted for approximately 4.2% (5.1% in 2017) of the exchange-listed equity-based options volume traded worldwide (including options on ETFs and stock index products), and approximately 6.5% (7.7% in 2017) of exchange-listed equity-based options volume traded in the U.S. This decrease was primarily due to exiting our options market making activities in the U.S. It is important to note that although options volume is a readily comparable measure, it reflects only a portion of the volume that generates our commission revenues. See tables on pages 55-56 of this Annual Report on Form 10-K for additional details regarding our trade volumes, contract and share volumes and brokerage statistics.

Volatility. Based on the Chicago Board Options Exchange Volatility Index (VIX®), the average U.S. market volatility increased to 16.6 in 2018, up 49% from the average of 11.1 in 2017. Higher volatility improves our electronic brokerage performance because it generally corresponds to higher trading volumes. In 2018, as the VIX increased, we saw a positive impact on customer trading activity, which rose 25%, and our commissions revenue, which rose 20%.

Interest Rates. The U.S. Federal Reserve continued its series of increases in the target federal funds rate with hikes in March, June, September and December 2018, while rates in other currencies were mixed. Increases in benchmark rates have generally led to higher net interest income and wider net interest margin. Because we pay among the highest rates in the brokerage industry on qualified customer cash balances and charge among the lowest rates on margin borrowings, we attract customers who seek to maximize their yields and minimize their costs. As our margin balances are tied to benchmark rates, rising U.S. interest rates have enhanced the interest we receive on our U.S. dollar customer margin balances. Rising rates also increase the interest we earn on our segregated cash, the majority of which is invested in U.S. government securities and related instruments. Higher rates also raise our interest expense, as we pass along more interest to our customers. We believe our low rates on margin borrowings and high yields on qualified cash balances are important factors that attract customers to our platform.

While the interest we pay on customer cash balances and the interest we earn on customer margin loans is based on fixed spreads around benchmark rates, additional net interest income is earned on non-interest bearing customer balances, e.g., on securities accounts with less than $100,000 in equity, and on rising balances. Electronic brokerage net interest income grew 38%, compared to 2017. During this time, average customer credit balances rose 6% due, in part, to an inflow of new accounts, and average customer margin loan balances increased 26%, due to our customers appetite for increased leverage, along with expanded prime broker financing.

Currency fluctuations. As a global electronic broker and market maker trading on exchanges around the world in multiple currencies, we are exposed to foreign currency risk. We actively manage this exposure by keeping our net worth in proportion to a defined basket of 14 currencies we call the GLOBAL to diversify our risk and to align our hedging strategy with the currencies that we use in our business. Because we report our financial results in U.S. dollars, the change in the value of the GLOBAL versus the U.S. dollar affects our earnings. During 2018 the value of the GLOBAL, as measured in U.S. dollars, decreased 1.14% compared to its value as of December 31, 2017, which had a negative impact on our comprehensive earnings for 2018.

A discussion of our approach for managing foreign currency exposure is contained in Part II, Item 7A of this Annual Report on Form 10-K entitled Quantitative and Qualitative Disclosures about Market Risk.

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Financial Overview

Diluted earnings per share were $2.28 for the year ended December 31, 2018 (current year), compared to diluted earnings per share of $1.07 for the year ended December 31, 2017 (prior year). The calculation of diluted earnings per share is detailed in Note 4 to the audited consolidated financial statements, in Part II, Item 8 of this Annual Report on Form 10-K.

Diluted earnings per share on comprehensive income were $2.09 for the current year, compared to $1.22 for the prior year.

In connection with our currency diversification strategy (i.e., GLOBALs) as of December 31, 2018, approximately 30% of our equity was denominated in currencies other than the U.S. dollar. In the current year, our currency diversification strategy decreased our comprehensive earnings by $99 million (compared to an increase of $175 million in the prior year), as the U.S. dollar value of the GLOBAL decreased by approximately 1.14%, compared to its value as of December 31, 2017. The effects of our currency diversification strategy are reported as (1) a component of other income in the consolidated statement of comprehensive income and (2) OCI in the consolidated statement of financial condition and the consolidated statement of comprehensive income. The full effect of the GLOBAL is captured in comprehensive income.

Consolidated: For the current year, our net revenues were $1,903 million and income before income taxes was $1,196 million, compared to net revenues of $1,702 million and income before income taxes of $1,049 million in the prior year. The increase in income before income taxes in the current year was mainly driven by a 36% increase in net interest income and a 20% increase in commissions, partially offset by a 52% decrease in other income. Our pre-tax profit margin was 63%, compared to 62% for the prior year.

The results for the prior year were negatively impacted by the effects of the Tax Cuts and Jobs Act (the Tax Act), enacted on December 22, 2017. The Tax Act significantly revised U.S. corporate income tax law by, among other things, reducing the corporate income tax rate from 35% to 21% and implementing a modified territorial tax system that includes a one-time transition tax on deemed repatriated earnings of foreign subsidiaries. As a result of the Tax Act, the prior year includes a net reduction in consolidated earnings of approximately $84 million, of which $62 million was due to the one-time repatriation tax and a net $22 million was related to the remeasurement of our U.S. deferred tax assets at lower enacted corporate tax rates. The effects of the Tax Act are further detailed in Note 11 to the audited consolidated financial statements, in Part II, Item 8 of this Annual Report on Form 10-K.

Electronic Brokerage: For the current year, income before income taxes in our electronic brokerage segment increased $317 million, or 37%, compared to the prior year, driven by higher net interest income, commissions revenue and other income, partially offset by higher expenses in the areas of general and administrative; execution, clearing and distribution fees; and employee compensation and benefits. Net revenues increased 31%, mainly from a 38% increase in net interest income, driven by higher Federal Funds rates and higher average customer credit and margin loan balances; a 20% increase in commissions, primarily driven by higher options and futures contract volumes; and a 56% increase in other income led by a $9 million net mark-to-market gain on our U.S. government securities portfolio (compared to a $12 million net mark-to-market loss in the prior year), higher net mark-to-market gains on other investments and higher fees earned from our FDIC sweep program. Pre-tax profit margin was 64% for the current year and 61% for the prior year. Customer accounts grew 24% and customer equity increased 3% from the prior year. For the current year, total DARTs for cleared and execution-only customers increased 25% to 862 thousand, compared to 688 thousand for the prior year.

Over an extended period in 2018, a small number of the Company s brokerage customers had taken relatively large positions in a security listed on a major U.S. exchange. The Company extended margin loans against the security at a conservatively high collateral requirement. In December 2018, within a very short timeframe, this security lost a substantial amount of its value. The customer accounts were well margined and at December 31, 2018 they had incurred losses but had not fallen into any deficits. Margin shortfalls were met in a timely manner by delivery of additional shares by the customers. Subsequent price declines in the stock have caused these accounts to fall into deficits, despite the Company s efforts to liquidate the customers positions. Through February 27, 2019, the Company has recognized an aggregate loss of approximately $47 million. The maximum aggregate loss, which would occur if the securities prices all fell to zero and none of the debts were collected, would be approximately $59 million. The Company is currently evaluating pursuing the collection of the debts.

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The ultimate effect of this incident on the Company s results will depend upon market conditions and the outcome of the Company s debt collection efforts. Our Risk Management Committee continuously monitors and evaluates our risk management policies, including the implementation of policies and procedures to enhance the detection and prevention of these types of events.

Market Making: For the current year, income before income taxes in our market making segment increased $61 million, to a gain of $34 million compared to the prior year, primarily due to lower operating costs on the remaining operations and the non-recurrence of two items recognized in the prior year: $25 million in one-time exit costs related to the wind-down of our options market making business, partially offset by an $11 million gain on the transfer of our U.S. market making business.

In the third quarter of 2017, we completed the transfer of our U.S. options market making business to Two Sigma Securities, LLC and by the end of 2017 we had exited the majority of our market making activities outside the U.S. In addition, as a result of discontinuing our options market making activities, we expect that approximately $40 million in annual net expenses will be absorbed by the electronic brokerage segment. As of December 31, 2018, on a prospective basis, approximately 98% of the resources related to the $40 million in annual net expenses have been transferred to the electronic brokerage segment and the majority of the remaining 2% is expected to be transferred during 2019.

We intend to continue conducting certain proprietary trading activities in stocks and related instruments to facilitate our electronic brokerage customers trading in products such as ETFs, ADRs, CFDs and other financial instruments, as well as exchange-traded market making activities in a few select markets outside of the U.S. However, we do not expect the facilitation activities to be of sufficient size as to require reporting as a separate segment after we discontinue our options market making activities.

Pursuant to the agreement with Two Sigma Securities, LLC, we have the opportunity for future income from an earn-out agreement, based on the performance of the options market making business under Two Sigma Securities, LLC s control. Under the agreement, we would earn a share of any U.S. profits after variable costs and other agreed-upon costs for three years; and a separate share of any non-U.S. profits after variable costs for four years. The agreement provides Two Sigma Securities, LLC the opportunity to enter non-U.S. parts of this business and, while it does not preclude us from participating in those markets, the earn-out would be effective only in markets where we did not compete.

Market making, by its nature, does not produce predictable earnings. Our results in any given period may be materially affected by volumes in the global financial markets, the level of competition and other factors. Electronic brokerage is more predictable, but it is dependent on customer activity, growth in customer accounts and assets, interest rates and other factors. For a further discussion of the factors that may affect our future operating results, please see the description of risk factors in Part I, Item 1A of this Annual Report on Form 10-K.

The following two tables present net revenues and income before income taxes for each of our business segments for the periods indicated.

Net revenues of each of our segments and our total net revenues are summarized below:

	Year Ended December 31,		
	2018	**2017**	**2016**
		(in millions)	
Electronic brokerage	$ 1,842	$ 1,405	$ 1,239

Market making	76	86	190
Corporate[1]	(15)	211	(33)
Total	$ 1,903	$ 1,702	$ 1,396

(1) The corporate segment includes corporate related activities, inter-segment eliminations, and gains and losses on positions held as part of our overall currency diversification strategy.

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Income before income taxes of each of our segments and our total income before income taxes are summarized below:

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Electronic brokerage	$ 1,177	$ 860	$ 756
Market making	34	(27)	44
Corporate[1]	(15)	216	(39)
Total	$ 1,196	$ 1,049	$ 761

(1) The corporate segment includes corporate related activities, inter-segment eliminations, and gains and losses on positions held as part of our overall currency diversification strategy.

Net Revenues

Commissions

We earn commissions from our cleared customers for whom we act as an executing and clearing broker and from our non-cleared customers for whom we act as an execution-only broker. We have a commission structure that allows customers to choose between an all-inclusive fixed, or bundled , rate and a tiered, or unbundled , rate that offers lower commissions for high volume customers. For unbundled commissions, we pass through regulatory and exchange fees separately from our commissions, adding transparency to our fee structure. Commissions accounted for 41%, 38%, and 44% of our total net revenues for the years ended December 31, 2018, 2017, and 2016, respectively.

Our commissions are geographically diversified. In 2018, 2017, and 2016 we generated 32%, 32%, and 30%, respectively, of commissions from operations conducted internationally.

Interest Income and Interest Expense

We earn interest on customer funds segregated in safekeeping accounts; on customer borrowings on margin, secured by marketable securities these customers hold with us; from our investments in U.S. and foreign government securities; from borrowing and lending securities in the general course of our brokerage and market making activities; and on deposits with banks. Interest income accounted for 73%, 53%, and 43% of our total net revenues for the years ended December 31, 2018, 2017, and 2016, respectively. Interest income is partially offset by interest expense.

We pay interest on cash balances customers hold with us; for borrowing and lending securities in the general course of our brokerage and market making activities; and on our borrowings. Interest expense accounted for 24%, 13%, and 6% of our total net revenues for the years ended December 31, 2018, 2017, and 2016, respectively.

We have automated and integrated our securities lending system with our trading system. As a result, we have been able to tailor our securities lending activity to produce more optimal results when taken together with trading gains (see description under Trading Gains below).

Net interest income accounted for approximately 49%, 40%, and 38% of our total net revenues for the years ended December 31, 2018, 2017, and 2016, respectively.

Trading Gains

Trading gains are generated in the normal course of our market making business. Trading revenues are, in general, proportional to the trading activity in the markets. Trading gains accounted for approximately 2%, 2%, and 12% of our total net revenues for the years ended December 31, 2018, 2017, and 2016, respectively.

Trading gains also include revenues from net dividends. Market making activities require us to hold a substantial inventory of equity securities. We derive revenues in the form of dividend income from these equity securities. This dividend income is largely offset by dividend expense incurred when we make payments in lieu of

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dividends on short positions in securities in our portfolio. Dividend income and expense arise from holding market making positions over dates on which dividends are paid to shareholders of record. When a stock pays a dividend, its market price is generally adjusted downward to reflect the value paid to the shareholders of record, which will not be received by those who purchase the stock on or after the ex-dividend date. Hence, the apparent gains and losses due to these price changes must be taken together with the dividends paid and received, respectively, to accurately reflect the results of our market making activities.

As a result of the way we have integrated our market making and securities lending systems, our trading gains and our net interest income from the market making segment are interchangeable and depend on the mix of market making positions in our portfolio. When implied interest rates in the equity and equity options and futures markets exceed the actual interest rates available to us, our market making systems tend to buy stock and sell it forward, which produces higher trading gains and lower net interest income. When these rates are inverted, our market making systems tend to sell stock and buy it forward, which produces lower trading gains and higher net interest income.

Other Income

A primary component of other income is foreign currency gains and losses from our currency diversification strategy. A discussion of our approach to managing foreign currency exposure is contained in Part II, Item 7A of this Annual Report on Form 10-K entitled   Quantitative and Qualitative Disclosures about Market Risk.

Other income also consists of mark-to-market gains and losses on our U.S. government securities portfolio; income from market data fees, account activity fees, risk exposure fees, payments for order flow from exchange mandated programs, and other brokerage related fees; and gains and losses on financial instruments at fair value and on other financial instruments that are not held for our market making activities. Other income accounted for approximately 8%, 20%, and 7% of our total net revenues for the years ended December 31, 2018, 2017, and 2016, respectively.

Non-Interest Expenses

Execution, Clearing and Distribution Fees

Execution, clearing and distribution fees include the costs of executing and clearing our electronic brokerage and market making trades, as well as liquidity rebates received from various exchanges and market centers, regulatory fees, market data fees, and payments for order flow. Execution fees are paid primarily to electronic exchanges and market centers on which we trade. Clearing fees are paid to clearing houses and clearing agents. Market data fees are paid to third parties to receive streaming price quotes and related information. Payments for order flow are paid primarily as part of exchange-mandated programs, prior to 2018.

Employee Compensation and Benefits

Employee compensation and benefits include salaries, bonuses and other incentive compensation plans, group insurance, contributions to benefit programs and other related employee costs.

Occupancy, Depreciation and Amortization

Occupancy expenses consist primarily of rental payments on office and data center leases and related occupancy costs, such as utilities. Depreciation and amortization expenses result from the depreciation of fixed assets, such as computing and communications hardware, as well as amortization of leasehold improvements, capitalized in-house software development and acquired intangible assets.

Communications

Communications expenses consist primarily of the cost of voice and data telecommunications lines supporting our business, including connectivity to exchanges and market centers around the world.

General and Administrative

General and administrative expenses consist primarily of advertising; professional services expenses, such as legal and audit work; legal and regulatory matters; and other operating expenses.

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Customer Bad Debt

Customer bad debt expenses consist primarily of losses incurred by customers in excess of their assets with us, net of amounts recovered by us.

Income Tax Expense

We pay U.S. federal, state and local income taxes on our taxable income, which is proportional to the percentage we own of IBG LLC. Also, our subsidiaries are subject to income tax in the respective jurisdictions in which they operate.

Noncontrolling Interest

We are the sole managing member of IBG LLC and, as such, operate and control all of the business and affairs of IBG LLC and its subsidiaries and consolidate IBG LLC s financial results into our financial statements. As of December 31, 2018, we held approximately 18.1% ownership interest in IBG LLC. Holdings holds approximately 81.9% ownership interest in IBG LLC. We reflect Holdings ownership as a noncontrolling interest in our consolidated statement of financial condition, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows. Our share of IBG LLC s net income, excluding Holdings noncontrolling interest, for the current year was approximately 17.8%, compared to approximately 17.0% for the prior year.

Certain Trends and Uncertainties

We believe that our current operations may be favorably or unfavorably impacted by the following trends that may affect our financial condition and results of operations:

- Retail broker-dealer participation in the equity markets has fluctuated over the past few years due to investor sentiment, market conditions and a variety of other factors. Retail transaction volumes may not be sustainable and are not predictable.
- Additional consolidation among market centers may adversely affect the value of our SmartRouting^{SM} software.
- Benchmark interest rates have fluctuated over the past years due to economic conditions. Changes in interest rates may not be predictable.
- Price competition in commissions and other fees among broker-dealers may intensify.
- Scrutiny of equity and options market makers, hedge funds and soft dollar practices by regulatory and legislative authorities has increased. New legislation or modifications to existing regulations and rules could occur in the future.
- Our market making activities will continue to be impacted by the following trends until we complete its wind-down.
    - The effects of market structure changes, competition (in particular, from high frequency traders) and market conditions have, during certain periods, exerted downward pressure on bid/offer spreads realized by market makers.
    - In an effort to improve the quality of their executions as well as to increase efficiencies, market makers have increased the level of automation within their operations, which may allow them to compete more effectively with us.
    - A driver of our market making profits is the relationship between actual and implied volatility in the equities markets. The cost of maintaining our conservative risk profile is based on implied volatility, while our profitability, in part, is based on actual volatility. Hence, our profitability is increased when actual volatility runs above implied volatility and it is decreased when actual volatility falls below implied volatility. Implied volatility tends to lag actual volatility.

See Risk Factors in Part I, Item 1A of this Annual Report on Form 10-K for a discussion of other risks that may affect our financial condition and results of operations.

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Results of Operations

The tables in the period comparisons below provide summaries of our consolidated results of operations. The period-to-period comparisons below of financial results are not necessarily indicative of future results.

	Year Ended December 31,		
	2018	2017	2016
	(in millions, except share and per share amounts)		
Revenues			
Commissions	$ 777	$ 647	$ 612
Interest income	1,392	908	606
Trading gains	39	40	163
Other income	158	332	94
Total revenues	2,366	1,927	1,475
Interest expense	463	225	79
Total net revenues	1,903	1,702	1,396
Non-interest expenses			
Execution, clearing and distribution fees	269	241	244
Employee compensation and benefits	264	249	242
Occupancy, depreciation and amortization	49	47	51
Communications	25	28	30
General and administrative	96	86	62
Customer bad debt	4	2	6
Total non-interest expenses	707	653	635
Income before income taxes	1,196	1,049	761
Income tax expense	71	256	62
Net income	1,125	793	699
Less net income attributable to noncontrolling interests	956	717	615
Net income available for common stockholders	$ 169	$ 76	$ 84
Earnings per share			
Basic	$ 2.30	$ 1.09	$ 1.28
Diluted	$ 2.28	$ 1.07	$ 1.25
Weighted average common shares outstanding			
Basic	73,438,209	69,926,933	66,013,247
Diluted	74,266,370	70,904,921	67,299,413
Comprehensive income			
Net income available for common stockholders	$ 169	$ 76	$ 84
Other comprehensive income			

Cumulative translation adjustment, before income taxes		(14)	11	(4)
Income taxes related to items of other comprehensive income		(1)	—	—
Other comprehensive income (loss), net of tax		(13)	11	(4)
Comprehensive income available for common stockholders	$	156	$ 87	$ 80
Comprehensive income attributable to noncontrolling interests				
Net income attributable to noncontrolling interests	$	956	$ 717	$ 615
Other comprehensive income - cumulative translation adjustment		(66)	54	(21)
Comprehensive income attributable to noncontrolling interests	$	890	$ 771	$ 594

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The following table sets forth our consolidated results of operations as a percent of our total net revenues for the indicated periods:

	Year Ended December 31,		
	2018	2017	2016
Revenues			
Commissions	41 %	38 %	44 %
Interest income	73 %	53 %	43 %
Trading gains	2 %	2 %	12 %
Other income	8 %	20 %	7 %
Total revenues	124 %	113 %	106 %
Interest expense	24 %	13 %	6 %
Total net revenues	100 %	100 %	100 %
Non-interest expenses			
Execution, clearing and distribution fees	14 %	14 %	17 %
Employee compensation and benefits	14 %	15 %	17 %
Occupancy, depreciation and amortization	3 %	3 %	4 %
Communications	1 %	2 %	2 %
General and administrative	5 %	5 %	4 %
Customer bad debt	0 %	0 %	0 %
Total non-interest expenses	37 %	38 %	45 %
Income before income taxes	63 %	62 %	55 %
Income tax expense	4 %	15 %	4 %
Net Income	59 %	47 %	50 %
Less net income attributable to noncontrolling interests	50 %	42 %	44 %
Net income available for common stockholders	9 %	4 %	6 %

Year Ended December 31, 2018 (current year) compared to the Year Ended December 31, 2017 (prior year)

Net Revenues

Total net revenues, for the current year, increased $201 million, or 12%, compared to the prior year, to $1,903 million. The increase in net revenues was primarily due to higher net interest income and commissions, partially offset by lower other income.

Commissions

Commissions, for the current year, increased $130 million, or 20%, compared to the prior year, to $777 million, driven by higher customer trading volumes in options and futures and continued customer account growth. Total customer options and futures contract volumes increased 22% and 25%, respectively, while stock share volume decreased 7%, compared to the prior year. The decline in stock trade volumes was due to lighter trading in low-priced stocks, and an increase in the proportion of trading in higher-priced stocks. As a result of this shift, while the number of shares traded declined, the DARTs and commissions on stocks both rose. Total DARTs for cleared and execution-only customers, for the current year, increased 25% to 862 thousand, compared to 688 thousand for the prior year. DARTs for cleared customers, i.e., customers for whom we execute trades, as well as, clear and carry positions, for the current year, increased 24% to 791 thousand, compared to 639 thousand for the prior year. Average commission per DART for cleared customers, for the current year, decreased 3% to $3.87, compared to $3.97 for the prior year, reflecting smaller average order sizes across most products as higher volatility in the first and fourth quarters of the current year likely led to more caution and smaller trade sizes.

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Interest Income and Interest Expense

Net interest income (interest income less interest expense), for the current year, increased $246 million, or 36%, compared to the prior year, to $929 million. The increase in net interest income was driven by higher average customer credit and margin loan balances and higher benchmark interest rates.

Net interest income on customer balances, for the current year, increased $196 million, compared to the prior year, driven by a $2.7 billion increase in average customer credit balances, a portion of which were invested in interest-bearing U.S. government securities, a $6.0 billion increase in average customer margin loans, and an 0.83% increase in the average Federal Funds effective rate to 1.83%, compared to the prior year. As a result of the increases in the Federal Funds effective rate, interest expense on customer credit balances denominated in U.S. dollars increased from the prior year, in part, as we passed along more interest to our customers. The increase in benchmark rates also drove higher interest income earned on the investment of customer segregated cash and on margin lending to customers.

We earn income on securities loaned and borrowed to support customer long and short stock holdings in margin accounts. In addition, our Stock Yield Enhancement Program provides an opportunity for customers with fully-paid stock to allow us to lend it out. We pay customers a rebate on the cash collateral generally equal to 50% of the income we earn from lending the shares. We place cash collateral securing the loans in the customer s account.

In the current year, average securities borrowed decreased 16%, to $3.3 billion and average securities loaned increased 2%, to $4.0 billion, compared to the prior year. Securities borrowed and loaned balances were both impacted by reduced activity in the market making segment. Net interest earned from securities lending is also affected by the level of demand for securities positions held by our customers and in our market making business. During the current year, net interest earned from securities lending transactions increased $24 million, or 13%, compared to the prior year. The increase in net interest income from securities lending transactions was attributable to the electronic brokerage segment. It should be noted that securities lending transactions entered into to support customer activity may produce interest income (expense) that is offset by interest expense (income) related to customer balances.

The Company measures return on interest-earning assets using net interest margin (NIM). NIM is computed by dividing the annualized net interest income by the average interest-earning assets for the period. Interest-earning assets consist of cash and securities segregated for regulatory purposes (including U.S. government securities and securities purchased under agreements to resell), customer margin loans, securities borrowed, other interest-earning assets (solely firm assets) and customer cash balances swept into FDIC insured banks as part of our Insured Bank Deposit Sweep Program. Interest-bearing liabilities consist of customer credit balances and securities loaned.

Yields are generally a reflection of benchmark interest rates in each currency in which the Company and its customers hold cash balances. Because a substantial portion of customer cash and margin loans are denominated in currencies other than the U.S. dollar, changes in U.S. benchmark interest rates do not impact the total amount of segregated cash and securities, customer margin loans and customer credit balances. Furthermore, because interest is paid only on eligible cash credit balances (i.e., balances over $10 thousand or equivalent, in securities accounts with over $100 thousand in equity), changes in benchmark interest rates are not passed through to the total amount of customer credit balances. Finally, the Company s policies with respect to currencies with negative interest rates impact the yields on segregated cash and customer credit balances as effective interest rates in those currencies fluctuate.

Generally, as benchmark interest rates rise a larger portion of the interest earned on securities lending transactions is reported as net interest income on “Segregated cash and securities, net” instead of “Securities borrowed and loaned, net” because interest earned on cash collateral held in specially designated bank accounts for the benefit of customers, in accordance with the U.S. customer protection rules, increases.

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The following table presents net interest income information corresponding to interest-earning assets and interest-bearing liabilities for the three years ended December 31, 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
		(in millions)	
Average interest-earning assets			
Segregated cash and securities	$ 20,911	$ 23,824	$ 24,134
Customer margin loans	29,253	23,289	16,506
Securities borrowed	3,310	3,964	4,155
Other interest-earning assets	4,362	2,930	2,495
FDIC sweeps[1]	1,259	124	2
	$ 59,095	$ 54,131	$ 47,292
Average interest-bearing liabilities			
Customer credit balances	$ 48,179	$ 45,515	$ 39,980
Securities loaned	3,982	3,917	2,897
	$ 52,161	$ 49,432	$ 42,877
Net Interest income			
Segregated cash and securities, net[2/3]	$ 337	$ 201	$ 132
Customer margin loans[4]	677	392	217
Securities borrowed and loaned, net[5]	216	192	160
Customer credit balances, net[2/4/5]	(362)	(137)	(3)
Other net interest income[1/3/6]	90	40	21
Net interest income	$ 958	$ 688	$ 527
Net interest margin (NIM)	1.62 %	1.27 %	1.11 %
Annual Yields			
Segregated cash and securities	1.61 %	0.84 %	0.55 %
Customer margin loans	2.31 %	1.68 %	1.31 %
Customer credit balances	0.75 %	0.30 %	0.01 %

(1) Represents the average amount of customer cash swept into FDIC-insured banks as part of our Insured Bank Deposit Sweep Program. This item is not recorded in the Company's consolidated statements of financial condition. Income derived from program deposits is reported in other net interest income in the table above.

(2) We have reclassified components of net interest income related to currencies with negative interest rates and as such, prior period amounts have been adjusted to conform to the current period presentation. For the twelve months ended December 31, 2017 and 2016, $17 million and $13 million have been reclassified from net interest income on Segregated cash and securities, net to Customer credit balances, net , respectively.

(3) We have reclassified certain components of net interest income related to investments in U.S. Treasury notes and reverse repurchase agreements and as such, prior period amounts have been adjusted to conform to the current period presentation. For the twelve months ended December 31, 2017 and 2016, $8 million and $4 million have been reclassified from net interest income on Segregated cash and securities, net to Other net interest income, net , respectively.

(4) Interest income and interest expense on customer margin loans and customer credit balances, respectively, are calculated on daily cash balances within each customer's account on a net basis, which may result in an offset of

balances across multiple account segments (e.g., between securities and commodities segments).

(5) We have reclassified components of net interest income related to interest paid on short sale proceeds and as such, prior period amounts have been adjusted to conform to the current period presentation. For the twelve months ended December 31, 2018, 2017 and 2016, ($76) million, ($31) million and ($4) million have been reclassified from net interest income on Securities borrowed and loaned, net to Customer credit balances, net, respectively. For the quarters ended March 31, 2018, June 30, 2018, September 30, 2018, and December 31, 2018 the amounts reclassified were ($12) million, ($17) million, ($21) million and ($26) million, respectively.

(6) Includes income from financial instruments which has the same characteristics as interest, but is reported in other income in the Company's consolidated statements of comprehensive income.

Trading Gains

Trading gains, for the current year, decreased $1 million, or 3%, compared to the prior year, to $39 million, on the remaining market making operations. Reflecting the wind-down of our options market making activities, our market making operations executed 18.7 million trades compared to 31.3 million trades executed in the prior year. In addition, market making options and futures contract volumes decreased 51% and 42%, respectively, while stock share volumes increased 59%, compared to the prior year, mainly due to low-priced stocks traded in Hong Kong.

Included in trading gains are net dividends. Dividend income and expense arise from holding market making positions over dates on which dividends are paid to shareholders of record. When a stock pays a dividend, its market price is generally adjusted downward to reflect the value paid, which will not be received by those who purchase stock on or after the ex-dividend date. Hence, the apparent gains and losses due to these price changes, reflecting the value of dividends paid to shareholders, must be taken together with the dividends paid and received, respectively, to accurately reflect the results of our market making activities.

Other Income

Other income, for the current year, decreased $174 million, or 52%, compared to the prior year, to $158 million. Other income from core items increased $30 million, or 27%, compared to the prior year, to $141 million, mainly driven by a $9 million increase in FDIC sweep fee income and increases in market data fee income, order flow income from exchange mandated programs, account activity fee income and risk exposure fee income. Other income from non-core items decreased $204 million, or 92%, to $17 million, mainly driven by a $129 million decrease in gains from our currency diversification strategy (a loss of $19 million for the current year, compared to a gain of $110 million in the prior year); the non-recurrence of a $93 million gain from the remeasurement of our Tax Receivable Agreement liability, payable to Holdings, as a result of the Tax Act; and the non-recurrence of an $11 million gain recognized on the transfer of our U.S. market making business in the prior year; partially offset by a $9 million net mark-to-market gain on our U.S. government securities portfolio in the current year, compared to a $12 million net mark-to-market loss in the prior year. A discussion of our approach to managing foreign currency exposure is contained in Part II, Item 7A of this Annual Report on Form 10-K entitled Quantitative and Qualitative Disclosures about Market Risk.

Non-Interest Expenses

Non-interest expenses, for the current year, increased $54 million, or 8%, compared to the prior year, to $707 million, mainly due to a $28 million increase in execution, clearing and distribution fees; a $15 million increase in employee compensation and benefits; a $10 million increase in general and administrative expenses; a $2 million increase in occupancy expenses; and a $2 million increase in customer bad debt; partially offset by a $3 million decrease in communications expense, compared to the prior year. As a percentage of total net revenues, non-interest expenses were 37% for the current year and 38% for the prior year.

Execution, Clearing and Distribution Fees

Execution, clearing and distribution fees, for the current year, increased $28 million, or 12%, compared to the prior year, to $269 million, driven by higher electronic brokerage segment trade volumes, where customer options and futures contract volumes increased 22% and 25%, respectively, compared to the prior year. This was partially offset by the wind-down of our market making operations, which resulted in substantially lower options and futures contract volumes.

Employee Compensation and Benefits

Employee compensation and benefits expenses, for the current year, increased $15 million, or 6%, compared to the prior year, to $264 million, associated with a 9% increase in the average number of employees to 1,317, for the current year, compared to 1,213 for the prior year. Within the operating business segments, we continued to add staff in customer service, legal and compliance, and software development to support electronic brokerage and to reduce staff in market making. As we continue to grow, our focus on automation has allowed us to maintain a relatively small staff. As a percentage of total net revenues, employee compensation and benefits expenses were 14% for the current year and 15% for the prior year.

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Occupancy, Depreciation and Amortization

Occupancy, depreciation and amortization expenses, for the current year, increased $2 million, or 4%, compared to the prior year, to $49 million, mainly due to higher office rent and related expenses as we expand our physical space for both offices and data centers. As a percentage of total net revenues, occupancy, depreciation and amortization expenses were 3% for both the current year and the prior year.

Communications

Communications expenses, for the current year, decreased $3 million, or 11%, compared to the prior year, to $25 million, due to lower costs of data lines to exchanges during the current year as we wound down our market making activities. As a percentage of total net revenues, communications expenses were 1% for the current year and 2% for the prior year.

General and Administrative

General and administrative expenses, for the current year, increased $10 million, or 12%, compared to the prior year, to $96 million, mainly due to higher professional services fees and expenses related to legal and regulatory matters, partially offset by the non-recurrence of $21 million in one-time exit costs related to the wind-down of our options market making business recognized in the prior year. As a percentage of total net revenues, general and administrative expenses were 5% for both the current year and the prior year.

Customer Bad Debt

Customer bad debt expense, for the current year, increased $2 million, or 100%, compared to the prior year, to $4 million.

Income Tax Expense

Income tax expense, for the current year, decreased $185 million, or 72%, to $71 million, compared to the prior year, primarily due to the effects of the Tax Act, recognized in the prior year, partially offset by a one-time income tax expense of $4 million related to the remeasurement of certain deferred tax assets due to the tax reclassification of a foreign subsidiary. See Note 11 to the audited consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K.

The Tax Act significantly revised U.S. corporate income tax law by, among other things, reducing the corporate income tax rate from 35% to 21% and implementing a modified territorial tax system that includes a one-time transition tax on deemed repatriated earnings of foreign subsidiaries. As a result of the Tax Act, the prior year results include a net reduction of approximately $84 million related to the following: (1) the one-time transition tax on deemed repatriation of earnings on some of our foreign subsidiaries resulted in an additional income tax expense of $62 million, to be paid over an eight-year period, (2) the remeasurement of deferred tax assets and liabilities at the reduced corporate income tax rate of 21% resulted in additional income tax expense of $115 million, and (3) in connection with the remeasurement of our deferred tax asset arising from the acquisition of interests in IBG LLC, we also remeasured the related Tax Receivable Agreement liability, payable to Holdings, resulting in the recognition of a $93 million gain, which is reported in other income in the consolidated statements of comprehensive income. See Note 9 to the audited consolidated financial statements in Part II, Item 8 of this Annual Report on Form 10-K.

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The following table presents information about our income tax expense for the three years ended December 31, 2018, 2017 and 2016.

	Year Ended December 31,		
	2018	2017	2016
	(in millions, except %)		
Consolidated			
Consolidated income before income taxes	$ 1,196	$ 1,049	$ 761
IBG, Inc. stand-alone income before income taxes	2	92 (1)	(1)
Gains (losses) on the Company's common stock held by Operating Companies	—	—	(1)
Operating Companies income before income taxes	$ 1,194	$ 957	$ 761
Operating Companies			
Income before income taxes	$ 1,194	$ 957	$ 761
Income tax expense	32	31	30
Income tax expense - effect of the Tax Act	—	62	—
Net income available to members	$ 1,162	$ 864	$ 731
IBG, Inc.			
Average ownership percentage in IBG LLC	17.8 %	17.0 %	16.2 %
Net income available to IBG, Inc. from Operating Companies	$ 206	$ 147	$ 117
IBG, Inc. stand-alone income before income taxes	2	92 (1)	(1)
Income before income taxes	208	239	116
Income tax expense	39	48	32
Income tax expense - effect of the Tax Act	—	115	—
Net income available to common stockholders	$ 169	$ 76	$ 84
Consolidated income tax expense			
Income tax expense attributable to Operating Companies	$ 32	$ 93	$ 30
Income tax expense attributable IBG, Inc.	39	163	32
Consolidated income tax expense	$ 71	$ 256	$ 62
Consolidated effects of the Tax Act			
One-time repatriation tax expense	$ —	$ 62	$ —
Remeasurement of U.S. deferred tax assets	—	115	—
Remeasurement of liability under the Tax Receivable Agreement	—	(93)	—
Total decrease in earnings resulting from the Tax Act	$ —	$ 84	$ —

(1) Includes a $93 million gain from the remeasurement of the Tax Receivable Agreement liability as a result of the Tax Act, included in other income.

Operating Results

Income before income taxes, for the current year, increased $147 million, or 14%, to $1,196 million, compared to the prior year. Pretax profit margin was 63% for the current year and 62% for the prior year.

Comparing our operating results for the current year to the prior year, excluding the effects of our currency diversification strategy, the net mark-to-market gains and losses from our U.S. government securities portfolio, the one-time net costs related to the wind-down of our options market making activities, and the remeasurement gain on our Tax Receivable Agreement liability due to the Tax Act: net revenues were $1,913 million, up 28%; non-interest expenses were $707 million, up 13%; income before income taxes was $1,206 million, up 38%; and pre-tax profit margin increased to 63% for the current year from 58% for the prior year.

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Year Ended December 31, 2017 compared to the Year Ended December 31, 2016

Net Revenues

Total net revenues, for 2017, increased $306 million, or 22%, compared to 2016, to $1,702 million. The increase in net revenues was primarily due to higher net interest income, other income and commissions, partially offset by lower trading gains. Trading volume is an important driver of revenues and costs for both our electronic brokerage and market making segments. During 2017, our electronic brokerage options contract and stock share volumes increased 11% and 50% (largely driven by low-priced U.S. and Hong Kong shares), respectively, while futures contract volume decreased 8%, compared to 2016. Market making trading volumes were significantly down as we began to wind down our market making activities globally during 2017.

Commissions

Commissions, for 2017, increased $35 million, or 6%, compared to 2016, to $647 million, driven by higher customer trading volumes in options and stocks, continued customer account growth and higher average commission per customer order. Cleared customer options contract and stock share volumes increased 11% and 51%, respectively, while futures contract volume decreased 9%, compared to 2016. Total DARTs for cleared and execution-only customers, for 2017, increased 4% to 688 thousand, compared to 660 thousand for 2016. DARTs for cleared customers, i.e., customers for whom we execute trades, as well as, clear and carry positions, for 2017, increased 5% to 639 thousand, compared to 609 thousand for 2016. Average commission per DART for cleared customers, for 2017, increased by 1% to $3.97, compared to $3.92 for 2016, reflecting larger average order sizes in stocks.

Interest Income and Interest Expense

Net interest income (interest income less interest expense), for 2017, increased $156 million, or 30%, compared to 2016, to $683 million. The increase in net interest income was driven by higher average customer credit and margin loan balances and higher benchmark interest rates.

Net interest income on customer balances, for 2017, increased $137 million, compared to 2016, driven by a $5.5 billion increase in average customer credit balances, a portion of which were invested in interest-bearing U.S. government securities, a $6.8 billion increase in average customer margin loans, and a 61 basis point increase in the average Federal Funds effective rate to 1.00%, compared to 2016. As a result of the increases in the Federal Funds effective rate since December 2016, interest expense on customer credit balances increased from 2016, in part, as certain customer credit balances that were not eligible to earn interest in 2016 became eligible to earn interest in 2017. The increase in benchmark rates also drove higher interest income earned on the investment of customer segregated cash and on margin lending to customers.

We earn income on securities loaned and borrowed to support customer long and short stock holdings in margin accounts. In addition, our Stock Yield Enhancement Program provides an opportunity for customers with fully-paid stock to allow us to lend it out. We pay customers a rebate on the cash collateral generally equal to 50% of the income we earn from lending the shares. We place cash collateral securing the loans in the customer s account.

In 2017, average securities borrowed decreased 5%, to $4.0 billion and average securities loaned increased 35%, to $3.9 billion, compared to 2016. Net interest earned from securities lending is also affected by the level of demand for securities positions held by our customers and in our market making business. During 2017, net fees earned by our electronic brokerage and market making segments from securities lending transactions increased $5 million, or 3%, compared to 2016. The increase in net interest income from securities lending transactions was attributable to the electronic brokerage segment. It should be noted that securities lending transactions entered into to support customer activity may produce interest income (expense) that is offset by interest expense (income) related to customer balances.

Trading Gains

Trading gains, for 2017, decreased $123 million, or 75%, compared to 2016, to $40 million. Reflecting the wind-down of our options market making activities during 2017, our market making operations executed 31.3 million trades compared to 64.0 million trades executed in 2016. In addition, market making options and futures contract and stock share volumes decreased 67%, 60%, and 45%, respectively, compared to 2016.

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Trading gains were also unfavorably impacted by decreases in volatility and in the actual-to-implied volatility ratio as compared to 2016. Through our announcement on March 8, 2017, the market making segment had incurred net losses and the segment was not expected to return to meaningful profitability; however, the rate of continuing losses was substantially reduced after we began curtailing these activities.

The VIX®, which measures perceived U.S. equity market volatility, decreased 30% to an average of 11.1 for 2017, compared to an average of 15.9 for 2016. The ratio of actual to implied volatility decreased to an average of 60% for 2017, compared to an average of 83% for 2016. Both of these were negative trends for market making performance, but had less of an impact in 2017 than in 2016 as we curtailed our market making activities.

Included in trading gains are net dividends. Dividend income and expense arise from holding market making positions over dates on which dividends are paid to shareholders of record. When a stock pays a dividend, its market price is generally adjusted downward to reflect the value paid, which will not be received by those who purchase stock on or after the ex-dividend date. Hence, the apparent gains and losses due to these price changes, reflecting the value of dividends paid to shareholders, must be taken together with the dividends paid and received, respectively, to accurately reflect the results of our market making activities.

Other Income

Other income, for 2017, increased $238 million, or 253%, compared to 2016, to $332 million, mainly driven by a gain of $110 million from our currency diversification strategy for 2017, compared to a loss of $40 million for 2016, a gain of $93 million from the remeasurement of our Tax Receivable Agreement liability, payable to Holdings, as a result of the Tax Act, and a $13 million recovery of costs related to the wind-down of our U.S. options market making operations, partially offset by a $12 million net mark-to-market loss on our U.S. government securities portfolio in 2017, compared to $26 million net mark-to-market gain in 2016. Despite an increase in average medium term interest rates during 2017, the net mark-to-market loss on our U.S. government securities portfolio was only $12 million, reflecting a reduction in the size and average duration of the portfolio. In general, mark-to-market gains and losses on U.S. government securities are expected to reverse when, as intended, these securities are held to maturity. A discussion of our approach to managing foreign currency exposure is contained in Part II, Item 7A of this Annual Report on Form 10-K entitled Quantitative and Qualitative Disclosures about Market Risk.

Non-Interest Expenses

Non-interest expenses, for 2017, increased $18 million, or 3%, compared to 2016, to $653 million, mainly due to a $24 million increase in general and administrative expenses and a $7 million increase in employee compensation and benefits, partially offset by a $4 million decrease in occupancy expenses and a $4 million decrease in customer bad debt, compared to 2016. As a percentage of total net revenues, non-interest expenses were 38% for 2017 and 45% for 2016.

Execution, Clearing and Distribution Fees

Execution, clearing and distribution fees, for 2017, decreased $3 million, or 1%, compared to 2016, to $241 million, driven by lower trading volume in our market making segment as we began to wind down our market making activities globally. Market making options and futures contract and stock share volumes decreased 67%, 60% and 45%, respectively, from 2016. This was largely offset by higher execution and clearing expenses in our electronic brokerage segment, where customer options contract and stock share volumes increased 11% and 50%, respectively. In addition, the electronic brokerage segment received lower liquidity rebates from exchanges operating a make-or-take pricing model, in which we are paid for adding liquidity and charged for removing liquidity, as trading volume shifted away from orders that added liquidity to orders that removed liquidity in 2017 compared to 2016.

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Employee Compensation and Benefits

Employee compensation and benefits expenses, for 2017, increased $7 million, or 3%, compared to 2016, to $249 million, mainly due to one-time exit costs related to the wind-down of our options market making activities and a 5% increase in the average number of employees to 1,213, for 2017, compared to 1,154 for 2016. Within the operating business segments, we continued to add staff in customer service, legal and compliance, and software development to support electronic brokerage and reduce staff in market making. As we continue to grow, our focus on automation has allowed us to maintain a relatively small staff. As a percentage of total net revenues, employee compensation and benefits expenses were 15% for 2017 and 17% for 2016.

Occupancy, Depreciation and Amortization

Occupancy, depreciation and amortization expenses, for 2017, decreased $4 million, or 8%, compared to 2016, to $47 million, mainly due to lower office rent expenses and equipment related costs. As a percentage of total net revenues, occupancy, depreciation and amortization expenses were 3% for 2017 and 4% for 2016.

Communications

Communications expenses, for 2017, decreased $2 million, or 7%, compared to 2016, to $28 million, mainly due to lower costs of data lines to exchanges during 2017 as we wound down our market making activities. As a percentage of total net revenues, communications expenses were 2% for both 2017 and 2016.

General and Administrative

General and administrative expenses, for 2017, increased $24 million, or 39%, compared to 2016, to $86 million, mainly due to a $21 million write-down of the value of exchange trading rights related to the wind-down of our U.S. options market making operations and higher advertising expenditures. As a percentage of total net revenues, general and administrative expenses were 5% for 2017 and 4% for 2016.

Customer Bad Debt

Customer bad debt expense, for 2017, decreased $4 million, or 67%, compared to 2016, to $2 million.

Income Tax Expense

Income tax expense, for 2017, increased $194 million, or 313%, to $256 million, compared to 2016, primarily due to the effects of the Tax Act, which was enacted on December 22, 2017. The Tax Act significantly revised U.S. corporate income tax law by, among other things, reducing the corporate income tax rate from 35% to 21% and implementing a modified territorial tax system that includes a one-time transition tax on deemed repatriated earnings of foreign subsidiaries.

As a result of the Tax Act, the 2017 results include a net reduction of approximately $84 million related to the following: (1) the one-time transition tax on deemed repatriation of earnings on some of our foreign subsidiaries resulted in an additional income tax expense of $62 million, to be paid over an eight-year period, (2) the remeasurement of deferred tax assets and liabilities at the reduced corporate income tax rate of 21% resulted in additional income tax expense of $115 million, and (3) in connection with the remeasurement of our deferred tax asset arising from the acquisition of interests in IBG LLC, we also remeasured the related Tax Receivable Agreement liability, payable to Holdings, resulting in the recognition of a $93 million gain, which is reported in other income in the consolidated statements of comprehensive income.

Operating Results

Income before income taxes, for 2017, increased $288 million, or 38%, to $1,049 million, compared to 2016. Pretax profit margin was 62% for 2017 and 55% for 2016.

Our operating results, for 2017, excluding the effects of our currency diversification strategy, the net mark-to-market gains and losses from our U.S. government securities portfolio, the one-time net costs related to the wind-down of our options market making activities, and the remeasurement gain on our Tax Receivable Agreement liability due to the Tax Act, compared to 2016, were as follows: net revenues were $1,500 million, up 6%; non-interest expenses were $628 million, down 1%; income before income taxes was $872 million, up 13%; and pre-tax profit margin increased to 58% for 2017, from 55% for 2016.

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Trading Volumes and Brokerage Statistics

The following tables present historical trading volumes and brokerage statistics for our business. However, volumes are not the only drivers in our business.

TRADE VOLUMES:
(in 000's, except %)

Period	Market Making Trades	% Change	Brokerage Cleared Trades	% Change	Brokerage Non Cleared Trades	% Change	Total Trades	% Change	Avg. Trades per U.S. Trading Day
2014	64,530		206,759		18,055		289,344		1,155
2015	65,937	2 %	242,846	17 %	18,769	4 %	327,553	13 %	1,305
2016	64,038	(3 %)	259,932	7 %	16,515	(12 %)	340,485	4 %	1,354
2017	31,282	(51 %)	265,501	2 %	14,835	(10 %)	311,618	(8 %)	1,246
2018	18,663	(40 %)	328,099	24 %	21,880	47 %	368,642	18 %	1,478

CONTRACT AND SHARE VOLUMES:
(in 000's, except %)

TOTAL

Period	Options (contracts)	% Change	Futures[1] (contracts)	% Change	Stocks (shares)	% Change
2014	631,265		123,048		153,613,174	
2015	634,388	0 %	140,668	14 %	172,742,520	12 %
2016	572,834	(10 %)	143,287	2 %	155,439,227	(10 %)
2017	395,885	(31 %)	124,123	(13 %)	220,247,921	42 %
2018	408,406	3 %	151,762	22 %	210,257,186	(5 %)

MARKET MAKING

Period	Options (contracts)	% Change	Futures[1] (contracts)	% Change	Stocks (shares)	% Change
2014	344,741		15,668		12,025,822	
2015	335,406	(3 %)	14,975	(4 %)	15,376,076	28 %
2016	307,377	(8 %)	14,205	(5 %)	13,082,887	(15 %)
2017	102,025	(67 %)	5,696	(60 %)	7,139,622	(45 %)
2018	49,554	(51 %)	3,277	(42 %)	11,347,811	59 %

BROKERAGE TOTAL

Period	Options (contracts)	% Change	Futures[1] (contracts)	% Change	Stocks (shares)	% Change
2014	286,524		107,380		141,587,352	

2015	298,982	4 %	125,693	17 %	157,366,444	11 %
2016	265,457	(11 %)	129,082	3 %	142,356,340	(10 %)
2017	293,860	11 %	118,427	(8 %)	213,108,299	50 %
2018	358,852	22 %	148,485	25 %	198,909,375	(7 %)

(1) Futures contract volume includes options on futures.

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BROKERAGE CLEARED

Period	Options (contracts)	% Change	Futures[1] (contracts)	% Change	Stocks (shares)	% Change
2014	225,662		106,074		137,153,132	
2015	244,356	8 %	124,206	17 %	153,443,988	12 %
2016	227,413	(7 %)	128,021	3 %	138,523,932	(10 %)
2017	253,304	11 %	116,858	(9 %)	209,435,662	51 %
2018	313,795	24 %	146,806	26 %	194,012,882	(7 %)

(1) Futures contract volume includes options on futures.

BROKERAGE STATISTICS:
(in 000's, except % and where noted)

	4Q2018	4Q2017	% Change
Year over Year			
Total Accounts	598	483	24 %
Customer Equity (in billions)[1]	$ 128.4	$ 124.8	3 %
Cleared DARTs	856	681	26 %
Total Customer DARTs	951	730	30 %
Cleared Customers (in $'s, except DART per account)			
Commission per DART	$ 3.79	$ 3.92	(3 %)
DART per Avg. Account (Annualized)	364	363	0 %
Net Revenue per Avg. Account (Annualized)	$ 3,225	$ 3,318	(3 %)

(1) Excludes non-customers.

Business Segments

The following sections discuss the results of our operations by business segment, excluding a discussion of corporate segment income and expense. In the following tables, revenues and expenses directly associated with each business segment are included in determining income before income taxes. Due to the integrated nature of the business segments, estimates and judgments have been made in allocating certain revenue and expense items. Transactions between business segments generally result from one subsidiary facilitating the business of another subsidiary through the use of its existing trading memberships and clearing arrangements. In such cases, certain revenue and expense items are eliminated to accurately reflect the external business conducted in each business segment. Rates on transactions between business segments are designed to approximate full costs. In addition to execution, clearing and distribution fees, which are the main cost driver for both the market making and the electronic brokerage segments, each business segment s operating expenses include: (i) employee compensation and benefits expenses that are incurred directly in support of each business segment, (ii) general and administrative expenses, which include directly incurred expenses for property leases, professional fees, travel and entertainment, communications and information services, equipment, and (iii) indirect support costs (including compensation and other related operating expenses) for administrative services provided by corporate segment subsidiaries. Such administrative services include, but are not limited to, computer software development and support, accounting, tax, legal and facilities management.

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Electronic Brokerage

The following table sets forth the results of our electronic brokerage operations for the indicated periods:

	Year Ended December 31,		
	2018	2017	2016
		(in millions)	
Revenues			
Commissions	$ 777	$ 648	$ 613
Interest income	1,386	829	537
Other income	169	108	128
Total revenues	2,332	1,585	1,278
Interest expense	490	180	39
Total net revenues	1,842	1,405	1,239
Non-interest expenses			
Execution, clearing and distribution fees	254	210	181
Employee compensation and benefits	131	122	113
Occupancy, depreciation and amortization	17	18	21
Communications	16	15	14
General and administrative	243	178	148
Customer bad debt	4	2	6
Total non-interest expenses	665	545	483
Income before income taxes	$ 1,177	$ 860	$ 756

Year Ended December 31, 2018 (current year) compared to the Year Ended December 31, 2017 (prior year)

Electronic brokerage total net revenues, for the current year, increased $437 million, or 31%, compared to the prior year, to $1,842 million, due to higher net interest income, commissions and other income.

Commissions, for the current year, increased $129 million, or 20%, compared to the prior year, to $777 million, driven by higher customer trading volumes in options and futures and continued customer account growth. Total customer options and futures contract volumes increased 22% and 25%, respectively, while stock share volume decreased 7%, compared to the prior year. The decline in stock trade volumes was due to lighter trading in low-priced stocks, and an increase in the proportion of trading in higher-priced stocks. As a result of this shift, while the number of shares traded declined, the DARTs and commissions on stocks both rose. Total DARTs for cleared and execution-only customers, for the current year, increased 25% to 862 thousand, compared to 688 thousand for the prior year. DARTs for cleared customers, i.e., customers for whom we execute trades, as well as, clear and carry positions, for the current year, increased 24% to 791 thousand, compared to 639 thousand for the prior year. Average commission per DART for cleared customers, for the current year, decreased 3% to $3.87, compared to $3.97 for the prior year, reflecting smaller average order sizes across most products as higher volatility in the first and fourth quarters of the current year likely led to more caution and smaller trade sizes.

Net interest income, for the current year, increased $247 million, or 38%, compared to the prior year, to $896 million driven by a $2.7 billion increase in average customer credit balances, a portion of which were invested in interest-bearing U.S. government securities, a $6.0 billion increase in average customer margin loans, and an 0.83%

increase in the average Federal Funds effective rate to 1.83%, compared to the prior year. As a result of the increases in the Federal Funds effective rate, interest expense on customer credit balances denominated in U.S. dollars increased from the prior year, in part, as we passed along more interest to our customers. The increase in benchmark rates also drove higher interest income earned on the investment of customer segregated cash and on margin lending to customers.

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Other income, for the current year, increased $61 million, or 56%, compared to the prior year, to $169 million, mainly driven by a $9 million net mark-to-market gain on our U.S. government securities portfolio in the current year compared to a $12 million net mark-to-market loss in the prior year, a $13 million increase in net gains from other investments, a $9 million increase in FDIC sweep fee income, a $7 million increase in market data fee income, a $6 million increase in order flow income, and a $3 million increase in account activity fee income, compared to the prior year.

Non-interest expenses, for the current year, increased $120 million, or 22%, compared to the prior year, to $665 million. Within non-interest expenses, execution, clearing and distribution fees increased $44 million, or 21%, driven by higher customer trading volumes in options and futures, which increased 22% and 25%, respectively, compared to the prior year. A 16% increase in the average number of employees providing services to the electronic brokerage segment led to increased employee compensation and benefits expenses of $9 million, or 7%, and increased general and administrative expenses of $65 million, both of which, in part, reflect a redeployment of staff from market making to electronic brokerage activities, which accounted for $30 million of this increase. In addition, general and administrative expenses for the current year include higher professional services fees and expenses related to legal and regulatory matters, compared to the prior year. As a percentage of total net revenues, non-interest expenses were 36% for the current year and 39% for the prior year.

Income before income taxes, for the current year, increased $317 million, or 37%, compared to the prior year, to $1,177 million. As a percentage of total net revenues for the electronic brokerage segment, income before income taxes was 64% for the current year and 61% for the prior year.

Comparing electronic brokerage operating results for the current year to the prior year: excluding the net mark-to-market gains and losses from our U.S. government securities portfolio, net revenues were $1,833 million, up 29%; income before income taxes was $1,168 million, up 34%; and pre-tax profit margin increased to 64% for the current year from 62% for the prior year.

Year Ended December 31, 2017 compared to the Year Ended December 31, 2016

Electronic brokerage total net revenues, for 2017, increased $166 million, or