Virtu Financial, Inc.
Form 10-K
March 01, 2019

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

FORM 10-K
(Mark One)

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

For the fiscal year ended December 31, 2018
or
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission file number: 001-37352
Virtu Financial, Inc.
(Exact name of registrant as specified in its charter)

Delaware	32-0420206
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

300 Vesey Street New York, New York	10282
(Address of principal executive offices)	(Zip Code)

(212) 418-0100
(Registrant's telephone number, including area code)

Not Applicable
(Former name, former address and former fiscal year, if changed since last report)

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

Title of each class	Name of each exchange on which registered
Class A common stock, par value $0.00001 per share	The NASDAQ Stock Market LLC

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes x No
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act.
Yes No x
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 x No
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for

such shorter period that the registrant was required to submit such files). Yes x No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) 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.

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

Large accelerated filer	Accelerated filer	Non-accelerated filer (Do not check if a smaller reporting company)	Smaller reporting company Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. Yes No

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

The aggregate market value of voting and non-voting common stock held by non-affiliates of the registrant as of June 30, 2018 was approximately $1,770.2 million, based on the closing price of $26.55 per share as reported by NASDAQ on such date.

Class of Stock	Shares Outstanding as of March 1, 2019
Class A common stock, par value $0.00001 per share	107,329,814
Class C common stock, par value $0.00001 per share	13,509,886
Class D common stock, par value $0.00001 per share	69,091,740

Portions of Part III of this Form 10-K are incorporated by reference from the Registrant's definitive proxy statement (the "2019 Proxy Statement") for its 2019 annual meeting of shareholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of the Registrant's fiscal year.

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VIRTU FINANCIAL, INC. AND SUBSIDIARIES
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FOR THE YEAR ENDED DECEMBER 31, 2018

Unless the context otherwise requires, the terms “we,” “us,” “our,” “Virtu” and the “Company” refer to Virtu Financial, Inc., a Delaware corporation, and its consolidated subsidiaries and the term “Virtu Financial” refers to Virtu Financial LLC, a Delaware limited liability company and a consolidated subsidiary of ours.

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PART I

CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward looking statements, including certain statements contained in the risk factors. You should not place undue reliance on forward looking statements because they are subject to numerous uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control. Forward looking statements include information concerning our possible or assumed future results of operations, including descriptions of our business strategy. These forward looking statements can be identified by the use of forward looking terminology, including the terms "may," "will," "should," "believe," "expect," "anticipate," "intend," "plan," "estimate," "project" or, in each case, their negative, or other variations or comparable terminology and expressions. These statements are based on assumptions that we have made in light of our experience in the industry as well as our perceptions of historical trends, current conditions, expected future developments and other factors we believe are appropriate under the circumstances. As you read and consider this Annual Report on Form 10-K, you should understand that these statements are not guarantees of performance or results and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate, may differ materially from those made in or suggested by the forward looking statements contained in this Annual Report on Form 10-K. By their nature, forward looking statements involve known and unknown risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. Although we believe that the forward looking statements contained in this Annual Report on Form 10-K are based on reasonable assumptions, you should be aware that many factors could affect our actual financial results or results of operations and cash flows, and could cause actual results to differ materially from those in such forward looking statements, including, but not limited to:

- reduced levels of overall trading activity;
- dependence upon trading counterparties and clearing houses performing their obligations to us;
- failures of our customized trading platform;
- risks inherent to the electronic market making business and trading generally;
- increased competition in market making activities and execution services;
- dependence on continued access to sources of liquidity;
- risks associated with self clearing and other operational elements of our business;
- obligation to comply with applicable regulatory capital requirements;
- litigation or other legal and regulatory based liabilities;
- proposed legislation that would impose taxes on certain financial transactions in the European Union, the U.S. and other jurisdictions;
- obligation to comply with laws and regulations applicable to our operations in the U.S. and abroad;
- enhanced media and regulatory scrutiny and its impact upon public perception of us or of companies in our industry;
- need to maintain and continue developing proprietary technologies;
- the effect of the Acquisition of KCG (as defined below) on existing business relationships, operating results, and ongoing business operations generally;
- the significant costs and significant indebtedness that we incurred in connection with the Acquisition of KCG, and the integration of KCG into our business;
- the risk that we may encounter significant difficulties or delays in integrating KCG and the anticipated benefits, costs savings and synergies or capital release may not be achieved;
- the assumption of potential liabilities relating to KCG's business;
- the effect of the ITG Acquisition (as defined below) on existing business relationships, operating results, and ongoing business operations generally;
- the significant costs and significant indebtedness that we have incurred in connection with the ITG Transaction;
- the risk that we may encounter significant difficulties or delays in integrating ITG's business with ours and that the anticipated benefits, cost savings and synergies or capital release may not be achieved;

- the assumption of potential liabilities and risks relating to ITG's business;
- capacity constraints, system failures, and delays;
- dependence on third party infrastructure or systems;
- use of open source software;
- failure to protect or enforce our intellectual property rights in our proprietary technology;
- failure to protect confidential and proprietary information;
- failure to protect our systems from internal or external cyber threats that could result in damage to our computer systems, business interruption, loss of data or other consequences;
- risks associated with international operations and expansion, including failed acquisitions or dispositions;

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- the effects of and changes in economic conditions (such as volatility in the financial markets, inflation, monetary conditions and foreign currency and exchange rate fluctuations, foreign currency controls and/or government mandated pricing controls, as well as in trade, monetary, fiscal and tax policies in international markets) and political conditions (such as military actions and terrorist activities);
- risks associated with potential growth and associated corporate actions;
- inability to, or delay, in accessing the capital markets to sell shares or raise additional capital;
- loss of key executives and failure to recruit and retain qualified personnel; and
- risks associated with losing access to a significant exchange or other trading venue.

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.

ITEM 1. BUSINESS

BUSINESS

Overview

We are a leading financial firm that leverages cutting edge technology to deliver liquidity to the global markets and innovative, transparent trading solutions to our clients. Our market structure expertise, broad diversification, and execution technology enables us to provide competitive bids and offers in over 25,000 securities and other financial instruments, on over 235 venues, in 36 countries worldwide. We use the best technology to deliver liquidity to global markets and innovative trading solutions and analytics tools to our clients. We interact directly with hundreds of retail brokers, Registered Investment Advisors, private client networks, sell-side brokers, and buy-side institutions. Our products are transparent, because we believe transparency makes markets more efficient and helps investors make better, more informed decisions.

Technology and operational efficiency are at the core of our business, and our focus on market making and order routing technology is a key element of our success. We have developed a proprietary, multi asset, multi currency technology platform that is highly reliable, scalable and modular, and we integrate directly with exchanges and other liquidity centers. Our market data, order routing, transaction processing, risk management and market surveillance technology modules manage our market making and institutional agency activities in an efficient manner that enables us to scale our activities globally across additional securities and other financial instruments and asset classes without significant incremental costs or third party licensing or processing fees.

We believe that technology-enabled market makers like Virtu serve an important role in maintaining and improving the overall health and efficiency of the global capital markets by continuously posting bids and offers for financial instruments and thereby providing market participants a transparent and efficient means to transfer risk. All market participants benefit from the increased liquidity, lower overall trading costs and improved execution certainty that Virtu provides.

As described in “Acquisition of KCG” below, on July 20, 2017 (the “Closing Date”), we completed our all-cash acquisition (the “Acquisition of KCG”) of KCG Holdings, Inc. (“KCG”). KCG was a leading independent securities firm offering clients a range of services designed to address trading needs across asset classes, product types and geographies. KCG combined advanced technology with specialized client service across market making, agency execution and trading venues and also engaged in principal trading via electronic market making.

Prior to the Acquisition of KCG, Virtu operated as a single reportable business segment. As a result of the Acquisition of KCG, beginning in the third quarter of 2017, we have two operating segments: Market Making and Execution Services, and one non-operating segment: Corporate. Our management allocates resources, assesses performance and manages our business according to these segments.

We primarily conduct our Americas Equities business through our three SEC registered broker dealers. We are registered with the Central Bank of Ireland and the Financial Conduct Authority ("FCA") in the UK for our European trading and the Monetary Authority of Singapore and Australian Securities and Investments Commission for our Asia Pacific trading. We are registered as a market maker or liquidity provider and/or enter into direct obligations to provide liquidity on nearly every exchange or venue that offers such programs. We engage regularly with regulators around the world on issues affecting electronic trading and to advocate for increased transparency. In the U.S., we conduct our business from our headquarters in New York, New York and our trading centers in Austin, Texas and Chicago, Illinois. Abroad, we conduct our business through trading centers located in London, England, Dublin, Ireland and Singapore.

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Market Making

Our Market Making segment principally consists of market making in the cash, futures, and options markets across global equities, options, fixed income, currencies and commodities. As a leading, low cost market maker dedicated to improving efficiency and providing liquidity across multiple securities, asset classes and geographies, we aim to provide critical market functionality and robust price competition in the securities and other financial instruments in which we provide liquidity. This contribution to the financial markets, and the scale and diversity of our market making activities, provides added liquidity and transparency, which we believe are necessary and valuable components to the efficient functioning of market infrastructure and benefit all market participants. We support transparent and efficient, technologically advanced marketplaces, and advocate for legislation and regulation that promotes fair and transparent access to markets.

As a market maker, we commit capital on a principal basis by offering to buy securities from, or sell securities to, broker dealers, banks and institutions. We engage in principal trading in the Market Making segment direct to clients as well as in a supplemental capacity on exchanges and on alternative trading systems (“ATSs”). As a complement to electronic market making, our cash trading business handles specialized orders and transacts on the OTC Link ATS operated by OTC Markets Group Inc. and the Alternative Investment Market of the London Stock Exchange (“AIM”).

We make markets in a number of different asset classes, which are discussed in more detail below. We register as market makers and liquidity providers where available and support affirmative market making obligations.

We provide competitive and deep liquidity that helps to create more efficient markets around the world. We stand ready, at any time, to buy or sell a broad range of securities, and we generate revenue by buying and selling large volumes of securities and other financial instruments and earning small bid/ask spreads.

We believe the overall level of volumes and realized volatility in the various markets we serve have the greatest impact on our businesses. Increases in market volatility can cause bid/ask spreads to widen as market participants are more willing to transact immediately and as a result market makers’ capture rate per notional amount transacted will increase.

Technology is at the core of our business. Our team of in-house software engineers develops our software and applications, and we utilize optimized infrastructure to integrate directly with the exchanges and other trading venues on which we provide liquidity. Our focus on technology and our ability to leverage our technology enables us to be one of the lowest cost providers of liquidity to the global electronic trading marketplace.

Leveraging the scalability and low costs of our platform, we are able to test and rapidly deploy new liquidity provisioning strategies, expand to new securities, asset classes and geographies and increase transaction volumes at little incremental cost. These efficiencies are central to our ability to deliver consistently positive Adjusted Net Trading Income (as defined below) as our profitability per trade and per instrument is not significant, particularly in U.S. equities.

Our transaction processing is automated over the full life cycle of a trade. Our market making platform generates and disseminates continuous bid and offer quotes. At the moment when a trade is executed, our systems capture and deliver this information back to the source, in most cases within a fraction of a second, and the trade record is written into our clearing system, where it flows through a chain of control accounts that allow us to automatically and efficiently reconcile trades, positions and payments until the final settlement occurs.

We have built and continuously refine our automated and integrated, real time systems for global trading, risk management, clearing and cash management, among other purposes. 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, and generally we focus on opportunities in markets that are sufficiently advanced to allow the seamless deployment of our automated strategies, risk management system and core technology.

Our systems are monitored 24 hours a day, five days a week by our core operations team and are substantially identical across our offices, in New York, New York; Austin, Texas; Chicago, Illinois; Dublin, Ireland; London, England; and Singapore. This redundancy covers our full technology platform, including our market data, order routing, transaction processing, risk management and market surveillance technology modules.

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Clients and Products

We offer direct-to-client market making services across multiple asset classes primarily to sell-side clients including global, national and regional broker dealers and banks as well as buy-side clients comprising, among others, mutual funds, pension plans, plan sponsors, hedge funds, trusts and endowments in North America, Europe and Asia.

We generally compete based on execution quality, market coverage, payment for order flow, and client service. In direct-to-client electronic market making in U.S. equities, execution quality is generally measured based on factors that include speed of execution, fulfillment rates, opportunity and amounts of price improvement, using metrics defined in SEC Rule 605. In other asset classes, metrics for execution quality are are not prescribed by applicable regulation, and in many cases, are client defined.

We continually work to provide clients with high quality, low-cost trade executions that enable them to satisfy their fiduciary obligation to seek the best execution on behalf of the end client. We continually refine our automated order routing models so that we may remain competitive.

Americas Equities

We trade over 25,000 listed Americas equity securities including, among others, equity related futures and exchange traded products, on thirteen U.S. Securities and Exchange Commission (“SEC”) registered exchanges, including the New York Stock Exchange (“NYSE”), the NASDAQ, NYSE Arca, Cboe BATS, Chicago Stock Exchange, the TSX in Canada, Bovespa in Brazil and BMV in Mexico, as well as other ATSs and more than 20 private liquidity pools.

As exchange traded products, or “ETPs,” and other similar products have proliferated both domestically and internationally, demand has increased for trading the underlying assets or hedging such funds. Our technology has enabled us to expand into providing liquidity to this growing area by making markets across these assets in a variety of trading venues globally. We are authorized participants, and can create and/or redeem ETPs in the Americas. As of December 31, 2018, we are the Lead Market Maker or Designated Liquidity Provider in over 600 ETPs listed in the Americas.

Rest of World (“ROW”) Equities

Similar to our strategy in the Americas, in ROW trading we utilize direct connections to all of the registered exchanges in a particular jurisdiction including the London Stock Exchange, Cboe BATS Europe, NYSE Euronext, Six Swiss Exchange, Australian Securities Exchange, Tokyo Stock Exchange and Singapore Exchange, as well as other trading venues and additional pools of liquidity to which we can gain access either directly or through a broker.

We are also well positioned in European ETPs, as an authorized participant in many European ETPs. We are authorized participants in over 2,000 ETPs and can create and/or redeem ETPs listed outside the Americas. As of December 31, 2018, we are the registered Market Maker in over 500 ETPs listed abroad.

We increased our presence in APAC equities in 2016 by acquiring a minority stake in SBI Japannext Co., Ltd. (“SBI”), a leading Proprietary Trading System in Japan.

Global FICC, Options, and Other

Our Fixed Income market making includes our activity in U.S. Treasury securities and other sovereign debt, corporate bonds, and other debt instruments. We trade these products on a variety of specialized exchanges, direct to counterparties, and other trading venues, including BrokerTec, eSpeed, DealerWeb, and BGS’s Fenics UTS.

Our Currencies market making, including spot, futures and forwards, comprises our activity in over 80 currencies, including deliverable, non-deliverable, fiat, and digital currencies, across dozens of venues and direct to counterparties. During the years ended December 31, 2018, 2017, and 2016, we were a leading participant in the major foreign exchange venues, including Reuters, Currenex, Cboe FX and NEX.

Our Commodities market making takes place on the CME, ICE, and Nasdaq Futures in crude oil, natural gas, heating oil, and gasoline futures. We trade approximately 100 energy products and futures on the ICE, CME, and TOCOM. We also actively trade precious metals, including gold, silver, platinum and palladium, as well as base metals such as aluminum and copper.

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Our Options and Other market making includes our activity on all of the U.S. options exchanges of which we are a member (i.e., Cboe, ISE and NYSE Arca) and through the U.S. futures exchanges.

Execution Services

Virtu offers agency execution services in global equities, ETFs and fixed income to institutions, banks and broker dealers. We generally earn commissions as an agent when executing orders on behalf of clients. Agency based trading is done primarily through: (a) algorithmic trading and order routing; (b) institutional sales traders who offer portfolio trading and single stock sales trading which provides execution expertise for program, block and riskless principal trades in global equities and ETFs; and (c) matching of client orders in Virtu MatchIt (our registered ATS for U.S. equities). Additionally we act as principal on occasions, either when we manually work an order for a client, or more often, via electronic trading algorithms, executing against our firm’s liquidity. We also earn technology services revenues by providing our proprietary technology and infrastructure to select third parties for a service fee.

Clients and Products

We offer agency execution services across multiple asset classes to buy-side clients including mutual funds, pension plans, plan sponsors, hedge funds, trusts and endowments and sell-side clients including global, national and regional broker dealers and banks in North America, Europe and Asia. In 2018 our Execution Services segment did not have any client that accounted for more than 10% of our commissions earned.

Clients may access a broad range of products and services that includes electronic execution services in global equities via algorithmic trading, order routing and an execution management system (“EMS”) as well as internal crossing through our registered ATS. Our ATS provides clients with anonymous sources of non-displayed liquidity. We also offer clients voice access to global markets including sales and trading for equities, ETFs and options. We handle large complex trades, accessing liquidity from our order flow and other sources. We provide soft dollar and commission recapture programs.

In this segment, we generally compete on trading technology, execution performance, costs, client service, market coverage, liquidity, platform capabilities and anonymity. We draw on in-house developed trading technologies to meet client criteria for execution quality and for managing trading costs. As a result, we are able to attract a diverse array of clients in terms of strategy, size and style. We also provide algorithmic trading and order routing that combine technology, access to our differentiated liquidity and support from experienced professionals to help clients execute trades.

Corporate

Our Corporate segment contains investments principally in strategic financial services-oriented opportunities and maintains corporate overhead expenses and all other income and expenses that are not attributable to our other segments.

Risk Management

We are focused on risk management and it is at the core of our trading infrastructure. Our real time risk controls monitor all of our market making positions, incorporating market data and evaluating our risk exposure to continuously update our outstanding bid and offer quotes, often many times per second. Although the majority of our market making is automated, the trading process and our risk exposure are monitored by a team of individuals, including members of our senior management team, who oversee our risk management processes in real-time. Our risk management system is intrinsic to our trading infrastructure that is utilized in each of our trading centers.

Our on exchange market making strategies are designed to put minimal capital at risk at any given time by limiting the notional size of our positions. Our strategies are also designed to lock in returns through precise hedging in the primary instrument or in one or more economically equivalent instruments, as we seek to eliminate the price risk in any positions held. Our real time risk management system is built into our trading platform and is an integral part of our order life cycle, analyzing real time pricing data and confirming that our order activity is conducted within strict pre determined trading and position limits. If our risk management system detects that a trading strategy is generating revenues or losses in excess of our preset limits, it will lockdown that strategy and alert management.

The market making activities, where we interact with customers, involve the taking of position risks. The risks at any point in time are limited by the notional size of positions as well as other factors. The overall portfolio risks are quantified using internal risk models and monitored by the Chief Risk Officer ("CRO"), the independent risk group and senior management.

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In addition, our risk management system continuously reconciles our internal transaction records against the records of the exchanges and other liquidity centers with which we interact.

Our risk management policies and risk limits are set by our Risk Advisory Committee, and overseen by our CRO, who also reports independently into the Board Risk Committee.

We utilize the following approach to managing risk:

- On Exchange Market Making Strategy Lockdowns. Messages that leave our trading environment must first pass through a series of preset risk controls, or "lockdowns," which are intended to minimize the likelihood of unintended activities by our market making algorithms. Our preset risk controls are designed to limit both downside and upside risk. Following a lockdown, the applicable trading strategy must be manually reset. While this risk prevention layer adds a degree of latency to our trading infrastructure and can prevent us from earning outsized returns in times of extreme market volatility, we believe that this trade-off is necessary to properly limit our downside risk.

- Customer Market Making Model Restrictions. All models have limits in place which restrict individual position sizes, sector exposures and imbalanced portfolios with significant directional risks. Strategies are designed to automatically reduce exposures when limits are reached. The models are monitored by the trading team and the risk managers constantly.

- Aggregate Exposure Monitoring. Pursuant to our risk management policies, our automated management information systems monitor in real time and generate report on daily and periodic bases. Exposures monitored include:

Risk Profiles
Statistical Risk Measures including Value at Risk, and Equity Betas
Stress and Scenario analysis
Concentration measures
Profit and Loss analysis
Trading performance reports

- Our assets and liabilities are marked to market daily for financial reporting purposes by reference to official exchange prices, and they are re valued continuously throughout the trading day for risk management and asset/liability management purposes.

- Operational Controls. We have a series of fully automated controls over of our business. Key automated controls include:

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- Our technical operations system continuously monitors our network and the proper functioning of each of our trading centers around the world;
- Our market making system continuously evaluates the listed securities in which we provide bid and offer quotes and changes its bids and offers in such a way as to minimize exposure to directional price movements. The speed of communicating with exchanges and market centers is maximized through continuous software and network engineering innovation, allowing us to achieve real time controls over market exposure. We connect to exchanges and other electronic venues through a network of co location facilities around the world that are monitored 24 hours a day, five days a week, by our staff of experienced network professionals;
- Our clearing system captures trades in real-time and performs automated reconciliations of trades and positions, corporate action processing, options exercises, securities lending and inventory management, allowing us to effectively manage operational risk;
- Software developed to support our market making systems performs daily profit and loss and position reconciliations; and
- After event reviews where operational issues are evaluated and risk mitigations are identified and subsequently implemented.

- Credit Controls. Trading notional limits are applied to customers and counterparts. These are monitored throughout the day by trading support and risk.

- Liquidity Controls. We seek to minimize liquidity risk by focusing the majority of trading in highly active and liquid instruments. Less liquid securities are identified and restrictions are in place as to the size of positions we hold in such instruments.

We rely on technology and automation to perform many functions within Virtu. Cyber threats are a risk that we are exposed to as a result of our heavy reliance on technology. These threats could include the introduction of malicious code or unauthorized access, and could result in data loss or destruction, business interruption, and the unavailability of service and other risks. We have taken steps to mitigate the various cyber threats, and we devote resources to maintain and regularly upgrade our systems and networks and review the ever-changing threat landscape. We have created a Risk Advisory Committee, which includes key personnel from each of our locations globally and is comprised of our CRO and our Chief Compliance Officer, members of our senior management team, senior technologists and traders, and certain senior officers. We will continue to periodically review policies and procedures to seek to ensure they are effective in mitigating current cyber and other information security threats. In addition to the policy reviews, we continue to look to implement technology solutions that enhance preventive and detection capabilities. We also maintain insurance coverage that may, subject to policy terms and conditions, cover certain aspects of cyber risks. However, such insurance may be insufficient to cover all losses or may not provide any coverage.

Our board of directors, through the Board Risk Committee, is regularly apprised of risk events, risk profiles, trends and the activities of our Risk Advisory Committee, including our risk management policies, procedures and controls.

Competition

Historically, our competition has been registered market making firms ranging from sole proprietors with very limited resources to large, integrated broker dealers. Today, a range of market participants may compete with us for revenues generated by market making activities across one or more asset classes and geographies, including market participants, such as Citadel Securities, Susquehanna International Group LLP, Two Sigma, Jane Street, DRW Holdings, IMC, and Optiver. Some of our competitors in market making are larger than we are and have more captive order flow in certain assets. We believe that the high cost of developing a competitive technological framework is a significant barrier to entry by new market participants.

Technology and software innovation is a primary focus for us, rather than relying solely on the speed of our network. We believe that our scalable technology allows us to access new markets and increase volumes with limited incremental costs.

Intellectual Property and Other Proprietary Rights

We rely on federal and state laws that govern trade secrets, trademarks, domain names, copyright and contract law to protect our intellectual property and proprietary technology. We enter into confidentiality, intellectual property invention assignment and/or non competition and non solicitation agreements or restrictions with our employees, independent contractors and business partners, and we control access to, and distribution of, our intellectual property.

Employees

As of February 7, 2019, we had approximately 483 employees, all of whom were employed on a full time basis. None of our employees are covered by collective bargaining agreements. We believe that our employee relations are good.

Regulation

We conduct our U.S. equities and options market making and provide execution services through our three SEC registered broker dealers, Virtu Financial BD LLC, Virtu Financial Capital Markets LLC, and Virtu Americas LLC. Virtu Financial BD LLC is a self clearing broker dealer, is regulated by the SEC and its designated examining authority is the Chicago Stock Exchange. Both Virtu Americas LLC and Virtu Financial Capital Markets LLC are dual clearing broker dealers (which means each self clears certain proprietary and customer transactions and clears and settles the majority of customer transactions through fully disclosed clearing arrangements), are regulated by the SEC and their designated examining authority is the Financial Industry Regulatory Authority, Inc. (“FINRA”).

Our activities in U.S. equities are primarily self cleared. We are a full clearing member of the National Securities Clearing Corporation (NSCC), and the DTCC. Merrill Lynch, Pierce, Fenner & Smith Incorporated acts as our clearing broker and carries and clears, on a fully disclosed basis, accounts for our institutional customers and acts as a prime broker for certain of our market making accounts. In other asset classes, we use the services of prime brokers who provide us direct market access to markets and often cross margining and margin financing in return for an execution and clearing fee. We continually monitor the credit quality of our prime brokers and rely on large multinational banks for most of our execution and clearing needs globally.

Our energy, commodities and currency market making and trading activities are primarily conducted through Virtu Financial Global Markets LLC.

We conduct our European, Middle Eastern and African (“EMEA”) market making and trading activities and provide execution services from Dublin and through our Irish subsidiary, Virtu Financial Ireland Limited, which is authorized as an “Investment Firm” with the Central Bank of Ireland. Virtu Financial Ireland Limited maintains a branch office in London.

We conduct our Asia-Pacific (“APAC”) market making and trading activities from Singapore and through our Singapore subsidiary, Virtu Financial Singapore Pte. Ltd. Virtu Financial Singapore Pte. Ltd. is registered with the Monetary Authority of Singapore for an investment incentive arrangement.

Most aspects of our business are subject to extensive regulation under federal, state and foreign laws and regulations, as well as the rules of the various self-regulatory organization (“SROs”) of which our broker-dealer subsidiaries are members. The SEC, the U.S. Commodity Futures Trading Commission (“CFTC”), state securities regulators, FCA, the Securities and Futures Commission (“SFC”), FINRA, National Futures Association (“NFA”), other SROs and other U.S. and foreign governmental regulatory bodies promulgate numerous rules and regulations that may impact our business. As a matter of public policy, regulatory bodies are charged with safeguarding the integrity of the securities and other financial markets and with protecting the interests of investors in those markets. Regulated entities are subject to regulations concerning all aspects of their business, including, but not limited to, trading practices, order handling, best execution practices, anti money laundering and financial crimes, handling of material non public information, safeguarding data, compliance with exchange and clearinghouse rules, capital adequacy, reporting, record retention, market access and the conduct of officers, employees and other associated persons. Virtu Americas LLC carries certain customer accounts and is therefore subject to applicable SEC requirements relating to the protection of customer securities and the maintenance of a cash reserve account for the benefit of customers.

Rulemaking by these and other regulators (foreign and domestic), including resulting market structure changes, has had an impact on our regulated subsidiaries by directly affecting our method of operation and, at times, our profitability. Legislation can impose, and has imposed, significant obligations on broker dealers, including our regulated subsidiaries. These increased obligations require the implementation and maintenance of internal practices, procedures and controls which have increased our costs and may subject us to government and regulatory inquiries, claims or penalties.

Failure to comply with any laws, rules or regulations could result in administrative or court proceedings, censures, fines, penalties, judgments, disgorgement, restitution and censures, suspension or expulsion from a certain jurisdiction, SRO or market, the revocation or limitation of licenses, the issuance of cease and desist orders or injunctions or the suspension or disqualification of the entity and/or its officers, employees or other associated persons. From time to time, we are the subject of requests for information and documents from the SEC, FINRA and other regulators. In is our practice to cooperate and comply with the requests for information and documents. These requests could lead to administrative or court proceedings. Whether or

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not they result in adverse findings, they can require substantial expenditures of time and money and can have an adverse impact on a firm's reputation, customer relationship and profitability.

The regulatory environment in which we operate is subject to constant change. Our business, financial condition and operating results may be adversely affected as a result of new or revised legislation or regulations imposed by the U.S. Congress, foreign legislative bodies, state securities regulators, U.S. and foreign governmental regulatory bodies and SROs. Additional regulations, changes in existing laws and rules, or changes in interpretations or enforcement of existing laws and rules often directly affect the method of operation and profitability of regulated broker dealers. We cannot predict what effect, if any, future legislative or regulatory changes might have. However, there have been in the past, and could be in the future, significant technological, operational and compliance costs associated with the obligations which derive from compliance with such regulations. Regulators may propose market structure changes particularly considering the continued regulatory scrutiny of high frequency trading, alternative trading systems, market fragmentation, colocation, access to market data feeds, and remuneration arrangements such as payment for order flow and exchange fee and rebate structures.

The SEC and other Regulatory Bodies have enacted and are actively considering rules that may affect our operations and profitability. Among these are changes the SEC has made to Reg NMS Rule 606, changes the SEC is considering to Rule 605 which are intended to provide additional information on order routing and execution quality. Regulation ATS-N recently became effective and requires operators of alternative trading systems to provide additional information regarding the ATS and other business of the operator that may pose conflicts. Broker-dealers will be subject to the reporting requirements under the Reg NMS Plan providing for a Consolidated Audit Trail of equities and options data effective November 15, 2019. The SEC has adopted NMS Rule 610T to conduct a transaction fee pilot (the "Pilot") designed to generate data that will help the SEC analyze the effects of exchange transaction fee and rebate pricing models on order routing behavior, execution quality, and market quality generally. Data from the Pilot will be used to facilitate an empirical evaluation of whether the exchange transaction-based fee and rebate structure is operating effectively to further statutory goals and whether there is a need for any potential regulatory action in this area. The Pilot is expected to start in late 2019. These changes and others impose additional technological, operational and compliance costs on us and creates uncertainty with regard to their effects.

On July 21, 2010, the Dodd Frank Act was enacted in the U.S. Implementation of the Dodd Frank Act is being accomplished through extensive rulemaking by the SEC, the CFTC and other governmental agencies. The Dodd Frank Act includes the "Volcker Rule," which significantly limits the ability of banks and their affiliates to engage in proprietary trading, and Title VII, which provides a framework for the regulation of the swap markets. The CFTC has largely finalized its rules with respect to those swaps markets and participants it regulates, while the SEC has not yet completed all of its rules relating to security based swaps. One of our subsidiaries is registered with the CFTC as a floor trader, and is exempt from registration as a swap dealer based on its current activity. Registration as a swap dealer would subject our subsidiary to various requirements, including those related to capital, conduct, and reporting.

We have foreign subsidiaries and plan to continue to expand our international presence. The market making industry in many foreign countries is heavily regulated, much like in the U.S. The varying compliance requirements of these different regulatory jurisdictions and other factors may limit our ability to conduct business or expand internationally. MiFID, which was implemented in November 2007, has been replaced by a more prescriptive MiFIR Regulation and MiFID II. MiFID II represents the most significant change to take place in the operation of European capital markets to date and became effective on January 3, 2018. MiFID II introduces requirements for increased pre and post trade transparency, technological and organizational requirements for firms deploying algorithmic trading techniques, restrictions on dark trading, and the roll out of a new bi-lateral OTC equity trading regime called the Systematic Internaliser regime. MiFID II will require European firms to conduct all trading on European Trading Venues including Regulated Markets, Multilateral Trading Facilities, Systematic Internalisers or equivalent third country venues, require market makers like us to post firm quotes at competitive prices and will supplement current requirements with regard to investment firms' pre-trade risk controls related to the safe operation of electronic systems. MiFID II also imposes additional requirements on trading platforms, such as additional technological requirements, clock synchronization, microsecond processing granularity, pre-trade risk controls, transaction reporting requirements and limits on the ratio of unexecuted orders to trades. Each of these requirements imposes additional technological, operational and compliance costs on us. New laws, rules or regulations as well as any regulatory or legal actions or proceedings, changes in legislation or regulation and changes in market customs and practices could have a material adverse effect on our business, financial condition, results of operations, and cash flows.

Certain of our subsidiaries are subject to regulatory capital rules of the SEC, FINRA, other SROs and foreign regulators. These rules, which specify minimum capital requirements for our regulated subsidiaries, are designed to measure the general financial integrity and liquidity of a broker dealer and require that at least a minimum part of its assets be kept in relatively liquid form. Failure to maintain required minimum capital may subject a regulated subsidiary to a fine, requirement to cease conducting business, suspension, revocation of registration or expulsion by applicable regulatory authorities, and

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ultimately could require the relevant entity's liquidation. See "Item 1A. Risk Factors - Risks Related to Our Business - Failure to comply with applicable regulatory capital requirements could subject us to sanctions imposed by the SEC, FINRA and other SROs or regulatory bodies."

Corporate History

We and our predecessors have been in the electronic trading and market making business for more than 15 years. We conduct our business through Virtu Financial LLC ("Virtu Financial") and its subsidiaries. We completed our initial public offering ("IPO") in April 2015, after which shares of our Class A common stock, par value $0.00001 per share (the "Class A Common Stock") began trading on NASDAQ under the ticker symbol "VIRT."

Prior to our IPO, we completed a series of reorganization transactions (the "Reorganization Transactions") pursuant to which, among other things, we acquired equity interests in Virtu Financial as a result of certain mergers involving wholly owned subsidiaries of ours, an affiliate of Silver Lake Partners and Temasek Holdings (Private) Limited ("Temasek"), and an affiliate of Temasek (the "Temasek Pre-IPO Member") (the "Mergers"), and in exchange we issued to an affiliate of Silver Lake Partners (such affiliate, the "Silver Lake Post-IPO Stockholder") and an affiliate of Temasek (such affiliate, the "Temasek Post-IPO Stockholder", and together with the Silver Lake Post-IPO Stockholder, the "Investor Post-IPO Stockholders"), shares of our Class A Common Stock and rights to receive payments under a tax receivable agreement described below, we became the sole managing member of Virtu Financial, all of the existing equity interests in Virtu Financial were reclassified into non-voting common interest units ("Virtu Financial Units"), our certificate of incorporation was amended and restated to authorize the issuance of four classes of common stock: Class A Common Stock, Class B Common Stock (as defined below), Class C Common Stock (as defined below) and Class D Common Stock (as defined below), and the holders of Virtu Financial Units other than us subscribed for shares of Class C common stock, par value $0.00001 per share (the "Class C Common Stock) or Class D common stock, par value $0.00001 per share (the "Class D Common Stock") (in the case of the Founder Post-IPO Member, as defined below) in an amount equal to the number of Virtu Financial Units held by such member.

The Class A Common Stock and Class C Common Stock each provide holders with one vote on all matters submitted to a vote of stockholders, and the Class B Common Stock, par value $0.00001 per share (the "Class B Common Stock") and Class D Common Stock each provide holders with 10 votes on all matters submitted to a vote of stockholders. The holders of Class C Common Stock and Class D Common Stock do not have any of the economic rights (including rights to dividends and distributions upon liquidation) provided to holders of Class A Common Stock and Class B Common Stock. Shares of our common stock generally vote together as a single class on all matters submitted to a vote of our stockholders.

On July 20, 2017, the Company completed the all-cash Acquisition of KCG. In connection with the Acquisition of KCG, the Company issued 8,012,821 shares of the Company's Class A stock to Aranda Investments Pte. Ltd. ("Aranda"), an affiliate of Temasek, for an aggregate purchase price of approximately $125.0 million and 40,064,103 shares of the Company's Class A stock to North Island Holdings I, LP (the "North Island Stockholder") for an aggregate purchase price of approximately $618.7 million, in each case in accordance with terms of an investment agreement in a private placement exempt from the registration requirements of the Securities Act of 1933, as amended (the "Securities Act"), pursuant to Section 4(a)(2) of the Securities Act, (collectively, the "July 2017 Private Placement").

As a result of the completion of the IPO, the Reorganization Transactions, the July 2017 Private Placement, and certain other secondary offerings and permitted exchanges by current and former employees of Virtu Financial Units for shares of the Company's Class A Common Stock, the Company holds an approximately 56.7% interest in Virtu Financial at December 31, 2018. The remaining issued and outstanding Virtu Financial Units are held by an affiliate of Mr. Vincent Viola (the "Founder Post-IPO Member"), two entities whose equityholders include certain members of the management of Virtu Financial and certain other current and former members of management of Virtu Financial (collectively, the “Virtu Post-IPO Members”). The Founder Post-IPO Member controls approximately 84.1% of the combined voting power of our outstanding common stock as of December 31, 2018. As a result, the Founder Post-IPO Member controls any actions requiring the general approval of our stockholders, including the election of our board of directors, the adoption of amendments to our certificate of incorporation and bylaws and the approval of any merger or sale of substantially all of our assets. The Founder Post-IPO Member is controlled by family members of Mr. Viola, our Founder and Chairman Emeritus.

Available Information

Our website address is www.virtu.com. The information on our website is not, and shall not be deemed to be, a part of this Annual Report on Form 10-K or incorporated into any other filings we make with the Securities and Exchange Commission (the “SEC”). Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934,

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as amended (the "Exchange Act") are available free of charge on our website as soon as possible after we electronically file them with, or furnish them to, the SEC.

Our Investor Relations Department can be contacted at Virtu Financial, Inc., 300 Vesey Street, New York, NY, 10282, Attn: Investor Relations, e-mail: investor_relations@virtu.com.

From time to time, we use our website, public conference calls, and social media channels, including our Twitter account (twitter.com/virtufinancial) and our LinkedIn account (linkedin.com/company/virtu-financial), as additional means of disclosing public information to investors, the media and others interested in us. It is possible that certain information we post on our website and on social media could be deemed to be material information, and we encourage investors, the media and others interested in us to review the business and financial information we post on our website and on the social media channels identified above. The information on our website and our social media channels is not incorporated by reference into this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

Risks Related to Our Business

Because our revenues and profitability depend on trading volume and volatility in the markets in which we operate, they are subject to factors beyond our control, are prone to significant fluctuations and are difficult to predict.

Our revenues and profitability depend in part on the level of trading activity of securities, derivatives and other financial products on exchanges and in other trading venues in the U.S. and abroad, which are directly affected by factors beyond our control, including economic and political conditions, broad trends in business and finance and changes in the markets in which such transactions occur. Weaknesses in the markets in which we operate, including economic slowdowns in recent years, have historically resulted in reduced trading volumes for us. Declines in trading volumes generally result in lower revenues from market making and transaction execution activities. Lower levels of volatility generally have the same directional impact. Declines in market values of securities or other financial instruments can also result in illiquid markets, which can also result in lower revenues and profitability from market making and transaction execution activities. Lower price levels of securities and other financial instruments, as well as compressed bid/ask spreads, which often follow lower pricing, can further result in reduced revenues and profitability. These factors can also increase the potential for losses on securities or other financial instruments held in inventory and failures of buyers and sellers to fulfill their obligations and settle their trades, as well as claims and litigation. Declines in the trading activity of institutional or "buy-side" market participants may result in lower revenue and/or diminished opportunities for us to earn commissions from execution activities. Any of the foregoing factors could have a material adverse effect on our business, financial condition, results of operations and cash flows. In the past, our revenues and operating results have varied significantly from period to period due primarily to movements and trends in the underlying markets and to fluctuations in trading volumes and volatility levels. 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 are dependent upon our trading counterparties and clearing houses to perform their obligations to us.

Our business consists of providing consistent two sided liquidity to market participants across numerous geographies and asset classes. In the event of a systemic market event, resulting from large price movements or otherwise, certain market participants may not be able to meet their obligations to their trading counterparties, who, in turn, may not be able to meet their obligations to their other trading counterparties, which could lead to major defaults by one or more market participants. Following the implementation of certain mandates under the Dodd Frank Act in the U.S. and similar legislation worldwide, many trades in the securities and futures markets, and an increasing number of trades in the over the counter derivatives markets, are cleared through central counterparties. These central counterparties assume, and specialize in managing, counterparty performance risk relating to such trades. However, even when trades are cleared in this manner, there can be no assurance that a clearing house's risk management methodology will be adequate to manage one or more defaults. Given the concentration of counterparty performance risk that is concentrated in central clearing parties, any failure by a clearing house to properly manage a default could lead to a systemic market failure. If our trading counterparties do not meet their obligations to us, or if any central clearing parties fail to properly manage defaults by market participants, we could suffer a material adverse effect on our business, financial condition, results of operations and cash flows.

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We may incur losses in our market making activities and our execution services businesses in the event of failures of our customized trading platform.

The success of our market making business is substantially dependent on the accuracy and performance of our customized trading platform, which evaluates and monitors the risks inherent in our market making strategies and execution services business, assimilates market data and reevaluates our outstanding quotes and positions continuously throughout the trading day. Our strategies are designed to automatically rebalance our positions throughout the trading day to manage risk exposures on our positions. Flaws in our strategies, order management system, risk management processes, latencies or inaccuracies in the market data that we use to generate our quotes, or human error in managing risk parameters or other strategy inputs, may lead to unexpected and unprofitable trades, which may result in material trading losses and could have a material adverse effect on our business, financial condition, results of operations and cash flows.

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

A significant portion of our revenues are derived from our trading as principal in our role as a formal or registered market maker and liquidity provider on various exchanges and markets, as well as direct to customer market making. We may incur trading losses relating to these activities since each primarily involves the purchase, sale or short sale of securities, futures and other financial instruments for our own account. In any period, we may incur significant trading losses for a variety of reasons, including price changes, performance, size and volatility of portfolios we may hold in connection with our customer market making activities, lack of liquidity in instruments in which we have positions and the required performance of our market making obligations. Furthermore, we may from time to time develop large position concentrations in securities or other financial instruments of a single issuer or issuers engaged in a specific industry, or alternatively a single future or other financial instrument, which would result in the risk of higher trading losses than if our concentration were lower.

These risks may limit or restrict, for example, our ability to either resell securities we have purchased or to repurchase securities we have sold. In addition, we may experience difficulty borrowing securities to make delivery to purchasers to whom we have sold securities short or lenders from whom we have borrowed securities.

In our role as a market maker, we attempt to derive a profit from bid/ask spreads. However, competitive forces often require us to match or improve upon the quotes that other market makers display, thereby narrowing bid/ask spreads, and to hold long or short positions in securities, futures or other financial instruments. We cannot assure you that we will be able to manage these risks successfully or that we will not experience significant losses from such activities, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our risk management activities related to our on exchange market making strategies utilize a four pronged approach, consisting of strategy lockdowns, centralized strategy monitoring, aggregate exposure monitoring and operational controls. In particular, messages that leave our trading environment first must pass through a series of preset risk controls or "lockdowns" that are intended to minimize the likelihood of unintended activities. In certain cases this layer of risk management, which adds a layer of latency to our process, may limit our ability to profit from acute volatility in the markets. This would be the case, for example, where a particular strategy being utilized by one of our traders is temporarily locked down for generating revenue in excess of the preset risk limit. Even if we are able to quickly and correctly identify the reasons for a lockdown and quickly resume the trading strategy, we may limit our potential upside as a result of our risk management policies.

The valuation of the securities we hold at any particular time 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 prices 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 and may be denominated in different currencies. Further, there may be large and occasionally anomalous swings in the value of our positions on any particular day and in our earnings in any period. Such swings may be especially pronounced on the last business day of each calendar quarter, as the discrepancy in official closing prices resulting from the asynchronous closing times may cause us to recognize a gain or loss in one quarter which would be substantially offset by a corresponding loss or gain in the following quarter.

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

As a market maker, we provide liquidity by consistently buying securities from sellers and selling securities to buyers. We may at times trade with others who have information that is more accurate or complete than the information we have, and

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as a result we may accumulate unfavorable positions preceding large price movements in a given instrument. Should the frequency or magnitude of these events increase, our losses would likely increase correspondingly, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We face substantial competition which would harm our financial performance.

Revenues from our market making activities depend on our ability to offer to buy and sell financial instruments at prices that are attractive and represent the best bid and/or offer in a given instrument at a given time. To attract order flow, we compete with other firms not only on our ability to provide liquidity at competitive prices, but also on other factors such as order execution speed and technology. Similarly, revenues from our technology services and agency execution services depend on our ability to offer cutting edge technology and risk management solutions.

Our competitors include other registered market makers, as well as unregulated or lesser regulated trading and technology firms that also compete to provide liquidity and Execution Services. Our competitors range from sole proprietors with very limited resources to highly sophisticated groups, hedge funds, well capitalized broker dealers and proprietary trading firms or other market makers that have substantially greater financial and other resources 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, to manage costs and expenses and to compete for market share generally. Trading firms that are not registered as broker dealers or broker dealers not registered as market makers may in some instances have certain advantages over more regulated firms, including our subsidiaries that may allow them to bypass regulatory restrictions and trade more cheaply than more regulated participants on some markets or exchanges. In addition, we may in the future face enhanced competition from new market participants that may also have substantially greater financial and other resources than we do, which may result in compressed bid/ask spreads in the marketplace that may negatively impact our financial performance. Moreover, current and potential competitors may establish cooperative relationships among themselves or with third parties or may consolidate to enhance their services and products. The trend toward increased competition in our business is expected to continue, and it is possible that our competitors may acquire increased market share. Increased competition or consolidation in the marketplace could reduce the bid/ask spreads on which our business and profitability depend, and may also reduce commissions paid by institutional clients for execution services, negatively impacting our financial performance. As a result, there can be no assurance that we will be able to compete effectively with current or future competitors, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our market making business is concentrated in U.S. equities; accordingly, our operating results may be negatively impacted by changes that affect the U.S. equity markets.

A majority of our market making revenue for 2018 was derived from our market making in U.S. equities. The level of activity in the U.S. equity markets is directly affected by factors beyond our control, including U.S. economic and political conditions, broad trends in business and finance, legislative and regulatory changes and changes in volume and price levels of U.S. equity transactions. As a result, to the extent these or other factors reduce trading volume or volatility or result in a downturn in the U.S. equity markets, we may experience a material adverse effect on, our business, financial condition and operating results.

We could lose significant sources of revenues if we lose any of our larger clients.

At times, a limited number of clients could account for a significant portion of our order flow, revenues and profitability, and we expect a large portion of the future demand for, and profitability from, our trade execution services to remain concentrated within a limited number of clients. The loss of one or more larger clients could have an adverse effect on our revenues and profitability in the future. None of these clients is currently contractually obligated to utilize us for trade execution services and, accordingly, these clients may direct their trade execution activities to other execution providers or market centers at any time. Some of these clients have grown organically or acquired market makers and specialist firms to internalize order flow or will have entered into strategic relationships with competitors. There can be no assurance that we will be able to retain these significant clients or that such clients will maintain or increase their demand for our trade execution services. Further, the continued integration of legacy systems and the development of new systems could result in disruptions to our ongoing businesses and relationships or cause issues with standards, controls, procedures and policies that adversely affect our ability to maintain relationships with customers, or to solicit new customers. The loss, or a significant reduction, of demand for our services from any of these clients could have a material adverse effect on our business, financial condition, results of operations and cash flows.

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We are subject to liquidity risk in our operations.

We require liquidity to fund various ongoing obligations, including operating expenses, capital expenditures, debt service and dividend payments. Our main sources of liquidity are cash flow from the operations of our subsidiaries, our broker dealer revolving credit facility (described under “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources - Long-Term Borrowings”), margin financing provided by our prime brokers and cash on hand. Our liquidity could be materially impaired by a number of factors, including reduced business activity due to a market downturn, adverse regulatory action or a downgrade of our credit rating. If our business activities decrease or we are unable to borrow additional funds in the future on terms that are acceptable to us, or at all, we could suffer a material adverse effect on our business, financial condition, results of operations and cash flows.

Self clearing and other elements of our trade processing operations expose us to significant operational, financial and liquidity risks.

We currently self clear substantially all of our domestic equity trades and may expand our self clearing operations internationally and across product offerings and asset classes in the future. Self clearing exposes our business to operational risks, including business disruption, operational inefficiencies, liquidity, financing risks, counterparty performance risk and potentially increased expenses and lost revenue opportunities. While our clearing platform, operational processes, risk methodologies, enhanced infrastructure and current and future financing arrangements have been carefully designed, we may nevertheless encounter difficulties that may lead to operating inefficiencies, including delays in implementation, disruption in the infrastructure that supports the business, inadequate liquidity and financial loss. Any such delay, disruption or failure could negatively impact our ability to effect transactions and manage our exposure to risk and could have a material adverse effect on our business, financial condition, results of operations cash flows.

We have a substantial amount of indebtedness, which could negatively impact our business and financial condition, and our debt agreements contain restrictions that will limit our flexibility in operating our business.

We are a highly leveraged company. As of December 31, 2018, we had an aggregate of $931.9 million outstanding indebtedness under our long-term borrowings. If we cannot generate sufficient cash flow from operations to service our debt, we may need to refinance our debt, dispose of assets or issue equity to obtain necessary funds. We do not know whether we will be able to take any of such actions on a timely basis, on terms satisfactory to us or at all.

Additionally, we are party to the $150.0 million uncommitted facility (the “Uncommitted Facility “) under which we had $10.0 million of borrowings outstanding as of December 31, 2018. We are also are party to the $500.0 million revolving credit facility (the “Revolving Credit Facility”) under which we had $7.0 million of borrowing outstanding as of December 31, 2018. Also, certain of our non-guarantor subsidiaries are party to various short-term credit facilities with various prime brokers and other financial institutions in an aggregate amount of $566.0 million under which we had $184.6 million in borrowings outstanding at December 31, 2018.

The fourth amended and restated credit agreement entered into on June 30, 2017 by and between Virtu Financial and VFH Parent LLC (“VFH”) (as amended on January 2, 2018 and September 19, 2018, the "Fourth Amended and Restated Credit Agreement") and the indenture pursuant to which we have issued the Notes (as defined below) contain, and any other existing or future indebtedness of ours may contain, a number of covenants that impose significant operating and financial restrictions on us, including restrictions on our and our restricted subsidiaries’ ability to, among other things:

- incur additional debt, guarantee indebtedness or issue certain preferred equity interests;
-

pay dividends on or make distributions in respect of, or repurchase or redeem, our equity interests or make other restricted payments;
- prepay, redeem or repurchase certain debt;
- make loans or certain investments;
- sell certain assets;
- create liens on our assets;
- consolidate, merge or sell or otherwise dispose of all or substantially all of our assets;
- enter into certain transactions with our affiliates;
- enter into agreements restricting our subsidiaries' ability to pay dividends; and
- designate our subsidiaries as unrestricted subsidiaries.

As a result of these covenants, we are limited in the manner in which we conduct our business, and we may be unable to successfully execute our strategy, engage in favorable business activities or finance future operations or capital needs. In

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addition, our Fourth Amended and Restated Credit Agreement requires us to maintain specified financial ratios and tests, including interest coverage and total leverage ratios, which may require us to take action to reduce our debt or to act in a manner contrary to our business objectives.

We may be unable to remain in compliance with the financial maintenance and other covenants contained in the Fourth Amended and Restated Credit Agreement, and our obligation to comply with these covenants may adversely affect our ability to operate our business. A failure to comply with the covenants under the Fourth Amended and Restated Credit Agreement, the Notes or any of our other future indebtedness could result in an event of default, which, if not cured or waived, could have a material adverse effect on our business, financial condition, results of operations and cash flows. If any such event of default has occurred and is continuing, the lenders under our Fourth Amended and Restated Credit Agreement, among other things:

- will not be required to lend any additional amounts to us;
- could elect to declare all borrowings outstanding, together with accrued and unpaid interest and fees, to be immediately due and payable and terminate all commitments to extend further credit; or
- could effectively prevent us from making debt service payments on the Notes;

any of which could result in an event of default under the Notes or cause cross defaults under our other indebtedness. If we default on our indebtedness, our business, financial condition and results of operation could suffer a material adverse effect.

We pledge substantially all of our and our guarantor subsidiaries' assets as collateral under the Fourth Amended and Restated Credit Agreement and the Notes. If we were unable to repay such indebtedness, the lenders under the Fourth Amended and Restated Credit Agreement and, subject to certain intercreditor arrangements, the holders of the Notes, could proceed to exercise remedies against the collateral granted to them to secure that indebtedness. If any of our outstanding indebtedness under the Fourth Amended and Restated Credit Agreement, the Notes or our other indebtedness were to be accelerated, there can be no assurance that our assets would be sufficient to repay such indebtedness in full. We do not have sufficient working capital to satisfy our debt obligations in the event of an acceleration of all or a significant part of our outstanding indebtedness.

Despite our substantial indebtedness, we may still be able to incur significantly more debt, which could intensify the risks associated with our substantial indebtedness.

Borrowings under the Fourth Amended and Restated Credit Agreement, the Uncommitted Facility and the Revolving Credit Facility are at variable rates of interest and expose us to interest rate risk. If interest rates increase, our debt service obligations on certain of our variable rate indebtedness will increase even though the amount borrowed remained the same, and our net income and cash flows, including cash available for servicing our indebtedness, will correspondingly decrease. We may enter into interest rate swaps that involve the exchange of floating for fixed rate interest payments in order to reduce interest rate volatility. However, we may not maintain interest rate swaps with respect to all of our variable rate indebtedness, and any swaps we enter into may not fully mitigate our interest rate risk, may prove disadvantageous or may create additional risks. Rising interest rates could also limit our ability to refinance existing debt when it matures or cause us to pay higher interest rates upon refinancing.

Regulatory and legal uncertainties could harm our business.

Securities and derivatives businesses are heavily regulated. Firms in the financial services industry have been subject to an increasingly regulated environment over recent years, and penalties and fines sought by regulatory authorities have increased considerably. In addition, following recent news media attention to electronic trading and market structure, the 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. “High frequency” and other forms of low latency or electronic trading strategies continue to be the focus of extensive regulatory scrutiny by federal, state and foreign regulators and SROs, and such scrutiny is likely to continue. Our market making and trading activities are characterized by substantial volumes, an emphasis on technology and certain other characteristics that are also commonly associated with high frequency trading.

In addition, certain market participants, SROs, government officials and regulators have requested that the U.S. Congress, the SEC, and the CFTC propose and adopt additional laws and rules, including rules relating to additional registration requirements, restrictions on co location, order to execution ratios, minimum quote life for orders, incremental messaging fees to be imposed by exchanges for “excessive” order placements and/or cancellations, further transaction taxes, tick sizes, changes to maker/taker rebates programs, and other market structure proposals. For example, the SEC adopted Regulation SCI, which imposes compliance and other costs on market centers that may have to pass such costs on to their

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users, including us, and could impact our future business plans of establishing a market center to avoid or reduce market center costs for certain of our transactions. Similarly, CAT imposes new reporting requirements and additional costs on U.S. broker-dealers. In December 2018, the SEC approved a Transaction Fee Pilot for NMS Securities which will create three groups of securities that will be subject to restrictions on access fees and rebates. Finally, the SEC has proposed amendments to regulations that would require our registered broker dealer that is not currently a FINRA member to become a member of FINRA, which, if adopted as proposed, would subject the broker dealer to FINRA's rules and require payment of additional fees per trade that could adversely affect our profits given that we seek to make small profits on individual trades. Additionally, the CFTC has proposed the adoption of Regulation Automated Trading, which would, among other requirements, require registration by direct market participants, mandate the use of certain types of risk controls, and require the maintenance of a source code repository in accordance with certain specifications.

Any or all of these proposals or additional proposals may be adopted by the SEC, CFTC or other U.S. or foreign legislative or regulatory bodies, and recent news media attention to electronic trading and market structure could increase the likelihood of adoption. These potential market structure and regulatory changes could cause a change in the manner in which we make markets, impose additional costs and expenses on our business or otherwise have a material adverse effect on our business, financial condition, results of operations and cash flows.

In addition, the financial services industry is heavily regulated in many foreign countries, much like in the U.S. The varying compliance requirements of these different regulatory jurisdictions and other factors may limit our ability to conduct business or expand internationally. For example, MiFID, which was implemented in November 2007, has been replaced by MiFID II/Markets in Financial Investments Regulation ("MiFIR"), which was adopted by the European Parliament on April 15, 2014 and by the Council on May 13, 2014, entered into force on July 2, 2014, and became effective on January 3, 2018. Many MiFID II changes are likely to affect our business. For example, MiFID II requires certain types of firms, including us, to post firm quotes at competitive prices and will supplement current requirements with regard to investment firms' risk controls related to the safe operation of electronic systems. MiFID II will also impose additional requirements on market structure, such as the introduction of a harmonized tick size regime, the introduction of new trading venues known as Organized Trading Facilities, and the promulgation of a new bilateral trading arrangement called the Systematic Internaliser regime, new open access provisions, market making requirements and various other pre and post trade risk management requirements. Each of these and other proposals may impose technological and compliance costs on us. Any of these laws, rules or regulations, as well as changes in legislation or regulation and changes in market customs and practices could have a material adverse effect on our business, financial condition, results of operations and cash flows. These risks may be enhanced by recent scrutiny of electronic trading and market structure from regulators, lawmakers and the financial news media.

In addition, we maintain borrowing facilities with banks, prime brokers and Futures Commission Merchants ("FCMs"), and we obtain uncommitted margin financing from our prime brokers and FCMs, which are in many cases affiliated with banks. In response to the financial crisis, the Basel Committee on Banking Supervision issued a new, more stringent capital and liquidity framework known as Basel III, which national banking regulators are in the process of implementing in the various jurisdictions in which our lenders may be incorporated. As these rules are implemented and impose more stringent capital and liquidity requirements, certain of our lenders may revise the terms of our borrowing facilities or margin financing arrangements, reduce the amount of financing they provide, or cease providing us financing, each of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Non compliance with applicable laws or regulatory requirements could negatively impact our reputation, prospects, revenues and earnings.

Our subsidiaries are subject to regulations in the U.S., and our foreign subsidiaries are subject to regulations abroad, in each case covering all aspects of their business. Regulatory bodies that exercise or may exercise authority over us include, without limitation, in the U.S., the SEC, FINRA, the Chicago Stock Exchange, the Chicago Mercantile Exchange, the Intercontinental Exchange, the CFTC, the NFA Exchanges and the various state securities regulators; in Ireland, the Central Bank of Ireland; in Switzerland, the Swiss Financial Market Supervisory Authority; in France, the Autorité des Marchés Financiers ("AMF"); in the United Kingdom, the FCA; in Hong Kong, the SFC; in Australia, the Australian Securities and Investment Commission; in Canada, the Investment Industry Regulatory Organization of Canada and various Canadian provincial securities commissions; in Singapore, the Monetary Authority of Singapore and the Singapore Exchange; and in Japan, the Financial Services Agency and the Japan Securities Dealers Association. Our mode of operation and profitability may be directly affected by additional legislation and changes in rules promulgated by various domestic and foreign government agencies and SROs that oversee our businesses, as well as by changes in the interpretation or enforcement of existing laws and rules, including the potential imposition of additional capital and margin requirements and/or transaction taxes. While we endeavor to timely deliver required annual filings in all jurisdictions, we cannot guarantee that we will meet every applicable filing deadline globally. Noncompliance with applicable laws or regulations could result in sanctions being levied against us, including fines, penalties, judgments, disgorgement, restitution and censures, suspension or expulsion from a certain jurisdiction, SRO or market or the revocation or limitation of licenses. Noncompliance with applicable laws or regulations could also negatively impact our reputation, prospects, revenues and earnings. In addition, changes in current laws or regulations or in governmental policies could negatively impact our operations, revenues and earnings.

Domestic and foreign stock exchanges, other SROs and state and foreign securities commissions can censure, fine, impose undertakings, issue cease and desist orders and suspend or expel a broker dealer or other market participant or any of its officers or employees. Our ability to comply with all applicable laws and rules is largely dependent on our internal systems 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, results of operations and cash flows. We have been, are currently, and may in the future be, the subject of one or more regulatory or SRO enforcement actions, including but not limited to targeted and routine regulatory inquiries and investigations involving Regulation NMS, Regulation SHO, market access rules, capital requirements and other domestic and foreign securities rules and regulations. We and other broker dealers and trading firms have also been the subject of requests for information and documents from the SEC and other regulators. We have cooperated and complied with these requests for information and documents. Our business or reputation could be negatively impacted if it were determined that disciplinary or other enforcement actions were required. Additionally, in December 2015, the enforcement committee of the AMF fined our European subsidiary in the amount of €5.0 million (approximately $5.4 million) based on its conclusion that the subsidiary engaged in price manipulation and violations of the AMF General Regulation and Euronext Market Rules. In May 2017, the fine was reduced to €3.0 million (approximately $3.5 million), subject to an incremental charge of €0.3 (approximately $0.4 million). Recently, the incremental charge was annulled and we expect to pay the €3.0 million fine in 2019. The relevant trading activities were conducted on or around 2009, prior to our acquisition of that subsidiary from Madison Tyler Holdings, which acquisition was consummated in 2011. To continue to operate and to expand our services internationally, we will 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.

Failure to comply with applicable regulatory capital requirements could subject us to sanctions imposed by the SEC, FINRA and other SROs or regulatory bodies.

Certain of our subsidiaries are subject to regulatory capital rules of the SEC, FINRA, other SROs and foreign regulators. These rules, which specify minimum capital requirements for our regulated subsidiaries, are designed to measure the general financial integrity and liquidity of a broker dealer and require that at least a minimum part of its assets be kept in relatively liquid form. In general, net capital is defined as net worth (assets minus liabilities), plus qualifying subordinated borrowings, less certain mandatory deductions that result from, among other things, excluding assets that are not readily convertible into cash and from valuing conservatively certain other assets. Among these deductions are adjustments, commonly called haircuts, which reflect the possibility of a decline in the market value of an asset before disposition, and non allowable assets.

Failure to maintain the required minimum capital may subject our regulated subsidiaries to a fine, requirement to cease conducting business, suspension, revocation of registration or expulsion by the applicable regulatory authorities, reputational harm and ultimately could require the relevant entity's liquidation. Events relating to capital adequacy could give rise to regulatory actions that could limit business expansion or require business reduction. SEC and SRO net capital rules prohibit payments of dividends, redemptions of stock, prepayments of subordinated indebtedness and the making of any unsecured advances or loans to a stockholder, employee or affiliate, in certain circumstances, including if such payment would reduce the firm's net capital below required levels. Similar issues and risks arise in connection with the capital adequacy requirements of foreign regulators.

A change in the net capital rules, the imposition of new rules or any unusually large charges against net capital could limit our operations that require the intensive use of capital and also could restrict our ability to withdraw capital from our broker dealer subsidiaries. A significant operating loss or any unusually large charge against net capital could negatively impact our ability to expand or even maintain our present levels of business. Similar issues and risks arise in connection with the capital adequacy requirements of foreign regulators. Any of these results could have a material adverse effect on our business, financial condition, results of operations and cash flows.

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

We are exposed to substantial risks of liability under federal and state securities laws and other federal and state laws and court decisions, as well as rules and regulations promulgated by the SEC, the CFTC, state securities regulators, SROs and foreign regulatory agencies. These risks may be enhanced by recent scrutiny of electronic trading and market structure from regulators, lawmakers and the financial news media. We are also subject to the risk of litigation and claims that may be without merit. At present and from time to time, we, our past and present officers, directors and employees are and may be named in legal actions, regulatory investigations and proceedings, arbitrations and administrative claims and may be subject to claims alleging the violations of laws, rules and regulations, some of which may ultimately result in the payment of fines, awards, judgments and settlements. We could incur significant legal expenses in defending ourselves against and resolving lawsuits or claims even if we believe them to be meritless. An adverse resolution of any current or future lawsuits or claims against us could result in a negative perception of our Company and cause the market price of our common stock to decline or otherwise have a material adverse effect on our business, financial condition, results of operations and cash flows.

Proposed legislation in the European Union, the U.S. and other jurisdictions that would impose taxes on certain financial transactions could have a material adverse effect on our business and financial results.

On September 28, 2011, the former president of the European Commission officially presented a plan to create a new financial transactions tax which in February 2013 was formally presented for consideration by the European Commission under an enhanced cooperation procedure among 11 European Union Member States (Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia) for the purposes of a financial transaction tax among those Member States (the “EU Financial Transaction Tax”). The EU Financial Transaction Tax was initially intended to be implemented within those 11 European Union Member States in January 2014. As of December 31, 2018 such tax has not yet been implemented within the European Union and no final political or legislative proposal has been presented for consideration. In 2016, Estonia, of the original members withdrew its support for the proposal. Similarly, in 2013, U.S. Representative Peter DeFazio and former Senator Thomas Harkin introduced proposed legislation, a bill entitled the “Wall Street Trading and Speculators Tax Act,” which would have, subject to certain exceptions, imposed an excise tax on the purchase of a security, including equities, bonds, debentures, other debt and interests in derivative financial instruments, if the purchase occurred or was cleared on a trading facility in the U.S. and the purchaser or seller is a U.S. person. More recently, in late 2018 and early 2019 U.S. legislators, including U.S. Senators Kirsten Gillibrand and Brian Schatz, have announced proposals or plans that include a financial transaction fee. These proposed transaction taxes would apply to certain aspects of our business and transactions in which we are involved. Any such tax would increase our cost of doing business to the extent that (i) the tax is regularly applicable to transactions in the markets in which we operate, (ii) the tax does not include exceptions for market makers or market making activities that is broad enough to cover our activities or (iii) we are unable to widen our bid/ask spreads in the markets in which such a tax would be applicable to compensate for its imposition. Furthermore, the proposed taxes may reduce or negatively impact trading volume and transactions on which we are dependent for revenues. While it is difficult to assess the impact the proposed taxes could have on us, if either transaction tax is implemented or any similar tax is implemented in any other jurisdiction in which we operate, our business, financial condition, results of operations and cash flows could suffer a material adverse effect, and could be impacted to a greater degree than other market participants.

We depend on our technology, and our future results may be negatively impacted if we cannot remain technologically competitive.

We believe that our success in the past has largely been attributable to our technology, which has taken many years to develop. If technology equivalent to ours becomes more widely available for any reason, our operating results may be negatively impacted. 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. Regulators and exchanges may also introduce risk control and other technological requirements on our business that could result in increased costs of compliance and divert our technological resources away from their primary strategy development and maintenance duties. The markets in which we compete are characterized by rapidly changing technology, evolving industry standards and changing trading systems, practices and techniques. The widespread adoption of new internet, networking or telecommunications technologies or other technological changes could require us to incur substantial expenditures to modify or adapt our services or infrastructure. We may not be able to anticipate or respond adequately or in a cost efficient and competitive manner to technological advancements (including advancements related to low latency technologies, execution and messaging speeds) or changing industry standards. If any of these risks materialize, it could have a material adverse effect on our business, financial condition, results of operations and cash flows.

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Our reliance on our computer systems and software could expose us to material financial and reputational harm if any of our computer systems or software were subject to any material disruption or corruption.

We rely significantly on our computer systems and software to receive and properly process internal and external data and utilize such data to generate orders and other messages. A disruption or corruption of the proper functioning of our computer systems or software could cause us to make erroneous trades, which could result in material losses or reputational harm. We cannot guarantee that our efforts to maintain competitive computer systems and software will be successful. Our computer systems and software may fail or be subject to bugs or other errors, including human error, resulting in service interruptions or other unintended consequences. If any of these risks materialize, they could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We could be the target of a significant cyber-attack, threat or incident that impairs internal systems, results in adverse consequences to information our system process, store or transmit or causes reputation damages as a consequence.

Our business relies on technology and automation to perform significant functions within our firm. Because of our reliance on technology, we may be susceptible to various forms of cyber-attacks by third parties or insiders. Though we take steps to mitigate the various cyber threats and devote significant resources to maintain and update our systems and networks, we may be unable to anticipate attacks or to implement adequate preventative measures. Our cybersecurity measures may not detect or prevent all attempts to compromise our systems, including denial of service attacks, viruses, malicious software, break ins, phishing attacks, social engineering, security breaches or other attacks and similar disruptions that may jeopardize the security of information stored in and transmitted by our systems or that we otherwise maintain. Furthermore, we may have little or no oversight with respect to security measures employed by third-party service providers, which may ultimately prove to be ineffective at countering threats. Although we maintain insurance coverage that may, subject to policy terms and conditions, cover certain aspects of cyber risks, such insurance coverage may be insufficient to cover all losses or may not cover any losses. Breaches of our cybersecurity measures or those of our third-party service providers could result in any of the following: unauthorized access to our systems; unauthorized access to and misappropriation of information or data, including confidential or proprietary information about ourselves, third parties with whom we do business or our proprietary systems; viruses, worms, spyware or other malware being placed in our systems and intellectual property; deletion or modification of client information; or a denial of service or other interruptions to our business operations. While we have not suffered a material breach of our cybersecurity, any actual or perceived breach of our cybersecurity could damage our reputation, expose us to a risk of loss or litigation and possible liability, require us to expend significant capital and other resources to alleviate problems caused by such breaches and otherwise have a material adverse effect on our business, financial condition, results of operations and cash flows.

Capacity constraints, systems failures, malfunctions and delays could harm our business.

Our business activities are heavily dependent on the integrity and performance of the computer and communications systems supporting them. Our systems and operations are vulnerable to damage or interruption from human error, software bugs and errors, electronic and physical security breaches, natural disasters, power loss, utility or internet outages, computer viruses, intentional acts of vandalism, terrorism and other similar events. Extraordinary trading volumes or other events could cause our computer systems to operate in ways that we did not intend, at an unacceptably low speed or even fail. While we have invested significant amounts of capital to upgrade the capacity, reliability and scalability of our systems, there can be no assurance that our systems will always operate properly or be sufficient to handle such extraordinary trading volumes. 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 have a material adverse effect on our business, financial condition, results of operations and cash flows.

Although our systems and infrastructure are generally designed to accommodate additional growth without redesign or replacement, we may need to make significant investments in additional hardware and software to accommodate growth. Failure to make necessary expansions and upgrades to our systems and infrastructure could not only limit our growth and business prospects but could also cause substantial losses and have a material adverse effect on our business, financial condition, results of operations and cash flows.

Since the timing and impact of disasters and disruptions are unpredictable, we may not be able to respond to actual events as they occur. Business disruptions can vary in their scope and significance and can affect one or more of our facilities. Further, the severity of the disruption can also vary from minimal to severe. Although we have employed efforts to develop, implement and maintain reasonable disaster recovery and business continuity plans, we cannot guarantee that our systems will fully recover after a significant business disruption in a timely fashion or at all. If we are prevented from using any of our

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current trading operations, or if our business continuity operations do not work effectively, we may not have complete business continuity, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Failure or poor performance of third party software, infrastructure or systems on which we rely could adversely affect our business.

We depend on third parties to provide and maintain certain infrastructure that is critical to our business. For example, we rely on third parties to provide software, data center services and dedicated fiber optic, microwave, wireline and wireless communication infrastructure. This infrastructure may malfunction or fail due to events outside of our control, which could disrupt our operations and have a material adverse effect on our business, financial condition, results of operations and cash flows. Any failure to maintain and renew our relationships with these third parties on commercially favorable terms, or to enter into similar relationships in the future, could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We also rely on certain third party software, third party computer systems and third party service providers, including clearing systems, exchange systems, alternate trading systems, order routing systems, internet service providers, communications facilities and other facilities. Any interruption in these third party services or software, deterioration in their performance, or other improper operation could interfere with our trading activities, cause losses due to erroneous or delayed responses, or otherwise be disruptive to our business. If our arrangements with any third party are terminated, we may not be able to find an alternative source of software or systems support on a timely basis or on commercially reasonable terms. This could also have a material adverse effect on our business, financial condition, results of operations and cash flows.

The use of open source software may expose us to additional risks.

We use software development tools covered by open source licenses and may incorporate such open source software into our proprietary software from time to time. “Open source software” refers to any code, shareware or other software that is made generally available to the public without requiring payment of fees or royalties and/or that may require disclosure or licensing of any software that incorporates such source code, shareware or other software. Given the nature of open source software, third parties might assert contractual or copyright and other intellectual property related claims against us based on our use of such tools and software programs or might seek to compel the disclosure of the source code of our software or other proprietary information. If any such claims materialize, we could be required to (i) seek licenses from third parties in order to continue to use such tools and software or to continue to operate certain elements of our technology, (ii) release certain proprietary software code comprising our modifications to such open source software, (iii) make our software available under the terms of an open source license, (iv) re engineer all, or a portion of, that software, any of which could materially and adversely affect our business, financial condition, results of operations and cash flows or (v) be required to pay significant damages as a result of substantiated unauthorized use. While we monitor the use of all open source software in our solutions, processes and technology and try to ensure that no open source software is used (i) in such a way as to require us to disclose the source code to the related solution when we do not wish to do so nor (ii) in connection with critical or fundamental elements of our software or technology, such use may have inadvertently occurred in deploying our proprietary solutions. If a third party software provider has incorporated certain types of open source software into software we license from such third party for our products and solutions, we could, under certain circumstances, be required to disclose the source code to our solutions. In addition to risks related to license requirements, usage of open software can lead to greater risks than use of third party commercial software because open source licensors generally do not provide warranties or controls on the origin of the software. Many of the risks associated with usage of open source software cannot be eliminated and could potentially have a material adverse effect on our business, financial condition, results of operations and cash flows.

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 on federal and state law, trade secrets, trademarks, domain names, copyrights and contract law to protect our intellectual property and proprietary technology. It is possible that third parties may copy or otherwise obtain and use our intellectual property or proprietary technology without authorization or otherwise infringe on our rights. For example, while we have a policy of entering into confidentiality, intellectual property invention assignment and/or non competition and non solicitation agreements or restrictions with our employees, independent contractors and business partners, such agreements may not provide adequate protection or may be breached, or our proprietary technology may otherwise become available to or be independently developed by our competitors. The promulgation of laws or rules which require the maintenance of source code or other intellectual property in a repository subject to certain requirements and/or which enhance or facilitate access to such source code by regulatory authorities could inhibit our ability to protect against unauthorized dissemination or use of our intellectual property. Third parties have alleged and may in the future allege that we are infringing, misappropriating or

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otherwise violating their intellectual property rights. Third parties may initiate litigation against us without warning, or may send us letters or other communications that make allegations without initiating litigation. We may elect not to respond to these letters or other communications if we believe they are without merit, or we may attempt to resolve these disputes out of court by negotiating a license, but in either case it is possible that such disputes will ultimately result in litigation. Any such claims could interfere with our ability to use technology or intellectual property that is material to the operation of our business. Such claims may be made by competitors seeking to obtain a competitive advantage or by other parties, such as entities that purchase intellectual property assets for the purpose of bringing infringement claims. We also periodically employ individuals who were previously employed by our competitors or potential competitors, and we may therefore be subject to claims that such employees have used or disclosed the alleged trade secrets or other proprietary information of their former employers.

At times we 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. If unsuccessful, such litigation could result in the loss of important intellectual property rights, require us to pay substantial damages, subject us to injunctions that prevent us from using certain intellectual property, require us to make admissions that affect our reputation in the marketplace and require us to enter into license agreements that may not be available on favorable terms or at all. Finally, even if we prevail in any litigation, the remedy may not be commercially meaningful or fully compensate us for the harm we suffer or the costs we incur. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We are exposed to risks associated with our international operations and expansion and failure to comply with laws and regulations applicable to our international operations may increase costs, reduce profits, limit growth or subject us to broader liability.

We are exposed to risks and uncertainties inherent in doing business in international markets, particularly in the heavily regulated broker dealer 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, the imposition of restrictions on currency conversion or the transfer of funds, limitations on our ability to repatriate non U.S. earnings in a tax efficient manner and difficulties in staffing and managing foreign operations, including reliance on local experts. Such restrictions generally include those by imposed by the Foreign Corrupt Practices Act (the “FCPA”) and trade sanctions administered by the Office of Foreign Assets Control (“OFAC”). The FCPA is intended to prohibit bribery of foreign officials and requires companies whose securities are listed in the U.S. to keep books and records that accurately and fairly reflect those companies’ transactions and to devise and maintain an adequate system of internal accounting controls. OFAC administers and enforces economic and trade sanctions based on U.S. foreign policy and national security goals against designated foreign states, organizations and individuals. Though we have policies in place designed to comply with applicable OFAC sanctions, rules and regulations as well as the FCPA and equivalent laws and rules of other jurisdictions, if we fail to comply with these laws and regulations, we could be exposed to claims for damages, financial penalties, reputational harm, incarceration of employees and restrictions on our operations and cash flows.

In addition, the varying compliance requirements of these different regulatory jurisdictions and other factors may limit our ability to successfully conduct or expand our business internationally and may increase our costs of investment. Expansion into international locations involves substantial operational and execution risk. We may not be able to manage these costs or risks effectively.

The results of the United Kingdom’s referendum on withdrawal from the European Union may negatively impact the global economy, financial markets and our business.

In June 2016, UK voters approved a referendum to withdraw the UK's membership from the EU, which is commonly referred to as "Brexit". In March 2017, the UK government initiated the exit process under Article 50 of the Treaty of the European Union, commencing a period of up to two years for the UK and the other EU member states to negotiate the terms of the withdrawal, such period ending on March 29, 2019 unless extended. There has been limited progress so far in the negotiations and continued uncertainty in the UK government and Parliament, which increases the possibility of the UK exiting the EU on March 29, 2019 without a formal withdrawal agreement in place and of significant market and economic disruption. We presently access the E.U. markets primarily through our Irish regulated subsidiary and we do not expect any impact on our access to E.U. markets as a result of Brexit. However, it is not possible at this point in time to predict fully the effects of an exit of the U.K. from the E.U., including with respect to volatility in exchange rates and interest rates and potential material changes to the regulatory regime applicable to our activities in the U.K. or the potential impact of interacting with U.K. based market participants. Brexit could adversely affect European or worldwide political, fiscal, regulatory, economic or market conditions and could contribute to instability in global political institutions, regulatory agencies and financial markets. For example, depending on the terms of Brexit, the UK could also lose access to the single EU market and to the global trade deals negotiated by the EU on behalf of its members. Disruptions and uncertainty caused by Brexit may also cause our clients to closely monitor their costs and reduce their spending budget on our services. Any of these effects of Brexit, and others we cannot anticipate or that may evolve over time, could adversely affect our business, results of operations and financial condition.

Fluctuations in currency exchange rates could negatively impact our earnings.

A significant portion of our international business is conducted in currencies other than the U.S. dollar, and changes in foreign exchange rates relative to the U.S. dollar can therefore affect the value of our non U.S. dollar net assets, revenues and expenses. Although we closely monitor potential exposures as a result of these fluctuations in currencies, and where cost justified we adopt strategies that are designed to reduce the impact of these fluctuations on our financial performance, including the financing of non U.S. dollar assets with borrowings in the same currency and the use of various hedging transactions related to net assets, revenues, expenses or cash flows, there can be no assurance that we will be successful in managing our foreign exchange risk. Our exposure to currency exchange rate fluctuations will grow if the relative contribution of our operations outside the U.S. increases. Any material fluctuations in currencies could have a material effect on our financial condition, results of operations and cash flows.

We may experience risks associated with future growth or expansion of our operations or acquisitions, strategic investments or dispositions of businesses, and we may never realize the anticipated benefits of such activities.

As a part of our business strategy, we may make acquisitions or significant investments in and/or disposals of businesses. Any such future acquisitions, investments and/or dispositions would be accompanied by risks such as assessment of values for acquired businesses, intangible assets and technologies, difficulties in assimilating the operations and personnel of acquired companies or businesses, diversion of our management’s attention from ongoing business concerns, our potential inability to maximize our financial and strategic position through the successful incorporation or disposition of operations, maintenance of uniform standards, controls, procedures and policies and the impairment of existing relationships with employees, contractors, suppliers and customers as a result of the integration of new management personnel and cost saving initiatives. We cannot guarantee that we will be able to successfully integrate any company or business that we might acquire in the future, and our failure to do so could harm our current business.

In addition, we may not realize the anticipated benefits of any such transactions, and there may be other unanticipated or unidentified effects. While we would seek protection, for example, through warranties and indemnities in the case of acquisitions, significant liabilities may not be identified in due diligence or come to light after the expiration of warranty or indemnity periods. Additionally, while we would seek to limit our ongoing exposure, for example, through liability caps and period limits on warranties and indemnities in the case of disposals, some warranties and indemnities may give rise to unexpected and significant liabilities. If we fail to realize any such anticipated benefits, or if we experience any such unanticipated or unidentified effects in connection with any future acquisitions, investments or dispositions, we could suffer a material adverse effect on our business, financial condition, results of operations and cash flows. Finally, strategic investments may involve additional risks associated with holding a minority or non-controlling position in an illiquid business or asset.

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

As certain of our subsidiaries are members of FINRA and other SROs, we are subject to certain regulations regarding changes in ownership or control and material changes in operations. For example, FINRA’s NASD Rule 1017 generally provides that FINRA approval must be obtained in connection with certain change of ownership or control transactions, such as a transaction that results in a single entity or person owning 25% or more our equity. Similarly, Virtu Financial Ireland Limited, one of our Irish subsidiaries, is subject to change in control regulations promulgated by the Central Bank of Ireland, and other registered or regulated foreign subsidiaries may be subject to similar regulations in applicable jurisdictions. As a result of these regulations, our future efforts to sell shares of our common stock or raise additional capital may be delayed or prohibited. We may be subject to similar restrictions in other jurisdictions in which we operate.

We are dependent on the continued service of certain key executives, the loss or diminished performance of whom could have a material adverse effect on our business.

Our performance is substantially dependent on the performance of our senior management, Douglas Cifu, our Chief Executive Officer and Joseph Molluso, our Chief Financial Officer. In connection with and subsequent to the IPO, we have entered into employment and other related agreements with certain members of our senior management team that restrict their

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ability to compete with us should they decide to leave our Company. Even though we have entered into these agreements, we cannot be sure that any member of our senior management will remain with us or that they will not compete with us in the future. The loss of any member of our senior management team could impair our ability to execute our business plan and growth strategy and have a negative impact on our revenues, in addition to potentially causing employee morale problems and/or the loss of key employees. In particular, Mr. Cifu invests in other businesses and spends time on such matters, which could divert their attention from us. Our employment agreement with Mr. Cifu specifically permits his participation in and attention to certain other business activities, including but not necessarily limited to his role as the Vice Chairman and Alternate Governor of the Florida Panthers, a National Hockey League franchise, and his role as a director of the Independent Bank Group, Inc., a regional bank holding company. We cannot guarantee that these or other permitted outside activities will not impact his performance as Chief Executive Officer.

Our success depends, in part, on our ability to identify, recruit and retain skilled management and technical personnel. If we fail to recruit and retain suitable candidates or if our relationship with our employees changes or deteriorates, it could have a material adverse effect on our business.

Our future success depends, in part, upon our continued ability to identify, attract, hire and retain highly qualified personnel, including skilled technical, management, product and technology, trading, sales and marketing personnel, all of whom are in high demand and are often subject to competing offers. Competition for qualified personnel in the financial services industry is intense and we cannot assure you that we will be able to hire or retain a sufficient number of qualified personnel to meet our requirements, or that we will be able to do so at salary, benefit and other compensation costs that are acceptable to us or that would allow us to achieve operating results consistent with our historical results. A loss of qualified employees, or an inability to attract, retain and motivate additional highly skilled employees in the future, could have a material adverse effect on our business.

We could lose significant sources of revenues if we were to lose access to an important exchange or other trading venue.

Changes in applicable laws, regulations or rules promulgated by exchanges could conceivably prevent us from providing liquidity to an exchange or other trading venue where we provide liquidity today. Though our revenues are diversified across exchanges and other trading venues, asset classes and geographies, the loss of access to one or more significant exchanges and other trading venues for any reason could have a material adverse effect on our business, financial condition, results of operations and cash flows.

In connection with the Acquisition of KCG, we have assumed potential liabilities relating to KCG's business.

In connection with the Acquisition of KCG, we have assumed potential regulatory, litigation and other liabilities relating to KCG's business. For example, KCG is currently the subject of various regulatory reviews and investigations by federal, state and foreign regulators and SROs, including the SEC, FINRA and the FCA. In some instances, these matters may rise to a disciplinary action and/or a civil or administrative action, penalties, fines, judgments, censures and settlements. To the extent we have not identified such liabilities or miscalculated their potential financial impact, these liabilities could have a material adverse effect on our business, prospects, results of operations, financial condition and/or cash flows.

Risks Related to Our Organization and Structure

We are a holding company and our principal asset is our 56.7% of equity interest in Virtu Financial, and we are accordingly dependent upon distributions from Virtu Financial to pay dividends, if any, taxes and other expenses.

We are a holding company and our principal asset is our direct and indirect ownership of 56.7% of the Virtu Financial Units as of December 31, 2018. We have no independent means of generating revenue. As the sole managing member of Virtu Financial, we cause Virtu Financial to make distributions to its equityholders, including the Founder Post-IPO Member, Virtu Employee Holdco, certain current and former members of management of the Company and their affiliates (the “Management Members”) and us, in amounts sufficient to fund dividends to our stockholders in accordance with our dividend policy and, as further described below, to cover all applicable taxes payable by us and any payments we are obligated to make under the tax receivable agreements we entered into as part of the Reorganization Transactions, but we are limited in our ability to cause Virtu Financial to make these and other distributions to us (including for purposes of paying corporate and other overhead expenses and dividends) under our Fourth Amended and Restated Credit Agreement governing our term loan facility (the “Term Loan Facility”), and the indenture pursuant to which we have issued the Notes (as defined below). In addition, certain laws and regulations may result in restrictions on Virtu Financial’s ability to make distributions to its equityholders (including us), or the ability of its subsidiaries to make distributions to it. These include:

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- the SEC Uniform Net Capital Rule (Rule 15c3 1), which requires each of Virtu Financial's registered broker dealer subsidiaries to maintain specified levels of net capital;
- FINRA Rule 4110, which imposes a requirement of prior FINRA approval for any distribution by Virtu Financial's FINRA member registered broker dealer subsidiary in excess of 10% of its excess net capital; and
- the requirement for prior approval from the Central Bank of Ireland before Virtu Financial's regulated Irish subsidiary completes any distribution or dividend.

To the extent that we need funds and Virtu Financial is restricted from making such distributions to us, under applicable law or regulation, as a result of covenants in our Fourth Amended and Restated Credit Agreement, the indenture governing our Notes or otherwise, we may not be able to obtain such funds on terms acceptable to us or at all and as a result could suffer a material adverse effect on our liquidity and financial condition.

Under the Third Amended and Restated Limited Liability Company Agreement of Virtu Financial (as amended, the "Amended and Restated Virtu Financial LLC Agreement"), Virtu Financial from time to time makes pro rata distributions in cash to its equityholders, including the Founder Post IPO Member, the trust that holds equity interests in Virtu Financial on behalf of certain employees of ours based outside the United States, which we refer to as the "Employee Trust", Virtu Employee Holdco and us, in amounts sufficient to cover the taxes on their allocable share of the taxable income of Virtu Financial. As a result of (i) potential differences in the amount of net taxable income allocable to us and to Virtu Financial's other equityholders, (ii) the lower tax rate applicable to corporations than individuals and (iii) the favorable tax benefits that we anticipate from (a) the exchange of Virtu Financial Units and corresponding shares of Class C Common Stock or Class D Common Stock, (b) payments under the tax receivable agreements and (c) future deductions attributable to the prior acquisition of interests in Virtu Financial by certain affiliates of Silver Lake Partners and Temasek, we expect that these tax distributions will be in amounts that exceed our tax liabilities. Our board of directors will determine the appropriate uses for any excess cash so accumulated, which may include, among other uses, the payment of obligations under the tax receivable agreements, the payment of other expenses or the repurchase of shares of common stock or Virtu Financial Units. We will have no obligation to distribute such cash (or other available cash) to our shareholders. No adjustments to the exchange ratio for Virtu Financial Units and corresponding shares of common stock will be made as a result of any cash distribution by us or any retention of cash by us, and in any event the ratio will remain one to one.

We are controlled by the Founder Post IPO Member, whose interests in our business may be different than yours, and certain statutory provisions afforded to stockholders are not applicable to us.

The Founder Post IPO Member controls approximately 84.1% of the combined voting power of our common stock as a result of its ownership of our Class D Common Stock, each share of which is entitled to 10 votes on all matters submitted to a vote of our stockholders.

The Founder Post IPO Member has the ability to substantially control our Company, including the ability to control any action requiring the general approval of our stockholders, including the election of our board of directors, the adoption of amendments to our certificate of incorporation and by laws and the approval of any merger or sale of substantially all of our assets. This concentration of ownership and voting power may also delay, defer or even prevent an acquisition by a third party or other change of control of our Company and may make some transactions more difficult or impossible without the support of the Founder Post IPO Member, even if such events are in the best interests of minority stockholders. This concentration of voting power with the Founder Post IPO Member may have a negative impact on the price of our Class A Common Stock. In addition, because shares of our Class B Common Stock and Class D Common Stock each have 10 votes per share on matters submitted to a vote of our stockholders, the Founder Post IPO Member is able to control our Company as long as it owns at least 25% of our issued and outstanding Common Stock.

The Founder Post-IPO Member's interests may not be fully aligned with yours, which could lead to actions that are not in your best interest. Because the Founder Post-IPO Member holds part of its economic interest in our business through Virtu Financial, rather than through the public company, it may have conflicting interests with holders of shares of our Class A Common Stock. For example, the Founder Post-IPO Member may have a different tax position from us, which could influence its decisions regarding whether and when we should dispose of assets or incur new or refinance existing indebtedness, especially in light of the existence of the tax receivable agreements that we entered into in connection with the IPO, and whether and when we should undergo certain changes of control within the meaning of the tax receivable agreements or terminate the tax receivable agreements. In addition, the structuring of future transactions may take into consideration these tax or other considerations even where no similar benefit would accrue to us. See "Item 1A. Risk Factors - Risks Related to Our Organizational Structure - We are required to pay the Virtu Post IPO Members and the Investor Post-IPO Stockholders for certain tax benefits we may claim, and the amounts we may pay could be significant." In addition, pursuant to an exchange agreement, the holders of Virtu Financial Units and shares of our Class C Common Stock or Class D Common Stock are not

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required to participate in a proposed sale of our Company that is tax free for our stockholders unless the transaction is also tax free for such holders of Virtu Financial Units and shares of our Class C Common Stock or Class D Common Stock. This requirement could limit structural alternatives available to us in any such proposed transaction and could have the effect of discouraging transactions that might benefit you as a holder of shares of our Class A Common Stock. In addition, the Founder Post-IPO Member's significant ownership in us and resulting ability to effectively control us may discourage someone from making a significant equity investment in us, or could discourage transactions involving a change in control, including transactions in which you as a holder of shares of our Class A Common Stock might otherwise receive a premium for your shares over the then current market price.

We have opted out of Section 203 of the General Corporation Law of the State of Delaware (the "Delaware General Corporation Law"), which prohibits a publicly held Delaware corporation from engaging in a business combination transaction with an interested stockholder for a period of three years after the interested stockholder became such unless the transaction fits within an applicable exemption, such as board approval of the business combination or the transaction which resulted in such stockholder becoming an interested stockholder. Therefore, the Founder Post IPO Member is able to transfer control of us to a third party by transferring its shares of our common stock (subject to certain restrictions and limitations), which would not require the approval of our board of directors or our other stockholders.

Our amended and restated certificate of incorporation provides that, to the fullest extent permitted by law, the doctrine of "corporate opportunity" does not apply against the Founder Post-IPO Member, Mr. Viola, Temasek, any of our non employee directors or any of their respective affiliates in a manner that would prohibit them from investing in competing businesses or doing business with our clients or customers. In addition, subject to the restrictions on competitive activities described below, Mr. Cifu is permitted to become engaged in, or provide services to, any other business or activity in which Mr. Viola is currently engaged or permitted to become engaged, to the extent that Mr. Cifu's level of participation in such businesses or activities is consistent with his current participation in such businesses and activities. The Amended and Restated Virtu Financial LLC Agreement provides that Mr. Viola, in addition to our other executive officers and our employees that are Virtu Post-IPO Members, including Mr. Cifu, may not directly or indirectly engage in certain competitive activities until the third anniversary of the date on which such person ceases to be an officer, director or employee of ours. Temasek and our non employee directors are not subject to any such restriction. To the extent that the Founder Post-IPO Member, Mr. Viola, Temasek, our non employee directors or any of their respective affiliates invests in other businesses, they may have differing interests than our other stockholders. Messrs. Viola and Cifu also have business relationships outside of our business.

We may be unable to remain in compliance with the financial maintenance and other covenants contained in our Fourth Amended and Restated Credit Agreement and the indenture governing our Notes and our obligation to comply with these covenants may adversely affect our ability to operate our business.

The covenants in our Fourth Amended and Restated Credit Agreement and indenture governing our Notes may negatively impact our ability to finance future operations or capital needs or to engage in other business activities. Our Fourth Amended and Restated Credit Agreement requires us to maintain specified financial ratios and tests, including interest coverage and total leverage ratios, which may require us to take action to reduce our debt or to act in a manner contrary to our business objectives. Our Fourth Amended and Restated Credit Agreement and the indenture governing our Notes also restrict our ability to, among other things, incur additional indebtedness, dispose of assets, guarantee debt obligations, repay other indebtedness, pay dividends, pledge assets, make investments, including in certain of our operating subsidiaries, make acquisitions or consummate mergers or consolidations and engage in certain transactions with subsidiaries and affiliates.

A failure to comply with the restrictions contained in our Fourth Amended and Restated Credit Agreement and indenture governing our Notes could lead to an event of default, which could result in an acceleration of our indebtedness. Our future operating results may not be sufficient to enable compliance with the covenants in our Fourth Amended and Restated Credit Agreement or indenture governing our Notes or to remedy such a default. In addition, in the event of an acceleration, we may not have or be able to obtain sufficient funds to refinance our indebtedness or to make any accelerated payments. Even if we were able to obtain new financing, we would not be able to guarantee that the new financing would be on commercially reasonable terms. If we default on our indebtedness, our business, financial condition and results of operation could suffer a material adverse effect.

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Our reported financial results depend on management’s selection of accounting methods and certain assumptions and estimates.

Our accounting policies and assumptions are fundamental to our reported financial condition, and results of operations and cash flows. Our management must exercise judgment in selecting and applying many of these accounting policies and methods to comply with generally accepted accounting principles and reflect management’s judgment of the most appropriate manner to report our financial condition, results of operations and cash flows. In some cases, management must select the accounting policy or method to apply from multiple alternatives, any of which may be reasonable under the circumstances, yet each may result in the reporting of materially different results than would have been reported under a different alternative.

Certain accounting policies are critical to presenting our reported financial condition and results. They require management to make difficult, subjective or complex judgments about matters that are uncertain. Materially different amounts could be reported under different conditions or using different assumptions or estimates. If such estimates or assumptions underlying our financial statements are incorrect, we may experience material losses.

Additionally, from time to time, the Financial Accounting Standards Board and the SEC change the financial accounting and reporting standards or the interpretation of those standards that govern the preparation of our financial statements. These changes are beyond our control, can be difficult to predict and could materially impact how we report our financial condition, results of operations and cash flows. Changes in these standards are continuously occurring, and given the current economic environment, more drastic changes may occur. The implementation of such changes could have a material adverse effect on our business, financial condition and results of operation.

We are exempt from certain corporate governance requirements since we are a “controlled company” within the meaning of the NASDAQ rules, and as a result our stockholders do not have the protections afforded by these corporate governance requirements.

The Founder Post IPO Member controls more than 50% of our combined voting power. As a result, we are considered a “controlled company” for purposes of the NASDAQ rules and corporate governance standards, and therefore we are permitted and have elected not to, comply with certain NASDAQ corporate governance requirements, including those that would otherwise require our board of directors to have a majority of independent directors and require that we either establish a Compensation and Nominating and Corporate Governance Committees, each comprised entirely of independent directors, or otherwise ensure that the compensation of our executive officers and nominees for directors are determined or recommended to the board of directors by the independent members of the board of directors. Accordingly, holders of our Class A Common Stock do not have the same protections afforded to stockholders of companies that are subject to all of the NASDAQ rules and corporate governance standards, and the ability of our independent directors to influence our business policies and affairs may be reduced.

We are required to pay the Virtu Post IPO Members and the Investor Post IPO Stockholders for certain tax benefits we may claim, and the amounts we may pay could be significant.

In connection with the Reorganization Transactions, we acquired equity interests in Virtu Financial from an affiliate of Silver Lake Partners (which, following a secondary offering completed in November 2015, no longer holds any equity interest in us) and the Temasek Pre-IPO Member in the Mergers. In addition, we used a portion of the net proceeds from our IPO and our Secondary Offerings (as defined below) to purchase Virtu Financial Units and corresponding shares of Class C Common Stock from certain Virtu Post-IPO Members, including affiliates of Silver Lake Partners (the “Silver Lake Post-IPO Members”), and certain employees. These acquisitions of interests in Virtu Financial, along with certain subsequent exchanges of interests in Virtu Financial by current and former employees, resulted in tax basis adjustments to the assets of Virtu Financial that were allocated to us and our subsidiaries. Future acquisitions of interests in Virtu Financial are expected to produce favorable tax attributes. In addition, future exchanges by the Virtu Post-IPO Members of Virtu Financial Units and corresponding shares of Class C Common Stock or Class D Common Stock, as the case may be, for shares of our Class A common stock or Class B Common Stock, respectively, are expected to produce favorable tax attributes. These tax attributes would not be available to us in the absence of such transactions. Both the existing and anticipated tax basis adjustments are expected to reduce the amount of tax that we would otherwise be required to pay in the future.

We entered into three tax receivable agreements with the Virtu Post-IPO Members and the Investor Post-IPO Stockholders (one with the Founder Post-IPO Member, the Employee Trust, Virtu Employee Holdco and other post IPO investors, other than affiliates of Silver Lake Partners and affiliates of Temasek, another with the Investor Post-IPO Stockholders and the other with the Silver Lake Post-IPO Members) that provide for the payment by us to the Virtu Post-IPO Members and the Investor Post-IPO Stockholders (or their transferees of Virtu Financial Units or other assignees) of 85% of the

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amount of actual cash savings, if any, in U.S. federal, state and local income tax or franchise tax that we actually realize as a result of (i) any increase in tax basis in Virtu Financial's assets resulting from (a) the acquisition of equity interests in Virtu Financial from an affiliates of Silver Lake Partners and Temasek, and the Temasek Pre-IPO Member in the Reorganization Transactions (which represents the unamortized portion of the increase in tax basis in Virtu Financial's assets resulting from a prior acquisition of interests in Virtu Financial by an affiliates of Silver Lake Partners and Temasek, and the Temasek Pre-IPO Member), (b) the purchases of Virtu Financial Units (along with the corresponding shares of our Class C Common Stock or Class D Common Stock, as applicable) from certain of the Virtu Post-IPO Members using a portion of the net proceeds from the IPO or in any future offering, (c) exchanges by the Virtu Post-IPO Members of Virtu Financial Units (along with the corresponding shares of our Class C Common Stock or Class D Common Stock, as applicable) for shares of our Class A Common Stock or Class B Common Stock, as applicable, or (d) payments under the tax receivable agreements, (ii) any net operating losses available to us as a result of the Mergers and (iii) tax benefits related to imputed interest deemed arising as a result of payments made under the tax receivable agreements.

The actual increase in tax basis, as well as the amount and timing of any payments under these tax receivable agreements, will vary depending upon a number of factors, including the timing of exchanges by the Virtu Post IPO Members, the price of our Class A Common Stock at the time of the exchange, the extent to which such exchanges are taxable, the amount and timing of the taxable income we generate in the future and the tax rate then applicable and the portion of our payments under the tax receivable agreements constituting imputed interest.

The payments we are required to make under the tax receivable agreements, which represent 85% of the amount of actual cash savings, if any, in U.S. federal, state and local income tax or franchise tax that we actually realize, could be substantial. We expect that, as a result of the amount of the increases in the tax basis of the tangible and intangible assets of Virtu Financial, assuming no material changes in the relevant tax law and that we earn sufficient taxable income to realize in full the potential tax benefits described above, future payments to the Virtu Post IPO Members and the Investor Post IPO Stockholders in respect of the purchases, the exchanges and the Mergers in connection with the IPO, and the purchases and exchanges completed in connection with our subsequent public offering will aggregate to approximately $147.0 million and range from approximately $0.3 million to $12.8 million per year over the next 15 years. Future payments under the tax receivable agreements in respect of subsequent exchanges would be in addition to these amounts. The payments under the tax receivable agreements are not conditioned upon the Virtu Post IPO Members' or the Investor Post IPO Stockholders' continued ownership of us.

In addition, although we are not aware of any issue that would cause the Internal Revenue Service (the "IRS") to challenge the tax basis increases or other benefits arising under the tax receivable agreements, the Virtu Post IPO Members and the Investor Post IPO Stockholders (or their transferees or other assignees) will not reimburse us for any payments previously made if such tax basis increases or other tax benefits are subsequently disallowed, except that any excess payments made to the Virtu Post IPO Members and the Investor Post IPO Stockholders will be netted against future payments otherwise to be made under the tax receivable agreements, if any, after our determination of such excess. As a result, in such circumstances we could make payments to the Virtu Post IPO Members and the Investor Post IPO Stockholders under the tax receivable agreements that are greater than our actual cash tax savings and may not be able to recoup those payments, which could negatively impact our liquidity.

In addition, the tax receivable agreements provide that, upon certain mergers, asset sales or other forms of business combination, or certain other changes of control, our or our successor's obligations with respect to tax benefits would be based on certain assumptions, including that we or our successor would have sufficient taxable income to fully utilize the increased tax deductions and tax basis and other benefits covered by the tax receivable agreements. As a result, upon a change of control, we could be required to make payments under a tax receivable agreement that are greater than the specified percentage of our actual cash tax savings, which could negatively impact our liquidity.

In addition, the tax receivable agreements provide that in the case of a change in control of the Company, the Virtu Post IPO Members and the Investor Post IPO Stockholders have the option to terminate the applicable tax receivable agreement, and we are required to make a payment to such electing party in an amount equal to the present value of future payments (calculated using a discount rate equal to the lesser of 6.5% or LIBOR plus 100 basis points, which may differ from our, or a potential acquirer's, then current cost of capital) under the tax receivable agreement, which payment would be based on certain assumptions, including those relating to our future taxable income. In these situations, our obligations under the tax receivable agreements could have a substantial negative impact on our, or a potential acquirer's, liquidity and could have the effect of delaying, deferring, modifying or preventing certain mergers, asset sales, other forms of business combinations or other changes of control. These provisions of the tax receivable agreements may result in situations where the Virtu Post IPO Members and the Investor Post IPO Stockholders have interests that differ from or are in addition to those of our other

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shareholders. In addition, we could be required to make payments under the tax receivable agreements that are substantial and in excess of our, or a potential acquirer's, actual cash savings in income tax.

Finally, because we are a holding company with no operations of our own, our ability to make payments under the tax receivable agreements are dependent on the ability of our subsidiaries to make distributions to us. Our Fourth Amended and Restated Credit Agreement restricts the ability of our subsidiaries to make distributions to us, which could affect our ability to make payments under the tax receivable agreements. To the extent that we are unable to make payments under the tax receivable agreements for any reason, such payments will be deferred and will accrue interest until paid, which could negatively impact our results of operations and cash flows and could also affect our liquidity in periods in which such payments are made.

Risks Related to Our Class A Common Stock

Substantial future sales of shares of our Class A common stock in the public market could cause our stock price to fall.

As of December 31, 2018, we had 106,776,277 shares of Class A Common Stock outstanding, excluding 9,807,852 shares of Class A Common Stock issuable pursuant to the 2015 Management Incentive Plan (as defined below) and 82,841,626 shares of Class A Common Stock issuable upon potential exchanges and/or conversions. Of these shares, the 49,831,671 shares sold in the IPO and the Secondary Offerings are freely tradable without further restriction under the Securities Act. The remaining 141,165,154 shares of Class A Common Stock outstanding as of December 31, 2018 (including shares issuable upon exchange and/or conversion) are "restricted securities," as that term is defined under Rule 144 of the Securities Act. The holders of these remaining 141,165,154 shares of our Class A Common Stock, including shares issuable upon exchange or conversion as described above, are entitled to dispose of their shares pursuant to (i) the applicable holding period, volume and other restrictions of Rule 144 or (ii) another exemption from registration under the Securities Act. Additional sales of a substantial number of our shares of Class A Common Stock in the public market, or the perception that sales could occur, could have a material adverse effect on the price of our Class A Common Stock.

We have filed a registration statement under the Securities Act registering 16,000,000 shares of our Class A Common Stock reserved for issuance under our Amended and Restated 2015 Management Incentive Plan (as defined below), 9,807,852 of which are issuable, and we entered into the Registration Rights Agreement (as defined below) pursuant to which we granted demand and piggyback registration rights to the Founder Post-IPO Member, Temasek, the North Island Stockholder and piggyback registration rights to certain of the other Virtu Post-IPO Members.

Failure to establish and maintain effective internal control over financial reporting could have a material adverse effect on our business, financial condition, results of operations and cash flows, and stock price.

Maintaining effective internal control over financial reporting is necessary for us to produce reliable financial reports and is important in helping to prevent financial fraud. If we are unable to maintain adequate internal controls over financial reporting, our business and operating results could be harmed. Effective December 31, 2018, we are no longer an "emerging growth company", and therefore under applicable SEC rules we must maintain internal controls over financial reporting to satisfy the requirements of Section 404 of the Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") and the related rules of the SEC, which require, among other things, our management to assess annually the effectiveness of our internal control over financial reporting and our independent registered public accounting firm to issue a report on the effectiveness of internal control over financial reporting with our Annual Report on Form 10-K. The internal control assessment required by Section 404 of Sarbanes-Oxley may divert internal resources and we may experience higher operating expenses, higher independent auditor and consulting fees during the implementation of these changes. Any material weaknesses or any failure to implement required new or improved controls or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations or result in material misstatements in our consolidated financial statements. If our management or our independent registered public accounting firm were to conclude in their reports that our internal control over financial reporting was not effective, investors could lose confidence in our reported financial information, and the trading price of our Class A Common Stock could drop significantly. Failure to comply with Section 404 of Sarbanes-Oxley could potentially subject us to sanctions or investigations by the SEC, FINRA or other regulatory authorities, as well as increase the risk of liability arising from litigation based on securities law.

We intend to pay regular dividends to our stockholders, but our ability to do so may be limited by our holding company structure, contractual restrictions and regulatory requirements.

We intend to pay cash dividends on a quarterly basis. See Item 5, “Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.” However, we are a holding company, with our principal asset

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being our direct and indirect equity interests in Virtu Financial, and we will have no independent means of generating revenue. Accordingly, as the sole managing member of Virtu Financial, we intend to cause, and will rely on, Virtu Financial to make distributions to its equityholders, including the Founder Post-IPO Member, the Employee Trust, Virtu Employee Holdco and us, to fund our dividends. When Virtu Financial makes such distributions, the other equityholders of Virtu Financial will be entitled to receive equivalent distributions pro rata based on their economic interests in Virtu Financial. In order for Virtu Financial to make distributions, it may need to receive distributions from its subsidiaries. Certain of these subsidiaries are or may in the future be subject to regulatory capital requirements that limit the size or frequency of distributions. See "Item 1A. Risk Factors - Risks Related to Our Business - Failure to comply with applicable regulatory capital requirements could subject us to sanctions imposed by the SEC, FINRA and other SROs or regulatory bodies." If Virtu Financial is unable to cause these subsidiaries to make distributions, we may not receive adequate distributions from Virtu Financial in order to fund our dividends.

Our board of directors will periodically review the cash generated from our business and the capital expenditures required to finance our global growth plans and determine whether to modify the amount of regular dividends and/or declare periodic special dividends to our stockholders. Our board of directors will take into account general economic and business conditions, including our financial condition, results of operations and cash flows, capital requirements, contractual restrictions, including restrictions contained in our Fourth Amended and Restated Credit Agreement, business prospects and other factors that our board of directors considers relevant. There can be no assurance that our board of directors will not reduce the amount of regular cash dividends or cause us to cease paying dividends altogether. In addition, our Fourth Amended and Restated Credit Agreement and the indenture governing our Notes limits the amount of distributions our subsidiaries, including Virtu Financial, can make to us and the purposes for which distributions could be made. Accordingly, we may not be able to pay dividends even if our board of directors would otherwise deem it appropriate. See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources."

Provisions in our charter documents and certain rules imposed by regulatory authorities may delay or prevent our acquisition by a third party.

Our amended and restated certificate of incorporation and by-laws contain several provisions that may make it more difficult or expensive for a third party to acquire control of us without the approval of our board of directors. These provisions, which may delay, prevent or deter a merger, acquisition, tender offer, proxy contest or other transaction that stockholders may consider favorable, include the following, some of which may only become effective when the Founder Post-IPO Member or any of its affiliates or permitted transferees no longer beneficially own shares representing 25% of our issued and outstanding common stock (the "Triggering Event"):

- the 10 vote per share feature of our Class B Common Stock and Class D Common Stock;
- the division of our board of directors into three classes and the election of each class for three-year terms;
- the sole ability of the board of directors to fill a vacancy created by the expansion of the board of directors;
- advance notice requirements for stockholder proposals and director nominations;
- after the Triggering Event, provisions limiting stockholders ability to call special meetings of stockholders, to require special meetings of stockholders to be called and to take action by written consent;
- after the Triggering Event, in certain cases, the approval of holders of at least 75% of the shares entitled to vote generally on the making, alteration, amendment or repeal of our certificate of incorporation or by-laws will be required to adopt, amend or repeal our by-laws, or amend or repeal certain provisions of our certificate of incorporation;
- after the Triggering Event, the required approval of holders of at least 75% of the shares entitled to vote at an election of the directors to remove directors, which removal may only be for cause; and
- the ability of our board of directors to designate the terms of and issue new series of preferred stock without stockholder approval, which could be used, among other things, to institute a rights plan that would have the effect of

significantly diluting the stock ownership of a potential hostile acquirer, likely preventing acquisitions that have not been approved by our board of directors.

These provisions of our amended and restated certificate of incorporation and by-laws could discourage potential takeover attempts and reduce the price that investors might be willing to pay for shares of our Class A Common Stock in the future, which could reduce the market price of our Class A Common Stock.

In addition, a third party attempting to acquire us or a substantial position in our Class A Common Stock may be delayed or ultimately prevented from doing so by change in ownership or control regulations to which certain of our regulated subsidiaries are subject. FINRA's NASD Rule 1017 generally provides that FINRA approval must be obtained in connection with any transaction resulting in a single person or entity owning, directly or indirectly, 25% or more of a member firm's equity

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and would include a change in control of a parent company. Similarly, Virtu Financial Ireland Limited is subject to change in control regulations promulgated by the Central Bank of Ireland. We may also be subject to similar restrictions in other jurisdictions in which we operate. These regulations could discourage potential takeover attempts and reduce the price that investors might be willing to pay for shares of our Class A Common Stock in the future, which could reduce the market price of our Class A Common Stock.

Our stock price may be volatile.

The market price of our Class A Common Stock is subject to significant fluctuations in response to, among other factors, variations in our operating results and market conditions specific to our business. Furthermore, in recent years the stock market has experienced significant price and volume fluctuations. This volatility has had a significant impact on the market price of securities issued by many companies, including companies in our industry. The changes frequently appear to occur without regard to the operating performance of the affected companies. As such, the price of our Class A Common Stock could fluctuate based upon factors that have little or nothing to do with us, and these fluctuations could materially reduce the price of our Class A Common Stock and materially affect the value of your investment.

We will incur increased costs as a result of being a public company.

We completed the IPO in April 2015, and therefore we have a limited history operating as a public company. As a public company, we incur significant levels of legal, accounting and other expenses that we did not incur as a privately-owned company. Sarbanes-Oxley and related rules of the SEC, together with the listing requirements of NASDAQ, impose significant requirements relating to disclosure controls and procedures and internal control over financial reporting. We have incurred increased costs as a result of compliance with these public company requirements, which require additional resources and make some activities more time consuming than they have been in the past when we were privately owned. We may experience higher than anticipated operating expenses as well as higher independent auditor and consulting fees during the implementation of these changes and thereafter and we may need to hire additional qualified personnel in order to continue to satisfy these public company requirements. We are required to expend considerable time and resources complying with public company regulations. In addition, these laws and regulations may make it more difficult or costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. In addition, these laws and regulations could make it more difficult for us to attract and retain qualified persons to serve on our board of directors or as executive officers and may divert management's attention. Furthermore, if we are unable to satisfy our obligations as a public company, we could be subject to delisting of our Class A Common Stock, fines, sanctions and other regulatory action.

If securities or industry analysts cease to publish research or publish inaccurate or unfavorable research about us or our business, or publish projections for our business that exceed our actual results, our stock price and trading volume could decline.

The trading market for our Class A Common Stock may be affected by the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who covers us downgrades our Class A Common Stock or publishes inaccurate or unfavorable research about our business, our stock price could decline. In addition, the analysts' projections may have little or no relationship to the results we actually achieve and could cause our stock price to decline if we fail to meet their projections. If one or more of these analysts ceases coverage of us or fails to publish reports on us regularly, our stock price or trading volume could decline.

Risks Related to the ITG Transactions

Significant costs and significant indebtedness will be incurred in connection with the consummation of the ITG Transactions, including the ITG Acquisition, and the integration of ITG into our business, including legal, accounting, financial advisory and other costs.

We expect to incur significant costs in connection with integrating the operations, products and personnel of ITG into our business, in addition to costs related directly to completing the ITG Transactions. These costs may include:

- employee retention, redeployment, relocation or severance;
- integration of information systems;
- combination of corporate and administrative functions; and
- potential or pending litigation or other proceedings related to the ITG Acquisition.

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The costs related to the ITG Transactions could be higher than currently estimated, depending on how difficult it will be to integrate our business with that of ITG, and the expected cost reductions and synergies may not be achieved.

In addition, we expect to incur a number of non-recurring costs associated with combining the operations of ITG with ours, which cannot be estimated accurately at this time. While we expect to incur a significant amount of transaction fees and other costs related to the consummation of the ITG Transactions, additional unanticipated costs may yet be incurred. Any expected elimination of duplicative costs, as well as the expected realization of other cost reductions, efficiencies and synergies related to the integration of our operations with those of ITG, that may offset incremental transaction and transaction-related costs over time, may not be achieved as projected, or at all.

In addition, we expect to incur up to $1.5 billion of indebtedness in connection with the ITG Transactions, the proceeds of which will be used to refinance existing indebtedness in the amount of approximately $400 million, and the remainder of which will fund the ITG Acquisition and related fees and expenses. The incremental debt we incur in connection with the ITG Transactions may limit our financial and operating flexibility, and we may incur additional debt, which could increase the risks associated with our substantial indebtedness. Our substantial indebtedness may have material consequences for our business, prospects, results of operations, financial condition and/or cash flows.

Integrating ITG's business into our business may divert management's attention away from operations, and we may also encounter significant difficulties in integrating the two businesses.

The ITG Transactions involve the integration of two companies that have previously operated independently. The success of the ITG Transactions and their anticipated financial and operational benefits, including increased revenues, synergies and cost reductions, will depend in part on our ability to successfully combine and integrate ITG's business into ours, and there can be no assurance regarding when or the extent to which we will be able to realize these increased revenues, synergies, cost reductions or other benefits. These benefits may not be achieved within the anticipated time frame, or at all.

Successful integration of ITG's operations, products and personnel may place a significant burden on management and other internal resources. The diversion of management's attention, and any difficulties encountered in the transition and integration process, could harm our business, prospects, results of operations, financial condition and/or cash flows.

In addition, the overall integration of the businesses may result in material unanticipated problems, expenses, liabilities, and competitive responses. The difficulties of combining the operations of the companies include, among others:

- difficulties in achieving anticipated cost reductions, synergies, business opportunities and growth prospects from the combination;
- difficulties in the integration of operations and systems;
- difficulties in conforming standards, controls, procedures and accounting and other policies, business cultures and compensation structures between the two companies;
- difficulties in the assimilation of employees and the integration of the companies' different organizational structure;
- difficulties in managing the expanded operations of a larger and more complex company with increased international operations;
- challenges in integrating the business culture of each company;
- challenges in attracting and retaining key personnel; and
- difficulties in replacing numerous systems, including those involving management information, purchasing, accounting and finance, sales, billing, employee benefits, payroll, data privacy and security and regulatory compliance, many of which may be dissimilar.

These factors could result in increased costs, decreases in the amount of expected revenues and diversion of management's time and energy, which could materially impact our business, prospects, results of operations, financial condition and/or cash flows.

We may not realize the anticipated synergies, net cost reductions and growth opportunities from the ITG Acquisition.

The benefits that we expect to achieve as a result of the ITG Acquisition will depend, in part, on the ability of the combined company to realize anticipated growth opportunities, net cost reductions and synergies. Our success in realizing these growth opportunities, net cost reductions and synergies, and the timing of this realization, depends on the successful integration of our historical business and operations and the historical business and operations of ITG. Even if we are able to integrate the businesses and operations of the Company and ITG successfully, this integration may not result in the realization of the full benefits of the growth opportunities, net cost reductions and synergies that we currently expect from this integration within the anticipated time frame or at all. For example, we may be unable to eliminate duplicative costs. Moreover, we may incur substantial expenses in connection with the integration of our business and ITG's business. While we anticipate that certain expenses will be incurred, such expenses are difficult to estimate accurately and may exceed current estimates. Accordingly, the benefits from the ITG Acquisition may be offset by costs or delays incurred in integrating the businesses. The projected net cost reductions and synergies described in our press release and supplemental materials announcing the ITG Transactions are based on a number of assumptions relating to our business and ITG's business. Those assumptions may be inaccurate, and, as a result, our projected net cost reductions and synergies may be inaccurate, and our business, prospects, results of operations, financial condition and/or cash flows could be materially and adversely affected.

In connection with the ITG Acquisition, the Company will be subject to business uncertainties that could materially and adversely affect our business.

Uncertainty about the effect of the ITG Acquisition on employees, customers and suppliers may have both a material and adverse effect on both the Company and ITG. These uncertainties may impair both companies' ability to attract, retain and motivate key personnel for a period of time after the ITG Acquisition is completed, and could cause customers, suppliers and others who deal with the Company and ITG to seek to change existing business relationships. If key employees depart because of issues related to the uncertainty and difficulty of integration or a desire not to remain with us after the ITG Transactions are completed, or if customers, suppliers or others seek to change their dealings with us as a result of the ITG Acquisition, our business could be materially and adversely impacted.

In connection with the ITG Acquisition, we assumed potential liabilities relating to ITG's business.

In connection with the ITG Acquisition, we assumed potential liabilities and other risks relating to ITG's business, including but not limited to those liabilities and risks arising from or related to pending, threatened or potential litigation or regulatory matters. To the extent we have not identified such liabilities or miscalculated their potential financial or business impact, these liabilities could have a material adverse effect on our business, prospects, results of operations, financial condition and/or cash flows.

As a clearing member firm in certain jurisdictions we are subject to significant default risk.

In connection with our operation of ITG's business, we will be required to finance our clients' unsettled positions from time to time and we could be held responsible for the defaults of our clients. Default by our clients may also give rise to our incurring penalties imposed by execution venues, regulatory authorities and clearing and settlement organizations. Although we regularly review our credit exposure, default risk may arise from events or circumstances that may be difficult to detect or foresee. In addition, concerns about, or a default by, one institution could lead to significant liquidity problems, losses or defaults by other institutions that could in turn adversely affect us.

ITEM 1B. UNRESOLVED STAFF COMMENTS
None.

ITEM 2. PROPERTIES

Our headquarters are located in leased office space at 300 Vesey Street, New York, NY 10282. We also lease space for our offices in U.S., Europe, and Asia. We consider the current arrangements to be adequate for our present needs.

ITEM 3. LEGAL PROCEEDINGS

The information required by this item is set forth in the “Litigation” section in Note 15 "Commitments, Contingencies and Guarantees" to the Company’s Consolidated Financial Statements included in Part II, Item 8 herein.

ITEM 4. MINE SAFETY DISCLOSURES

None.

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PART II

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

Market Information

The Class A Common Stock trade on NASDAQ under the ticker symbol "VIRT". There is no established public trading market for Class C Common Stock or Class D Common Stock.

Holders

Based on information made available to us by the transfer agent, as of March 1, 2019, there are fifty-five stockholders of record of our Class A Common Stock, one of which was Cede & Co., a nominee for The Depository Trust Company, zero stockholders of record of our Class B Common Stock, eight stockholders of record of our Class C Common Stock and one stockholder of record of our Class D Common Stock. All of our Class A Common Stock held by brokerage firms, banks and other financial institutions as nominees for beneficial owners is considered to be held of record by Cede & Co., who is considered to be one stockholder of record. A substantially greater number of holders of our Class A Common Stock are “street name” or beneficial holders, whose shares of Class A Common Stock are held of record by banks, brokers and other financial institutions. Because such shares of Class A Common Stock are held on behalf of stockholders, and not by the stockholders directly, and because a stockholder can have multiple positions with different brokerage firms, banks and other financial institutions, we are unable to determine the total number of stockholders we have.

Dividend and Capital Return Policy

Our board of directors has adopted a policy of returning excess cash to our stockholders. Subject to the sole discretion of our board of directors and the considerations discussed below, we intend to pay dividends that will annually equal, in the aggregate, at least 70% of our net income.
The board of directors declared and we paid quarterly cash dividends of $0.24 during the years ended December 31, 2018 and 2017. The Company intends to continue paying regular quarterly dividends to holders of our Class A Common Stock and Class B Common Stock and to holders of RSUs (as defined below), however, the payment of dividends will be subject to general economic and business conditions, including the Company’s financial condition, results of operations and cash flows, capital requirements, contractual restrictions, including restrictions contained in our Fourth Amended and Restated Credit Agreement, regulatory restrictions, business prospects and other factors that the Company’s board of directors considers relevant. The terms of the Fourth Amended and Restated Credit Agreement and the indenture governing our Notes contain a number of covenants, including a restriction on our and our restricted subsidiaries’ ability to pay dividends on, or make distributions in respect of, our equity interests. See “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operation - Liquidity and Capital Resources - Long-Term Borrowings”.

Stock Performance

The following performance graph and related information shall not be deemed “soliciting material” or to be “filed” with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act except to the extent we specifically incorporate it by reference into such filing. Our stock price performance shown in the graph below is not indicative of future stock price performance.

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The stock performance graph below compares the performance of an investment in our Class A Common Stock, from April 16, 2015, the date of the IPO, through December 31, 2018, with the S&P 500 Index and the NYSE ARCA Securities Broker/Dealer Index. The graph assumes $100 was invested in our Class A Common Stock, the S&P 500 Index and the NYSE Arca Securities Broker/Dealer Index. It assumes that dividends were reinvested on the date of payment without payment of any commissions or consideration of income taxes.

	Period Ending								
Index	4/16/2015	6/30/2015	12/31/2015	6/30/2016	12/31/2016	6/30/2017	12/31/2017	6/30/2018	12/31/2018
Virtu Financial Inc.	100.00	123.53	121.75	99.79	91.53	103.00	108.95	154.89	153.26
S&P 500	100.00	99.32	98.52	102.3	110.3	120.6	134.38	137.94	128.49
NYSE Arca Securities Broker/Dealer	100.00	104.33	93.33	78.82	107.58	118.13	139.00	142.77	124.38

Stock and Common Units Repurchases

Pursuant to the exchange agreement (the "Exchange Agreement") entered into on April 15, 2015 by and among the Company, Virtu Financial and holders of Virtu Financial Units, Virtu Financial Units (along with the corresponding shares of our Class C Common Stock or Class D Common Stock, as applicable) may be exchanged at any time for shares of our Class A Common Stock or Class B Common Stock, as applicable, on a one-for-one basis, subject to customary conversion rate adjustments for stock splits, stock dividends and reclassifications.

On February 8, 2018, the Company’s board of directors authorized a share repurchase program of up to $50.0 million in Class A Common Stock and Virtu Financial Units, which was expanded to $100.0 million on July 27, 2018. The program lasts through September 30, 2019. The Company may repurchase shares from time to time in open market transactions, privately

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negotiated transactions or by other means. Repurchases may also be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions will be determined by the Company's management based on its evaluation of market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time without prior notice. There are no assurances that any further repurchases will actually occur. Since the inception of the program, the Company has repurchased approximately 2.6 million shares of Class A Common Stock and Virtu Financial Units for approximately $65.9 million. The Company now has approximately $34.1 million remaining capacity for future purchases of shares of Class A Common Stock and Virtu Financial Units under the program. The following table contains information about the Company's purchases of its Class A Common Stock and Class C Common Stock during the year ended December 31, 2018:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
February 1, 2018 - February 28, 2018				
Class A Common Stock repurchases	375,000	$ 29.27	375,000	
May 1, 2018 - May 31, 2018				
Class A Common Stock repurchases	307,391	29.34	307,391	
Class C Common Stock/ Virtu Financial Unit repurchases	696,373	29.44	696,373	
August 1, 2018 - August 31, 2018				
Class A Common Stock repurchases	480,360	21.33	480,360	
September 1, 2018 - September 30, 2018				
Class A Common Stock repurchases	184,090	21.70	184,090	
Class C Common Stock/ Virtu Financial Unit repurchases	330,136	21.59	330,136	
October 1, 2018 - October 31, 2018				
Class A Common Stock repurchases	182,780	21.85	182,780	
Total Common Stock / Virtu Financial Unit repurchases	2,556,130	$ 25.76	2,556,130	$ 34,138,832

During the year ended December 31, 2018, pursuant to the Exchange Agreement, certain current and former employees elected to exchange 4,089,598 units in Virtu Financial held directly or on their behalf by Virtu Employee Holdco LLC ("Employee Holdco") on a one-for-one basis for shares of Class A Common Stock. The shares of our Class A Common Stock were issued in reliance on the registration exemption contained in Section 4(a)(2) of the Securities Act, on the basis that the transaction did not involve a public offering. No underwriters were involved in the transaction.

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Equity Compensation Plan Information

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:

	Plan Category	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 issuance under equity compensation plans (excluding securities reflected in first column)
Equity compensation plans approved by security holders	Amended and Restated 2015 Management Incentive Plan	4,835,072	19.36	4,885,354
Equity compensation plans not approved by security holders	None	—	—	—
Total		4,835,072	$ 19.36	4,885,354

ITEM 6. SELECTED FINANCIAL DATA

SELECTED CONSOLIDATED FINANCIAL DATA

The following table sets forth selected historical consolidated financial data for the periods beginning on and after January 1, 2014. We were formed on October 16, 2013 and, prior to the consummation of the Reorganization Transactions and the IPO, did not conduct any activities other than those incident to our formation and the IPO. Our consolidated financial statements reflect, for all the periods prior to April 16, 2015 (the period prior to completion of the Reorganization Transactions), the operations of Virtu Financial and its consolidated subsidiaries, and for all periods on or after April 16, 2015, the operations of the Company and its consolidated subsidiaries (including Virtu Financial). On July 20, 2017 we acquired KCG, which is accounted for under the acquisition method of accounting. Under the acquisition method of accounting, the assets and liabilities of KCG, as of July 20, 2017, were recorded at their respective fair values and added to the carrying value of our existing assets and liabilities. Our reported financial condition, results of operations and cash flows for the periods following the Acquisition of KCG reflect KCG's and our balances and reflect the impact of purchase accounting adjustments. As we are the accounting acquirer, the financial results for 2017 comprise our results for the entire applicable period and the results of KCG from the Closing Date through December 31, 2017. All periods prior to the Closing Date comprise solely our results. The consolidated statements of comprehensive income data for the years ended December 31, 2018, 2017 and 2016 and the consolidated statements of financial condition data as of December 31, 2018 and 2017 have been derived from our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

The following selected historical financial and other data should be read in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and our respective consolidated financial statements and related notes thereto included elsewhere in this Annual Report on Form 10-K.

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	Year Ended December 31,				
(In thousands, except share and per share data)	2018	2017	2016	2015	2014
Consolidated Statements of Comprehensive Income Data:					
Revenues:					
Trading income, net	$1,266,682	$766,027	$665,465	$757,455	$685,150
Interest and dividends income	87,508	50,407	26,419	28,136	27,923
Commissions, net and technology services(1)	184,339	116,503	10,352	10,622	9,980
Other, net(2)	340,189	95,045	36	—	—
Total revenues	1,878,718	1,027,982	702,272	796,213	723,053
Operating Expenses:					
Brokerage, exchange and clearance fees, net	301,779	256,926	221,214	232,469	230,965
Communication and data processing	176,120	131,506	71,001	68,647	68,847
Employee compensation and payroll taxes	215,556	177,489	85,295	88,026	84,531
Payments for order flow(3)	74,645	27,727	—	—	—
Interest and dividends expense	141,814	91,993	56,557	52,423	47,083
Operations and administrative	64,749	61,466	23,358	23,262	21,923
Depreciation and amortization	61,154	47,327	29,703	33,629	30,441
Amortization of purchased intangibles and acquired capitalized software	26,123	15,447	211	211	211
Termination of office leases	23,357	3,671	(319)	2,729	
Acquisition related retention bonus	—	—	—	—	2,639
Debt issue cost related to debt refinancing(4)	11,727	10,460	5,579	—	—
Initial public offering fees and expenses(5)	—	—	—	—	8,961
Transaction advisory fees and expenses(6)	11,487	25,270	—	—	3,000
Reserve for legal matters(7)	2,020	657	—	5,440	—
Charges related to share based compensation at IPO(8)	24	772	1,755	44,194	—
Financing interest expense on long-term borrowings	71,800	64,107	28,327	29,254	30,894
Total operating expenses	1,182,355	914,818	522,681	580,284	529,495
Income before income taxes	696,363	113,164	179,591	215,929	193,558
Provision for income taxes(9)	76,171	94,266	21,251	18,439	3,501
Net income	620,192	18,898	158,340	197,490	$190,057
Noncontrolling interest	(330,751)	(15,959)	(125,360)	(176,603)	
Net income available for common stockholders	$289,441	$2,939	$32,980	$20,887	

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	Year Ended December 31,				
Earnings per share	2018	2017	2016	2015	2014
Basic	2.82	0.03	0.83	0.60	
Diluted	2.78	0.03	0.83	0.59	
Weighted average common shares outstanding					
Basic	100,875,793	62,579,147	38,539,091	34,964,312	
Diluted	102,089,139	62,579,147	38,539,091	35,339,585	
Cash dividends declared per share	0.96	0.96	0.96	0.72	

	As of December 31,				
Consolidated Statements of Financial Condition Data (in thousands):	2018	2017	2016	2015	2014
Cash and cash equivalents	$736,047	$532,887	$181,415	$163,235	$75,864
Total assets	7,380,978	7,320,006	3,692,390	3,391,930	3,319,458
Senior secured credit facility	907,037	1,388,548	564,957	493,589	495,724
Total liabilities	5,886,279	6,168,428	3,157,978	2,834,060	2,812,760
Class A-1 redeemable interest(10)	—	—	—	—	294,433
Total Virtu Financial Inc. stockholders' equity	1,051,896	830,569	145,673	130,708	212,265
Noncontrolling interest	442,803	321,009	388,739	427,162	—
Total equity	$1,494,699	$1,151,578	$534,412	$557,870	$506,698

(1) In connection with the Acquisition of KCG, we recognized significant revenue increase in commissions, net and technology services for the years ended December 31, 2017 and 2018. Commissions and fees are primarily affected by changes in our equities, fixed income and futures transaction volumes with institutional clients; changes in commission rates; client experience on the various platforms; level of volume based fees from providing liquidity to other trading venues; and the level of soft dollar and commission recapture activity.

(2) As a result of the 2017 Tax Act (as defined below), we recognized a gain of $86.6 million on the reduction of tax receivable agreement obligation during the year ended December 31, 2017. See Note 6, “Tax Receivable Agreements” in Part II Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K. In January 2018, we completed the sale of BondPoint to ICE for total gross proceeds of $400.2 million in cash, and recognized a gain on sale net of transaction fees of $329.0 million. See Note 4 "Sale of BondPoint" in Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

(3) Payments for order flow are a result of the Acquisition of KGC since the Closing Date in 2017. They primarily represent payments to broker dealer clients, in the normal course of business, for directing their order flow to us.

(4) In 2017, in connection with the Acquisition of KCG, Virtu Financial entered into the Fourth Amended and Restated Credit Agreement providing for a $1,150.0 million first lien secured term loan facility, and issued senior secured second lien notes of $500.0 million. During the refinancing and termination of the existing credit facility, a portion of certain financing costs that were scheduled to be amortized over the term of the loan, including original issue discount and underwriting and legal fees, were accelerated and recognized at the closing of the transactions. For the years ended December 31, 2018 and 2017, Virtu Financial made $500.0 million and $250.0 million, respectively, principal payments on the credit facility, which resulted in accelerations in the recognition of a portion of certain financing costs that were scheduled to be amortized over the term of the loan. See Note 10 "Borrowings" in Item 8 "Financial Statements and Supplement Data" of this Annual Report on Form 10-K.

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(5) Initial public offering fees and expenses reflect costs directly attributable to our initial public offering process, which was postponed in April 2014. We accounted for such costs in accordance with ASC 340 10, Other Assets and Deferred Costs. ASC 340 states that costs directly attributable to a successfully completed offering of equity securities may be deferred and charged against the gross proceeds of the offering as a reduction of additional paid in capital, but for an offering postponed for a period greater than 90 days, the offering costs must be charged as an expense in the period the offering process was postponed.

(6) Transaction advisory fees reflect professional fees incurred by us in connection with (i) the acquisition in a series of transactions, prior to the Reorganization Transactions, by Temasek, acting through two indirectly wholly owned subsidiaries, of direct or indirect ownership of 10,535,891 Class A-1 redeemable interests and 1,828,755 Class A-2 capital interests in Virtu Financial, which acquisition was consummated on December 31, 2014, and (ii) the Acquisition of KCG, which was consummated on July 20, 2017.

(7) In December 2015, the enforcement committee of the AMF fined the Company's European subsidiary in the amount of €5.0 million (approximately $5.4 million) based on its allegations that the subsidiary of Madison Tyler Holdings, LLC engaged in price manipulation and violations of the AMF General Regulation and Euronext Market Rules. In accordance with the foregoing, we accrued an estimated loss in relation to the fine imposed by the AMF. In May 2017, the fine was reduced to €3.0 million (approximately $3.5 million), subject to an incremental charge of €0.3 million (approximately $0.4 million), which has been subsequently annulled in 2019.

(8) Represents non cash compensation expenses in respect of the outstanding time vested Class B interests of Virtu Financial (the "VFI Class B Interests") and Class B interests of Virtu East MIP LLC (the "East MIP Class B Interests") recognized at the consummation of the IPO and through the year ended December 31, 2015, net of $9.2 million and $8.5 million in capitalization and amortization, respectively, of the costs attributable to employees incurred in development of software for internal use. We continued to capitalize and amortize the costs related to development on the software for internal use through the first quarter of 2018.

(9) As a result of the 2017 Tax Act, the U.S. statutory corporate tax rate has been lowered from 35% to 21% and certain deductions have been eliminated. See Note 14, "Income Taxes" in Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

(10) The Class A 1 interests of Virtu Financial were convertible by the holders at any time into an equivalent number of Class A 2 capital interests of Virtu Financial and, in a sale or other specified capital transaction, holders were entitled to receive distributions up to specified preference amounts before holders of Class A 2 capital interests of Virtu Financial were entitled to receive distributions. In connection with the Reorganization Transactions, all of the existing equity interests in Virtu Financial were reclassified into Virtu Financial Units. See Note 16, "Capital Structure" in Item 8 "Financial Statements and Supplement Data" of this Annual Report on Form 10-K.

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

The following management's discussion and analysis covers the years ended December 31, 2018, 2017 and 2016 and should be read in conjunction with the audited consolidated financial statements of Virtu Financial, Inc. (the "Company") for the years ended December 31, 2018, 2017 and 2016. This management's discussion and analysis contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Unless otherwise stated, all amounts are presented in thousands of dollars.

Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements. You should not place undue reliance on forward-looking statements because they are subject to numerous uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control. Forward-looking statements include information concerning our possible or assumed future results of operations, including descriptions of our business strategy. These forward-looking statements can be identified by the use of forward-looking terminology, including the terms "may," "will," "should," "believe," "expect," "anticipate," "intend," "plan," "project" or, in each case, their negative, or other variations or comparable terminology and expressions. These statements are based on assumptions that we have made in light of our experience in the industry as well as our perceptions of historical trends, current conditions, expected future developments and other factors we believe are appropriate under the circumstances. As you read and consider this

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Annual Report on Form 10-K, you should understand that forward-looking statements are not guarantees of performance or results and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate, may differ materially from those made in or suggested by the forward-looking statements contained in this Annual Report on Form 10-K. By their nature, forward-looking statements involve known and unknown risks and uncertainties, including those described under the heading “Risk Factors” in this Annual Report on Form 10-K, because they relate to events and depend on circumstances that may or may not occur in the future. Although we believe that the forward-looking statements contained in this Annual Report on Form 10-K are based on reasonable assumptions, you should be aware that many factors, including those described under the heading “Risk Factors” in this Annual Report on Form 10-K, could affect our actual financial results or results of operations and cash flows, and could cause actual results to differ materially from those in such forward-looking statements, including but not limited to:

- reduced levels of overall trading activity;
- dependence upon trading counterparties and clearing houses performing their obligations to us;
- failures of our customized trading platform;
- risks inherent to the electronic market making business and trading generally;
- increased competition in market making activities and execution services;
- dependence on continued access to sources of liquidity;
- risks associated with self clearing and other operational elements of our business;
- obligations to comply with applicable regulatory capital requirements;
- litigation or other legal and regulatory based liabilities;
- proposed legislation that would impose taxes on certain financial transactions in the European Union, the U.S. and other jurisdictions;
- obligations to comply with laws and regulations applicable to our operations in the U.S. and abroad;
- enhanced media and regulatory scrutiny and its impact upon public perception of us or of companies in our industry;
- need to maintain and continue developing proprietary technologies;
- the effect of the Acquisition of KCG on existing business relationships, operating results, and ongoing business operations generally;
- the significant costs and significant indebtedness that we incurred in connection with the Acquisition of KCG, and the integration of KCG into our business;
- the risk that we may encounter significant difficulties or delays in integrating the KCG business with ours and that the anticipated benefits, cost savings and synergies or capital release may not be achieved;
- the assumption of potential liabilities relating to KCG’s business;
- the effect of the ITG Acquisition on existing business relationships, operating results, and ongoing business operations generally,
- the significant costs and significant indebtedness that we have incurred in connection with the ITG Acquisition, and the integration of ITG into our business;
- the risk that we may encounter significant difficulties or delays in integrating the ITG business with ours and that the anticipated benefits, cost savings and synergies or capital release may not be achieved;
- the assumption of potential liabilities and risks relating to ITG's business;
- capacity constraints, system failures, and delays;
- dependence on third party infrastructure or systems;
- use of open source software;
- failure to protect or enforce our intellectual property rights in our proprietary technology;
- failure to protect confidential and proprietary information;

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- failure to protect our systems from internal or external cyber threats that could result in damage to our computer systems, business interruption, loss of data or other consequences;
- risks associated with international operations and expansion, including failed acquisitions or dispositions;
- the effects of and changes in economic conditions (such as volatility in the financial markets, inflation, monetary conditions and foreign currency and exchange rate fluctuations, foreign currency controls and/or government mandated pricing controls, as well as in trade, monetary, fiscal and tax policies in international markets) and political conditions (such as military actions and terrorist activities);
- risks associated with potential growth and associated corporate actions;
- inability to access, or delay in accessing the capital markets to sell shares or raise additional capital;
- loss of key executives and failure to recruit and retain qualified personnel; and
- risks associated with losing access to a significant exchange or other trading venue.

Our forward-looking statements made herein are made only as of the date of this Annual Report on Form 10-K. We expressly disclaim any intent, obligation or undertaking to update or revise any forward-looking statements made herein to reflect any change in our expectations with regard thereto or any change in events, conditions or circumstances on which any such statements are based. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained in this Annual Report on Form 10-K.

Basis of Preparation

Our consolidated financial statements for the years ended December 31, 2018 and 2017 reflect our operations and those of our consolidated subsidiaries. As discussed in Note 1 "Organization and Basis of Presentation" and in Note 3 "Acquisition of KCG" of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K, we have accounted for the Acquisition of KCG under the acquisition method of accounting. Under the acquisition method of accounting, the assets and liabilities of KCG, as of the Closing Date were recorded at their respective fair values and added to the carrying values of our existing assets and liabilities. Our reported financial condition, results of operations and cash flows for the periods following the Acquisition of KCG reflect KCG's and our balances and reflect the impact of purchase accounting adjustments, including revised amortization and depreciation expense for acquired assets. As we are the accounting acquirer, the financial results for the year ended December 31, 2017 comprise our results and the results of KCG from the Closing Date through December 31, 2017. All periods prior to the Closing Date comprise solely our results.

Overview

We are a leading financial services firm that leverages cutting edge technology to deliver liquidity to the global markets and innovative, transparent trading solutions to our clients. We believe that our broad diversification, in combination with our proprietary technology platform and low-cost structure, enables us to facilitate risk transfer between global capital markets participants by supplying competitive liquidity and execution services while at the same time earning attractive margins and returns.

Technology and operational efficiency are at the core of our business, and our focus on technology is a key element of our success. We have developed a proprietary, multi-asset, multi-currency technology platform that is highly reliable, scalable and modular, and we integrate directly with exchanges and other liquidity centers. Our market data, order routing, transaction processing, risk management and market surveillance technology modules manage our market making and execution services activities in an efficient manner and enable us to scale our activities globally and across additional securities and other financial instruments and asset classes without significant incremental costs or third party licensing or processing fees.

We believe that technology-enabled market makers and execution services providers like Virtu serve an important role in maintaining and improving the overall health and efficiency of the global capital markets by continuously posting bids and offers for financial instruments and thereby providing market participants a transparent and efficient means to transfer risk. All market participants benefit from the increased liquidity, lower overall trading costs and execution certainty that Virtu provides.

As described in “Acquisition of KCG” below, we completed the Acquisition of KCG on the Closing Date. KCG was a leading independent securities firm offering clients a range of services designed to address trading needs across asset classes, product types and geographies.

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Prior to the Acquisition of KCG, Virtu operated as a single operating business segment. As a result of the Acquisition of KCG, beginning in the third quarter of 2017, Virtu has two operating segments: Market Making and Execution Services, and one non-operating segment: Corporate. Our management allocates resources, assesses performance and manages our business according to these segments.

Market Making

We provide competitive and deep liquidity that helps to create more efficient markets around the world. We stand ready, at any time, to buy or sell a broad range of securities, and we generate revenue by buying and selling large volumes of securities and other financial instruments and earning small bid/ask spreads. We are a leading financial firm that leverages cutting edge technology to deliver liquidity to the global markets and innovative, transparent trading solutions to our clients. Our market structure expertise, broad diversification, and execution technology enables us to provide competitive bids and offers in over 25,000 securities and other financial instruments, on over 235 venues, in 36 countries worldwide. We use the best technology to deliver liquidity to global markets and innovative trading solutions and analytics tools to our clients. We interact directly with hundreds of retail brokers, Registered Investment Advisors, private client networks, sell-side brokers, and buy-side institutions. Our products are transparent, because we believe transparency makes markets more efficient and helps investors make better, more informed decisions.

We believe the overall level of volumes and realized volatility in the various markets we serve have the greatest impact on our businesses. Increases in market volatility can cause bid/ask spreads to widen as market participants are more willing to pay market makers like us to transact immediately and as a result market makers' capture rate per notional amount transacted will increase.

Execution Services

We offer agency execution services and trading venues that provide transparent trading in global equities, ETFs, and fixed income to institutions, banks and broker dealers. We generally earn commissions as an agent between principals for transactions. Agency based, execution-only trading in the segment is done primarily through a variety of access points including: (a) algorithmic trading and order routing; (b) institutional sales traders who offer portfolio trading and single stock sales trading which provides execution expertise for program, block and riskless principal trades in global equities and ETFs; and (c) matching of client orders in Virtu MatchIt (our ATS for U.S. equities). We also earn technology services revenues by providing our proprietary technology and infrastructure to select third parties for a service fee.

Corporate

Our Corporate segment contains investments principally in strategic financial services-oriented opportunities and maintains corporate overhead expenses and all other income and expenses that are not attributable to our other segments.

Acquisition of KCG

On the Closing Date, pursuant to the terms of the Agreement and Plan of Merger, dated as of April 20, 2017 by and among the Company, Orchestra Merger Sub, Inc., a Delaware corporation and an indirect wholly-owned subsidiary of the Company (“Merger Sub”), and KCG, Merger Sub merged with and into KCG (the “KCG Merger”), with KCG surviving the KCG Merger as a wholly owned subsidiary of the Company.

In connection with the financing of the Acquisition of KCG, on the Closing Date, the Company issued to (i) Aranda 6,346,155 shares of the Company's Class A Common Stock for an aggregate purchase price of approximately $99.0 million and (ii) North Island Stockholder 39,725,979 shares of Class A Common Stock for an aggregate purchase price of approximately $613.5 million. On August 10, 2017, the Company issued additional 1,666,666 shares and 338,124 shares of Class A Common Stock to Aranda and the North Island Stockholder respectively, for an aggregate additional purchase price of approximately $26.0 million and $5.2 million, respectively. In connection with these transactions, the Company incurred approximately $7.8 million in fees which were recorded as a reduction to additional paid-in capital.

Also in connection with the financing of the Acquisition of KCG, on June 16, 2017, Orchestra Borrower LLC (the "Escrow Issuer") a wholly owned subsidiary of Virtu Financial LLC ("Virtu Financial") and Orchestra Co-Issuer, Inc. (the "Co-Issuer") completed the offering of $500 million aggregate principal amount of 6.750% Senior Secured Second Lien Notes due 2022 (the "Notes") as more fully described under Liquidity and Capital Resources - Senior Secured Second Lien Notes. On July 20, 2017, VFH assumed all of the obligations of the Escrow Issuer under the Notes and the indenture governing the Notes.

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On June 30, 2017, Virtu Financial and VFH entered into a fourth amended and restated credit agreement (the “Fourth Amended and Restated Credit Agreement”) for $1.15 billion first lien secured term loans with the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent, sole lead arranger and bookrunner, which amended and restated in its entirety VFH’s existing credit agreement. We have made payments in total of $750.0 million to the credit facility as of December 31, 2018.

On July 21, 2017, the outstanding 6.875% Senior Secured Notes due 2020 issued by KCG were redeemed at a redemption price equal to 103.438% of the principal amount, plus accrued and unpaid interest, pursuant to the indenture, dated as of March 13, 2015 (as amended, restated, supplemented or otherwise modified), by and among KCG, the subsidiary guarantors party thereto and The Bank of New York Mellon, as trustee and collateral agent.

Acquisition of Investment Technology Group, Inc.

On March 1, 2019 (the “ITG Closing Date”), the Company announced the completion of its previously announced acquisition of Investment Technology Group, Inc. (“ITG”) in a cash transaction valued at $30.30 per ITG share, or a total of approximately $1.0 billion (the “ITG Acquisition”). In connection with the ITG Acquisition, Virtu Financial, VFH and Impala Borrower LLC (the “Acquisition Borrower”), a subsidiary of the Company, entered into a Credit Agreement (the “New Credit Agreement”), with the lenders party thereto, Jefferies Finance LLC, as administrative agent and Jefferies Finance LLC and RBC Capital Markets, as joint lead arrangers and joint bookrunners. The New Credit Agreement provides (i) a senior secured first lien term loan in an aggregate principal amount of $1.5 billion, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million being borrowed by VFH to repay all amounts outstanding under its existing term loan facility and the remaining approximately $1,095 million being borrowed by the Acquisition Borrower to finance the consideration and fees and expenses to be paid in connection with the ITG Acquisition, and (ii) a $50.0 million senior secured first lien revolving facility to VFH, with a $5.0 million letter of credit subfacility and a $5.0 million swingline subfacility. After the closing of ITG Acquisition, VFH will assume the obligations of the Acquisition Borrower in respect of the acquisition term loans. Additionally, on the ITG Closing Date, the Fourth Amended and Restated Credit Agreement was terminated.

Amended and Restated 2015 Management Incentive Plan

The Company’s board of directors and stockholders adopted the 2015 Management Incentive Plan, which became effective upon consummation of the Company's initial public offering in April 2015 (the "IPO") (the "2015 Management Incentive Plan"). The 2015 Management Incentive Plan, which was amended and restated in 2017 (the “Amended and Restated 2015 Management Incentive Plan”), provides for the grant of stock options, restricted stock units, and other awards based on an aggregate of 16,000,000 shares of Class A Common Stock, subject to additional sublimits, including limits on the total option grant to any one participant in a single year and the total performance award to any one participant in a single year.

In connection with the IPO, non-qualified stock options to purchase 9,228,000 shares were granted at the IPO per share price, each of which vests in equal annual installments over a period of four years from the grant date and expires not later than 10 years from the grant date. Subsequent to the IPO and through December 31, 2018, options to purchase 1,528,750 shares in the aggregate were forfeited and 4,049,058 options were exercised. The fair value of the stock option grants was determined through the application of the Black-Scholes-Merton model and will be recognized on a straight line basis over the vesting period. In connection with and subsequent to the IPO, 1,677,318 shares of immediately vested Class A Common Stock and 2,620,051 restricted stock units were granted, which vest over a period of up to 4 years and are settled in shares of Class A Common Stock. The fair value of the Class A Common Stock and restricted stock units was determined based on the volume weighted average price for the three days preceding the grant, and with respect to the restricted stock units will be recognized on a straight line basis over the vesting period.

Parent Company Financial Information

There are no material differences between our consolidated financial statements and the financial statements of Virtu Financial LLC ("Virtu Financial") except as follows: (i) cash and cash equivalents reflected on our Consolidated Statement of Financial Condition in the amount of $3.8 million; (ii) deferred tax assets reflected on our Consolidated Statement of Financial Condition in the amount of $189.6 million and tax receivable agreement obligation in the amount of $214.4 million, in each case as described in greater detail in Note 6 "Tax Receivable Agreements" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K; (iii) a portion of the member's equity of Virtu Financial is represented as non-controlling interest on our Consolidated Statement of Financial Condition; and (iv) provision for corporate income tax in the amount of $63.4 million reflected on our Consolidated Statements of Comprehensive Income for the year ended December 31, 2018.

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Components of Our Results of Operations

The following table shows the i) Total revenue, ii) Total operating expenses, and iii) Income before income taxes and noncontrolling interest by segment for the years ended December 31, 2018, 2017 and 2016:

(in thousands)	Years Ended December 31,		
Market Making	2018	2017	2016
Total revenue	$1,384,475	$836,707	$691,884
Total operating expenses	961,827	762,074	515,739
Income before income taxes and noncontrolling interest	422,648	74,633	176,145
Execution Services			
Total revenue	496,333	99,135	10,352
Total operating expenses	171,290	111,654	5,949
Income before income taxes and noncontrolling interest	325,043	(12,519)	4,403
Corporate			
Total revenue	(2,090)	92,140	36
Total operating expenses	49,238	41,090	993
Income before income taxes and noncontrolling interest	(51,328)	51,050	(957)
Consolidated			
Total revenue	1,878,718	1,027,982	702,272
Total operating expenses	1,182,355	914,818	522,681
Income before income taxes and noncontrolling interest	$696,363	$113,164	$179,591

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(in thousands)	Years Ended December 31, 2018	2017	2016
Revenues:			
Trading income, net	$1,266,682	$766,027	$665,465
Interest and dividends income	87,508	50,407	26,419
Commissions, net and technology services	184,339	116,503	10,352
Other, net	340,189	95,045	36
Total revenue	1,878,718	1,027,982	702,272
Operating Expenses:			
Brokerage, exchange and clearance fees, net	301,779	256,926	221,214
Communication and data processing	176,120	131,506	71,001
Employee compensation and payroll taxes	215,556	177,489	85,295
Payments for order flow	74,645	27,727	—
Interest and dividends expense	141,814	91,993	56,557
Operations and administrative	64,749	61,466	23,358
Depreciation and amortization	61,154	47,327	29,703
Amortization of purchased intangibles and acquired capitalized software	26,123	15,447	211
Termination of office leases	23,357	3,671	(319)
Debt issue cost related to debt refinancing and prepayment	11,727	10,460	5,579
Transaction advisory fees and expenses	11,487	25,270	—
Reserve for legal matters	2,020	657	—
Charges related to share based compensation at IPO	24	772	1,755
Financing interest expense on long-term borrowings	71,800	64,107	28,327
Total operating expenses	1,182,355	914,818	522,681
Income before income taxes and noncontrolling interest	696,363	113,164	179,591
Provision for income taxes	76,171	94,266	21,251
Net income	$620,192	$18,898	$158,340

Total Revenues

The majority of our revenue is generated through market making activities, which is recorded as trading income, net. In addition, we generate revenues from interest and dividends income, agency execution services to select third parties, and technology services that use our proprietary technology to provide technology infrastructure to third parties. Following the Acquisition of KCG, we also earn commissions and commission equivalents, as well as, in certain cases, contingent fees based on client revenues, which represents variable consideration. The services offered under these contracts have the same pattern of transfer; accordingly, they are being measured and recognized as a single performance obligation. The performance obligation is satisfied over time, and accordingly, revenue is recognized as time passes. Variable consideration has not been included in the transaction price as the amount of consideration is contingent on factors outside the Company's control and thus it is not probable that a significant reversal of cumulative revenue recognized will not occur. Recurring fees, which exclude variable consideration, are billed and collected on a monthly basis.

Trading income, net. Trading income, net represents revenue earned from bid/ask spreads. Trading income is generated in the normal course of our market making activities and is typically proportional to the level of trading activity, or volumes, in the asset classes we serve. Our trading income is highly diversified by asset class and geography and is comprised of small amounts earned on millions of trades on various exchanges, primarily in the following three categories: Americas Equities, Rest of World Equities, and Global FICC, options and other. Our trading income, net, results from gains and losses associated with economically neutral trading strategies, which are designed to capture small bid ask spreads and often involve making markets in a derivative versus a correlated instrument that is not a derivative. These transactions often result in a gain or loss on the derivative and a corresponding loss or gain on the non-derivative. Trading income, net, accounted for 67%, 75%, and 95% of our total revenues for the years ended December 31, 2018, 2017 and 2016, respectively.

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Interest and dividends income. Our market making activities require us to hold securities on a regular basis, and we generate revenues in the form of interest and dividends income from these securities. Interest is earned on securities borrowed from other market participants pursuant to collateralized financing arrangements and on cash held by brokers. Dividends income arises from holding market making positions over dates on which dividends are paid to shareholders of record.

Commissions, net and technology services. Revenues on transactions for which we charge explicit commissions or commission equivalents, which include the majority of our institutional client orders. Commissions and fees are primarily affected by changes in our equities, fixed income and futures transaction volumes with institutional clients, which depends on client relationships; changes in commission rates; client experience on the various platforms; level of volume based fees from providing liquidity to other trading venues; and the level of our soft dollar and commission recapture activity. Agency commission fees are charged for agency trades executed by us on behalf of third party broker-dealers, institutions and other financial institutions. We began providing agency execution services in April 2016, and revenue is recognized on a trade date basis, which is the point at which the performance obligation to the customer is satisfied, based on the trade volume executed.

Technology licensing fees are charged for the licensing of our proprietary technology and the provision of related services, including hosting, management and support. These fees include an up-front component and a recurring fee for the relevant terms, which may include both fixed and variable components. Revenue is recognized ratably for these services over the contractual term of the agreement.

Other, net. We have interests in multiple telecommunications joint ventures (“JV”). We record our pro-rata share of each JV’s earnings or losses within other, net, while fees related to the use of communication services provided by the JVs are recorded within communications and data processing. In addition, we also recorded gains or losses on certain one-time transactions, including the sale of our BondPoint business ("BondPoint") in 2018, within other, net (see Note 4 "Sale of BondPoint" of Item 8 "Financial Statements and Supplementary Data” of this Annual Report on Form 10-K).

In July 2016, we made a minority investment in SBI Japannext Co., Ltd. (“SBI”) (the "SBI Investment"), a proprietary trading system based in Tokyo. In connection with the investment, we issued bonds to certain affiliates of SBI and used the proceeds to partially finance the transaction. Revenues or losses are recognized due to the changes in fair value of the investment or fluctuations in Japanese Yen conversion rates within other, net.

Operating Expenses

Brokerage, exchange and clearance fees, net. Brokerage, exchange and clearance fees are our most significant expenses, which include the direct expenses of executing and clearing transactions that we consummate in the course of our market making activities. Brokerage, exchange and clearance fees primarily consist of fees charged by third parties for executing, processing and settling trades. These fees generally increase and decrease in direct correlation with the level of trading activity, or volumes, in the markets we serve. Execution fees are paid primarily to exchanges and venues where we trade. Clearance fees are paid to clearing houses and clearing agents. Rebates based on volume discounts, credits or payments received from exchanges or other marketplaces are netted against brokerage, exchange and clearance fees.

Payments for order flow. Payments for order flow represent payments to broker dealer clients, in the normal course of business, for directing their order flow to us primarily in U.S. equities. Payments for order flow will fluctuate as we modify our rates and as the portion of our clients that do not accept payments for order flow varies. Payments for order flow also fluctuate based on U.S. equity share and option volumes, our profitability and the mix of market orders, limit orders, and customers.

Communication and data processing. Communication and data processing represent primarily fixed expenses for leased equipment, equipment co-location, network lines and connectivity for our trading centers and co-location facilities. Communications expense consists primarily of the cost of voice and data telecommunication lines supporting our business, including connectivity to data centers, exchanges, markets and liquidity pools around the world, and data processing expense consists primarily of market data subscription fees that we pay to third parties to receive price quotes and related information.

Employee compensation and payroll taxes. Employee compensation and payroll taxes include employee salaries, cash and non-cash incentive compensation, employee benefits, payroll taxes, severance and other employee related costs. Employee compensation and payroll taxes also includes non-cash compensation expenses with respect to the stock options and restricted stock units granted in connection with and subsequent to the IPO pursuant to the Amended and Restated 2015 Management Incentive Plan.

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Interest and dividends expense. We incur interest expense from loaning certain equity securities in the general course of our market making activities pursuant to collateralized lending transactions. Typically, dividend expense is incurred when a dividend is paid on securities sold short.

Operations and administrative. Operations and administrative expense represents occupancy, recruiting, travel and related expense, professional fees and other expenses.

Depreciation and amortization. Depreciation and amortization expense results from the depreciation of fixed assets, such as computing and communications hardware, as well as amortization of leasehold improvements and capitalized in-house software development. We depreciate our computer hardware and related software, office hardware and furniture and fixtures on a straight line basis over a period of 3 to 7 years based on the estimated useful life of the underlying asset, and we amortize our capitalized software development costs on a straight line basis over a period of 1.5 to 2.5 years, which represents the estimated useful lives of the underlying software. We amortize leasehold improvements on a straight line basis over the lesser of the life of the improvement or the term of the lease.

Amortization of purchased intangibles and acquired capitalized software. Amortization of purchased intangibles and acquired capitalized software represents the amortization of finite lived intangible assets acquired in connection with the acquisitions of certain assets from Nyenburgh Holding B.V., Teza Technologies (the "Teza Acquisition") and KCG, respectively. These assets are amortized over their useful lives, ranging from 1 to 15 years, except for certain assets which were categorized as having indefinite useful lives.

Termination of office leases. Termination of office leases represents the one-time expense write-off on the present value of the future lease obligations on the office space we abandoned in connection with the Acquisition of KCG. The aggregated write-off amount includes legal fees, broker fees, dilapidation fees and other miscellaneous expense associated with the abandonment.

Debt issue costs related to debt refinancing. As a result of the refinancing or early termination of our long-term borrowings, we accelerate the capitalized debt issue costs and the discount on term loan that would otherwise to be amortized or accreted over the life of the term loan.

Transaction advisory fees and expenses. Transaction advisory fees and expenses primarily reflect professional fees incurred by us in connection with the Acquisition of KCG and with the sale of BondPoint in 2018.

Reserve for Legal Matters. Reserve for legal matters represents the potential legal settlements from on-going legal matters that might be material for our results of operations and cash flows for any particular reporting period.

Charges related to share based compensation at IPO. At the consummation of the IPO and through the years ended December 31, 2018, we recognized non-cash compensation expenses in respect of the outstanding time-vested VFI Class B Interests and East MIP Class B Interests, net of capitalization and amortization of costs attributable to employees incurred in development of software for internal use, as defined and discussed in Note 17 "Share-based Compensation" of Item 8, “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Financing interest expense on long-term borrowings. Financing interest expense reflects interest accrued on outstanding indebtedness, under our long-term borrowing arrangements.

Provision for Income Taxes

Prior to the consummation of the Reorganization Transactions and the IPO, our business was historically operated through a limited liability company that is treated as a partnership for U.S. federal income tax purposes, and as such, most of our income was not subject to U.S. federal and certain state income taxes. Our income tax expense for historical periods reflects taxes payable by certain of our non-U.S. subsidiaries. Subsequent to the consummation of the Reorganization Transactions and the IPO, we are subject to U.S. federal, state and local income tax at the rate applicable to corporations less the rate attributable to the noncontrolling interest in Virtu Financial.

Our effective tax rate is subject to significant variation due to several factors, including variability in our pre-tax and taxable income and loss and the jurisdictions to which they relate, changes in how we do business, acquisitions and investments, audit-related developments, tax law developments (including changes in statutes, regulations, case law, and administrative practices), and relative changes of expenses or losses for which tax benefits are not recognized. Additionally, our effective tax

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rate can be more or less volatile based on the amount of pre-tax income or loss. For example, the impact of discrete items and non-deductible expenses on our effective tax rate is greater when our pre-tax income is lower.

Public Law No. 115-97, commonly referred to as the Tax Cuts and Jobs Act (the “2017 Tax Act”) was signed into law on December 22, 2017 and significantly revises the U.S. corporate income tax by, among other things, lowering the statutory corporate tax rate from 35% to 21%, and eliminating certain deductions. We recorded a deferred tax expense for the impact of the 2017 Tax Act of approximately $90.6 million, which is primarily composed of the remeasurement of federal net deferred tax assets as a result of the permanent reduction in the U.S. statutory corporate tax rate from 35% to 21%. During 2018, we did not make any adjustments due to the 2017 Tax Act, and we have completed our determination of the accounting implications of the 2017 Tax Act on our tax balances as of December 31, 2018.

We regularly assess whether it is more likely than not that we will realize our deferred tax assets in each taxing jurisdiction in which we operate. In performing this assessment with respect to each jurisdiction, we review all available evidence, including actual and expected future earnings, capital gains, and investment in such jurisdiction, the carry-forward periods available to us for tax reporting purposes, and other relevant factors. See Note 14 "Income Taxes" of Item 8 "Financial Statements and Supplementary Data” of this Annual Report on Form 10-K for additional information.

Non-GAAP Financial Measures and Other Items

To supplement our consolidated financial statements presented in accordance with generally accepted accounting principles in the United States (“U.S. GAAP”), we use the following non-U.S. GAAP ("non-GAAP") financial measures of financial performance:

- “Adjusted Net Trading Income”, which is the amount of revenue we generate from our market making activities, or trading income, net, plus commissions, net and technology services, plus interest and dividends income and expense, net, less direct costs associated with those revenues, including brokerage, exchange and clearance fees, net, and payments for order flow. Management believes that this measurement is useful for comparing general operating performance from period to period. Although we use Adjusted Net Trading Income as a financial measure to assess the performance of our business, the use of Adjusted Net Trading Income is limited because it does not include certain material costs that are necessary to operate our business. Our presentation of Adjusted Net Trading Income should not be construed as an indication that our future results will be unaffected by revenues or expenses that are not directly associated with our market making activities.
- “EBITDA”, which measures our operating performance by adjusting net income to exclude financing interest expense on long-term borrowings, debt issue cost related to debt refinancing, depreciation and amortization, amortization of purchased intangibles and acquired capitalized software, and income tax expense, and “Adjusted EBITDA”, which measures our operating performance by further adjusting EBITDA to exclude severance, reserve for legal matters, transaction advisory fees and expenses, termination of office leases, acquisition related retention bonus, connectivity early termination, trading related settlement income, gain on sale of businesses, other, net, write-down of assets, share based compensation, charges related to share based compensation at IPO, Amended and Restated 2015 Management Incentive Plan, and charges related to share based compensation at IPO.
- “Normalized Adjusted Net Income”, “Normalized Adjusted Net Income before income taxes”, “Normalized provision for income taxes”, and “Normalized Adjusted EPS”, which we calculate by adjusting Net Income to exclude certain items including IPO-related adjustments and other non-cash items, assuming that all vested and unvested Virtu Financial Units have been exchanged for Class A Common Stock, and applying a corporate tax rate of 23% for 2018, and 35.5% to 37% for 2017 and 2016.

Total Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS are non-GAAP financial measures used by management in evaluating operating performance and in making strategic decisions. Additional information provided regarding the breakdown of total Adjusted Net Trading Income by category is also a non-GAAP financial measure but is not used by the Company in evaluating operating performance and in making strategic decisions. In addition, these non-GAAP financial measures or similar non-GAAP financial measures are used by research analysts, investment bankers and lenders to assess our operating performance. Management believes that the presentation of Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS provide useful information to investors regarding our results of operations and cash flows because they assist both investors and management in analyzing and benchmarking the performance and value of our business. Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net

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Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS provide indicators of general economic performance that are not affected by fluctuations in certain costs or other items. Accordingly, management believes that these measurements are useful for comparing general operating performance from period to period. Furthermore, our Fourth Amended and Restated Credit Agreement contains covenants and other tests based on metrics similar to Adjusted EBITDA. Other companies may define Adjusted Net Trading Income, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS differently, and as a result our measures of Adjusted Net Trading Income, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS may not be directly comparable to those of other companies. Although we use these non-GAAP measures as financial measures to assess the performance of our business, such use is limited because they do not include certain material costs necessary to operate our business.

Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS should be considered in addition to, and not as a substitute for, Net Income in accordance with U.S. GAAP as a measure of performance. Our presentation of Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS should not be construed as an indication that our future results will be unaffected by unusual or nonrecurring items. Adjusted Net Trading Income, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS and our EBITDA-based measures have limitations as analytical tools, and you should not consider them in isolation or as substitutes for analysis of our results as reported under U.S. GAAP. Some of these limitations are:

- they do not reflect every cash expenditure, future requirements for capital expenditures or contractual commitments;
- our EBITDA-based measures do not reflect the significant interest expense or the cash requirements necessary to service interest or principal payment on our debt;
- although depreciation and amortization are non-cash charges, the assets being depreciated and amortized will often have to be replaced or require improvements in the future, and our EBITDA-based measures do not reflect any cash requirement for such replacements or improvements;
- they are not adjusted for all non-cash income or expense items that are reflected in our statements of cash flows;
- they do not reflect the impact of earnings or charges resulting from matters we consider not to be indicative of our ongoing operations; and
- they do not reflect limitations on our costs related to transferring earnings from our subsidiaries to us.

Because of these limitations, Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS are not intended as alternatives to Net Income as indicators of our operating performance and should not be considered as measures of discretionary cash available to us to invest in the growth of our business or as measures of cash that will be available to us to meet our obligations. We compensate for these limitations by using Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes and Normalized Adjusted EPS along with other comparative tools, together with U.S. GAAP measurements, to assist in the evaluation of operating performance. These U.S. GAAP measurements include operating Net Income, cash flows from operations and cash flow data. See below a reconciliation of each non-GAAP financial measure to the most directly comparable U.S. GAAP measure.

The following tables reconcile the consolidated statements of comprehensive income to arrive at Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, and selected Operating Margins for the years ended December 31, 2018, 2017 and 2016.

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(in thousands)	For the Years Ended December 31, 2018	2017	2016
Reconciliation of Trading income, net to Adjusted Net Trading Income			
Trading income, net	$1,266,682	$766,027	$665,465
Interest and dividends income	87,508	50,407	26,419
Commissions, net and technology services	184,339	116,503	10,352
Brokerage, exchange and clearance fees, net	(301,779)	(256,926)	(221,214)
Payments for order flow	(74,645)	(27,727)	—
Interest and dividends expense	(141,814)	(91,993)	(56,557)
Adjusted Net Trading Income	$1,020,291	$556,291	$424,465
Reconciliation of Net Income to EBITDA and Adjusted EBITDA			
Net Income	$620,192	$18,898	$158,340
Financing interest expense on long-term borrowings	71,800	64,107	28,327
Debt issue cost related to debt refinancing	11,727	10,460	5,579
Depreciation and amortization	61,154	47,327	29,703
Amortization of purchased intangibles and acquired capitalized software	26,123	15,447	211
Provision for Income Taxes	76,171	94,266	21,251
EBITDA	$867,167	$250,505	$243,411
Severance	10,974	14,911	1,252
Reserve for legal matters	2,020	657	—
Transaction advisory fees and expenses	11,487	25,270	994
Termination of office leases	23,357	3,671	(319)
Acquisition related retention bonus	—	23,050	—
Connectivity early termination	7,062	—	—
Trading related settlement income	—	(628)	(2,975)
Gain on sale of business	(335,210)	—	—
Other, net	(4,979)	(95,045)	(36)
Write-down of assets	3,239	1,216	428
Share based compensation	29,065	21,825	18,222
Charges related to share based compensation at IPO, Amended and Restated 2015 Management Incentive Plan	5,781	5,225	5,606
Charges related to share based compensation awards at IPO	24	740	1,755
Adjusted EBITDA	$619,987	$251,397	$268,338
Selected Operating Margins			
Net Income Margin (1)	60.8 %	3.4 %	37.3 %
EBITDA Margin (2)	85.0 %	45.0 %	57.3 %
Adjusted EBITDA Margin (3)	60.8 %	45.2 %	63.2 %

(1) Calculated by dividing net income by Adjusted Net Trading Income.
(2) Calculated by dividing EBITDA by Adjusted Net Trading Income.
(3) Calculated by dividing Adjusted EBITDA by Adjusted Net Trading Income.

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The following tables reconcile Net Income to arrive at Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes, Normalized Adjusted Net Income and Normalized Adjusted EPS.

	For the Years Ended December 31,		
(in thousands, except share and per share data)	2018	2017	2016
Reconciliation of Net Income to Normalized Adjusted Net Income			
Net income	$620,192	$ 18,898	$ 158,340
Provision for income taxes	76,171	94,266	21,251
Income before income taxes	696,363	113,164	179,591
Amortization of purchased intangibles and acquired capitalized software	26,123	15,447	211
Financing interest expense related to KCG transaction	—	4,626	—
Debt issue cost related to debt refinancing	11,727	10,460	5,579
Reserve for legal matters	2,020	657	—
Severance	10,974	14,911	1,252
Transaction advisory fees and expenses	11,487	25,270	994
Termination of office leases	23,357	3,671	(319)
Connectivity early termination	7,062	—	—
Gain on sale of business	(335,210)	—	—
Write-down of assets	3,239	2,849	428
Acquisition related retention bonus	—	23,050	—
Trading related settlement income	—	(628)	(2,975)
Other, net	(4,979)	(95,045)	(36)
Share based compensation	29,065	21,825	18,222
Charges related to share based compensation at IPO, Amended and Restated 2015 Management Incentive Plan	5,781	5,225	5,606
Charges related to share based compensation awards at IPO	24	740	1,755
Normalized Adjusted Net Income before income taxes	487,033	146,222	210,308
Normalized provision for income taxes (1)	112,018	54,102	74,659
Normalized Adjusted Net Income	$375,015	$ 92,120	$ 135,649
Weighted Average Adjusted shares outstanding (2)	190,959,477	161,464,923	139,685,124
Normalized Adjusted EPS	$1.96	$ 0.57	$ 0.97

(1) Reflects U.S. federal, state, and local income tax rate applicable to corporations of approximately 23% for 2018 and 35.5% for 2017.

(2) Assumes that (1) holders of all vested and unvested non-vesting Virtu Financial Units (together with corresponding shares of the Company's Class C Common Stock, have exercised their right to exchange such Virtu Financial Units for shares of Class A Common Stock on a one-for-one basis, (2) holders of all Virtu Financial Units (together with corresponding shares of the Company's Class D Common Stock, have exercised their right to exchange such Virtu Financial Units for shares of the Company's Class B Common Stock on a one-for-one basis, and subsequently exercised their right to convert the shares of Class B Common Stock into shares of Class A Common Stock on a one-for-one basis. Includes additional shares from dilutive impact of options and restricted stock units outstanding under the Amended and Restated 2015 Management Incentive Plan during the years ended December 31, 2018, 2017 and 2016.

The following tables reconcile trading income, net to Adjusted Net Trading Income by segment (in thousands) for the years ended December 31, 2018, 2017 and 2016:

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	Year Ended December 31, 2018			
	Market Making	Execution Services	Corporate	Total
Trading income, net	$1,265,866	$816		$1,266,682
Commissions, net and technology services	28,813	155,526		184,339
Interest and dividends income	86,741	705	62	87,508
Brokerage, exchange and clearance fees, net	(242,847)	(58,932)		(301,779)
Payments for order flow	(74,518)	(127)		(74,645)
Interest and dividends expense	(140,120)	(1,694)		(141,814)
Adjusted Net Trading Income	$923,935	$96,294	$ 62	$1,020,291

	Year Ended December 31, 2017			
	Market Making	Execution Services	Corporate	Total
Trading income, net	$769,556	$(5,394)	$ 1,865	$766,027
Commissions, net and technology services	13,689	102,814	—	116,503
Interest and dividends income	51,822	619	(2,034)	50,407
Brokerage, exchange and clearance fees, net	(224,706)	(32,220)	—	(256,926)
Payments for order flow	(28,038)	311	—	(27,727)
Interest and dividends expense	(92,871)	1,215	(337)	(91,993)
Adjusted Net Trading Income	$489,452	$67,345	$ (506)	$556,291

	Year Ended December 31, 2016			
	Market Making	Execution Services	Corporate	Total
Trading income, net	$665,465	$ —	$ —	$665,465
Commissions, net and technology services	—	10,352	—	10,352
Interest and dividends income	26,419	—	—	26,419
Brokerage, exchange and clearance fees, net	(221,214)	—	—	(221,214)
Interest and dividends expense	(56,557)	—	—	(56,557)
Adjusted Net Trading Income	$414,113	$ 10,352	$ —	$424,465

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The following tables reconcile our Market Making segment trading income, net to Adjusted Net Trading Income by category for the years ended December 31, 2018, 2017, and 2016 (in thousands):

	Year Ended December 31, 2018				
	Americas Equities	ROW Equities	Global FICC, Options and Other	Unallocated	Total Market Making
Trading income, net	$846,090	$167,638	$250,521	$ 1,617	$1,265,866
Commissions, net and technology services	28,583	—	230	—	28,813
Brokerage, exchange and clearance fees, net	(120,840)	(61,703)	(56,633)	(3,671)	(242,847)
Payments for order flow	(74,518)	—	—	—	(74,518)
Interest and dividends, net	(31,031)	(9,517)	(11,326)	(1,505)	(53,379)
Adjusted Net Trading Income	$648,284	$96,418	$182,792	$ (3,559)	$923,935

	Year Ended December 31, 2017				
	Americas Equities	ROW Equities	Global FICC, Options and Other	Unallocated	Total Market Making
Trading income, net	$404,113	$175,840	$192,563	$ (2,960)	$769,556
Commissions, net and technology services	12,184	342	(79)	1,242	13,689
Brokerage, exchange and clearance fees, net	(97,832)	(70,180)	(55,910)	(784)	(224,706)
Payments for order flow	(27,600)	—	—	(438)	(28,038)
Interest and dividends, net	(15,151)	(13,770)	(8,825)	(3,303)	(41,049)
Adjusted Net Trading Income	$275,714	$92,232	$127,749	$ (6,243)	$489,452

	Year Ended December 31, 2016				
	Americas Equities	ROW Equities	Global FICC, Options and Other	Unallocated	Total Market Making
Trading income, net	$221,687	$171,385	$268,274	$ 4,119	$665,465
Brokerage, exchange and clearance fees, net	(90,151)	(65,330)	(64,422)	(1,311)	(221,214)
Interest and dividends, net	(7,290)	(11,620)	(8,816)	(2,412)	(30,138)
Adjusted Net Trading Income	$124,246	$94,435	$195,036	$ 396	$414,113

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The following table shows our Adjusted Net Trading Income and average daily Adjusted Net Trading Income and percentage of Adjusted Net Trading Income by asset class for the years ended December 31, 2018, 2017, and 2016 :

(in thousands, except percentage)	2018			2017			2016		
Adjusted Net Trading Income by Category:	Total	Average Daily	%	Total	Average Daily	%	Total	Average Daily	%
Market Making:									
Americas Equities	$648,284	$2,583	63.5 %	$275,714	$1,098	49.6 %	$124,246	$493	29.2 %
ROW Equities	96,418	384	9.5 %	92,232	367	16.6 %	94,436	$375	22.2 %
Global FICC, Options and Other	182,792	728	17.9 %	127,749	509	23.0 %	195,036	$775	46.0 %
Unallocated(1)	(3,559)	(14)	(0.3)%	(6,243)	(25)	(1.2)%	395	$2	0.2 %
Total Market Making	$923,935	$3,681	90.6 %	$489,452	$1,949	88.0 %	$414,113	$1,645	97.6 %
Execution Services	96,294	384	9.4 %	67,345	268	12.1 %	10,352	41	2.4 %
Corporate	62	—	— %	(506)	(2)	(0.1)%	—	—	— %
Adjusted Net Trading Income	$1,020,291	$4,065	100.0 %	$556,291	$2,215	100.0 %	$424,465	$1,686	100.0%

(1)Under our methodology for recording “trading income, net” in our consolidated statements of comprehensive income from Item 8 "Financial Statements and Supplementary Data” of this Annual Report on Form 10-K, we recognize revenues based on the exit price of assets and liabilities in accordance with applicable U.S. GAAP rules, and when we calculate Adjusted Net Trading Income for corresponding reporting periods, we start with trading income, net, so calculated. By contrast, when we calculate Adjusted Net Trading Income by category, we do so on a daily basis, and as a result prices used in recognizing revenues may differ. Because we provide liquidity on a global basis, across asset classes and time zones, the timing of any particular Adjusted Net Trading Income calculation may defer or accelerate the amount in a particular category from one day to another, and, at the end of a reporting period, from one reporting period to another. The purpose of the Unallocated category is to ensure that Adjusted Net Trading Income by category sums to total Adjusted Net Trading Income, which can be reconciled to Trading Income, Net, calculated in accordance with U.S. GAAP. We do not allocate any resulting differences based on the timing of revenue recognition.

Year Ended December 31, 2018 Compared to Year Ended December 31, 2017
Total Revenues

Our total revenues increased $850.7 million, or 82.8%, to $1.9 billion for the year ended December 31, 2018, compared to $1.0 billion for the year ended December 31, 2017. This increase was primarily attributable to an increase in trading income, net, of $500.7 million and an increase in other, net, of $245.1 million primarily due to gain on the sale of BondPoint of $337.6 million, offset by the one-time gain recognized in the prior year of $86.6 million on the reduction of our tax receivable agreement obligation as a result of the decrease in the U.S corporate income tax rate to 21% in 2017.

The following table shows the total revenues by segment for the years ended December 31, 2018 and 2017.

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	Years Ended December 31,		
(in thousands, except for percentage)	2018	2017	% Change
Market Making			
Trading income, net	$1,265,866	$769,556	64.5%
Interest and dividends income	86,741	51,822	67.4%
Commissions, net and technology services	28,813	13,689	110.5%
Other, net	3,055	1,640	86.3%
Total revenues from Market Making	$1,384,475	$836,707	65.5%
Execution Services			
Trading income, net	$816	$(5,394)	NM
Interest and dividends income	705	619	13.9%
Commissions, net and technology services	155,526	102,814	51.3%
Other, net	339,286	1,096	NM
Total revenues from Execution Services	$496,333	$99,135	400.7%
Corporate			
Trading income, net	$—	$1,865	(100.0)%
Interest and dividends income	62	(2,034)	NM
Commissions, net and technology services	—	—	NM
Other, net	(2,152)	92,309	NM
Total revenues from Corporate	$(2,090)	$92,140	NM
Consolidated			
Trading income, net	$1,266,682	$766,027	65.4%
Interest and dividends income	87,508	50,407	73.6%
Commissions, net and technology services	184,339	116,503	58.2%
Other, net	340,189	95,045	257.9%
Total revenues	$1,878,718	$1,027,982	82.8%

Trading income, net. Trading income, net was primarily earned by our Market Making segment. Trading income, net, increased $500.7 million, or 65.4%, to $1.3 billion for the year ended December 31, 2018, compared to $766.0 million for the year ended December 31, 2017. The increase was primarily attributable to the overall market volume and volatility increases in Americas Equities, ROW Equities, and Global FICC, Options and Other, for the year-end December 31, 2018, comparing to the prior year. The Acquisition of KCG also contributed to the trading income, net by bringing in additional trading capital. Rather than analyzing trading income, net, in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income, together with interest and dividends income, interest and dividends expense and brokerage, exchange and clearance fees, net, each of which are described below.

Interest and dividends income. Interest and dividends income was primarily earned by our Market Making segment. Interest and dividends income increased $37.1 million, or 73.6%, to $87.5 million for the year ended December 31, 2018, compared to $50.4 million for the year ended December 31, 2017. This increase was primarily attributable to the Acquisition of KCG. As indicated above, rather than analyzing interest and dividends income in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Commissions, net and technology services. Commissions, net and technology services revenues were primarily earned by our Execution Services segment. Commissions, net and technology services revenues increased $67.8 million, or 58.2%, to $184.3 million for the year ended December 31, 2018, compared to $116.5 million for the year ended December 31, 2017. The increase was primarily due to the Acquisition of KCG, as well as agency fee revenues arising from new customers we on-boarded during 2018.

Other, net. Other, net increased $245.1 million, or 257.9%, to $340.2 million for the year ended December 31, 2018, compared to $95.0 million for the year ended December 31, 2017. The increase was primarily due to the gain on sale of BondPoint of $337.6 million, as discussed in Note 4 "Sale of BondPoint" of Item 8 "Financial Statements and Supplementary

Data” of this Annual Report on Form 10-K. For the year ended December 31, 2017, we recognized one-time gain of $86.6 million on the reduction of our tax receivable agreement obligation as a result of the decrease in the U.S corporate income tax rate to 21%, we did not have such adjustment for the current year-ended December 31, 2018.

Adjusted Net Trading Income (non-GAAP)

Adjusted Net Trading Income increased $464.0 million, or 83.4%, to $1,020.3 million for the year ended December 31, 2018, compared to $556.3 million for the year ended December 31, 2017. This increase was primarily attributable to the Acquisition of KCG, which resulted in a significant increase in Americas Equities of $372.6 million, and in Global FICC, Options and Other of $55.0 million, from the Market Making segment. The Execution Services segment also had an increase of $28.9 million, or 43.0%, due to an increase in customer trading activity and technology service contracts, offest by a reduction of revenue due to the sale of BondPoint. Adjusted Net Trading Income per day increased $1.8 million, or 83.4%, to $4.1 million for the year ended December 31, 2018, compared to $2.2 million for the year ended December 31, 2017. The number of trading days was 251 for both the years ended December 31, 2018, and 2017. Adjusted Net Trading Income is a non-GAAP measure. For a full description of Adjusted Net Trading Income and a reconciliation of Adjusted Net Trading Income to trading income, net, see “Non-GAAP Financial Measures and Other Items” in this “Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations”.

Operating Expenses

Our operating expenses increased $267.5 million, or 29.2%, to $1.2 billion for the year ended December 31, 2018, compared to $914.8 million for the year ended December 31, 2017. This increase was primarily due to increases in brokerage, exchange, and clearance fees of $44.9 million, communications and data processing of $44.6 million, employee compensation and payroll taxes of $38.1 million, payments for order flow of $46.9 million, interest and dividends expense of $49.8 million, operating and administrative expenses of $3.3 million, depreciation and amortization expense of $13.8 million, amortization of purchased intangible and acquired capitalized software of $10.7 million, termination of office leases of $19.7 million, financing interest expense on long term borrowings of $7.7 million, and debt issue cost related to debt refinancing of $1.3 million. Transaction advisory fees and expenses decreased by $13.8 million for the year ended December 31, 2018. The overall increase in operating expenses was primarily attributable to the Acquisition of KCG, but was partially offset by the realization of expense reductions on a combined basis by consolidating various services and functions including technology, occupancy, consulting and others.

Brokerage, exchange and clearance fees, net. Brokerage exchange and clearance fees, net, increased $44.9 million, or 17.5%, to $301.8 million for the year ended December 31, 2018, compared to $256.9 million for the year ended December 31, 2017. This increase was primarily attributable to the increases in market volume and volatility traded in Americas Equities instruments in which we make markets, as well as a result of the Acquisition of KCG. As indicated above, rather than analyzing brokerage, exchange and clearance fees, net, in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Communication and data processing. Communication and data processing expense increased $44.6 million, or 33.9%, to $176.1 million for the year ended December 31, 2018, compared to $131.5 million for the year ended December 31, 2017. This increase was primarily due to the Acquisition of KCG, which brought on additional connections, co-location connectivity, market data and other subscriptions. The increase was partially offset by the reductions in connectivity subscriptions as a result of an on-going effort to consolidate various communication and data processing subscriptions. For the year ended December 31, 2018, we recognized $7.1 million of expenses related to the termination of certain connectivity subscriptions; we had no material termination of connectivity subscriptions in 2017.

Employee compensation and payroll taxes. Employee compensation and payroll taxes increased $38.1 million, or 21.4%, to $215.6 million for the year ended December 31, 2018, compared to $177.5 million for the year ended December 31, 2017. The increase in compensation levels was primarily attributable to the increase in headcount as a result of the Acquisition of KCG. Employee compensation expense is accrued based on a number of ratios including overall profitability, such as the Adjusted Net Trading Income for the period with certain adjustments made at management's discretion. We have capitalized and therefore excluded employee compensation and benefits related to software development of $24.4 million, and $15.7 million for the years ended December 31, 2018 and 2017, respectively.

Payments for order flow. Payments for order flow, which we did not incur prior to the Acquisition of KCG, increased $46.9 million, or 169.2%, to $74.6 million for the year ended December 31, 2018, compared to $27.7 million for the year ended December 31, 2017, and were attributable to the Acquisition of KCG. Payments for order flow primarily represent payments to broker-dealer clients, in the normal course of business, for directing to us their order flow primarily in U.S. equities. Payments for order flow also fluctuate based on U.S. equity share and option volumes, our profitability and the mix of market orders, limit orders, and customer mix. As indicated above, rather than analyzing payments for order flow in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Interest and dividends expense. Interest and dividends expense increased $49.8 million, or 54.2%, to $141.8 million for the year ended December 31, 2018, compared to $92.0 million for the year ended December 31, 2017. This increase was primarily attributable to higher interest expense incurred on cash collateral received as part of securities lending transactions resulting from the Acquisition of KCG. As indicated above, rather than analyzing interest and dividends expense in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Operations and administrative. Operations and administrative expense increased $3.3 million, or 5.3%, to $64.7 million for the year ended December 31, 2018, compared to $61.5 million for the year ended December 31, 2017. The increase was attributable to the Acquisition of KCG, which brought on additional operating and administrative costs such as professional fees, consulting fees, and other miscellaneous office expenses. The increase was partially offset by the cancellation of certain redundant services as a result of on-going effort to consolidate costs for the combined operation post the Acquisition of KCG.

Depreciation and amortization. Depreciation and amortization increased $13.8 million, or 29.2%, to $61.2 million for the year ended December 31, 2018, compared to $47.3 million for the year ended December 31, 2017. This increase was primarily attributable to depreciation and amortization of additional assets resulting from the Acquisition of KCG and an increase in capital expenditures on telecommunication, networking and other assets.

Amortization of purchased intangibles and acquired capitalized software. Amortization of purchased intangibles and acquired capitalized software increased $10.7 million, or 69.1%, to $26.1 million for the year ended December 31, 2018, compared to $15.4 million for the year ended December 31, 2017. This increase was primarily due to additional intangible assets recognized as part of purchase price accounting for the acquisition of certain technology assets in the Teza Acquisition and the Acquisition of KCG in the amount of $2.0 million and $175.0 million, respectively.

Termination of office leases. Termination of office leases increased $19.7 million, or 536.3%, to $23.4 million for the year ended December 31, 2018, compared to $3.7 million year ended December 31, 2017. This increase was primarily due to consolidating occupancy spaces as a result of the Acquisition of KCG. We recognized a one-time expense write-off of the present value of the future lease obligations on the office leases we abandoned in connection with the Acquisition of KCG. The aggregated write-off amount includes legal fees, broker fees, dilapidation and other miscellaneous expense associated with the abandonment.

Debt issue costs related to debt refinancing. Expense from debt issue costs related to debt refinancing increased $1.3 million, or 12.1%, to $11.7 million for the year ended December 31, 2018, compared to $10.5 million for the year ended December 31, 2017. The increase reflects higher prepayments made on Fourth Amended Credit Facility during the year ended December 31, 2018 compared to the year ended December 31, 2017. We made a prepayment of $276 million in the first quarter of 2018, leading to higher accelerated amortization of the related debt issuance costs.

Transaction advisory fees and expenses. Transaction advisory fees and expenses decreased $13.8 million, or 54.5%, to $11.5 million for the year ended December 31, 2018, compared to $25.3 million for the year ended December 31, 2017. The decrease primarily represents lower non-recurring professional fees compared to those which had been incurred in 2017 related to the Acquisition of KCG. The transaction advisory fees and expenses for the year ended December 31, 2018 were primarily attributable to $8.6 million in professional fees and legal fees incurred in connection with the sale of BondPoint.

Reserve for legal matters. Reserve for legal matters increased $1.4 million, or 207.5%, to $2.0 million for the year ended December 31, 2018, compared to $0.7 million for the year ended December 31, 2017. The increase was primarily due to accruals for potential material legal settlements related to our results of operations and cash flows for the year ended December 31, 2018.

Charges related to share based compensation at IPO. Charges related to share based compensation at IPO decreased $0.7 million, or 96.9%, to 24 thousand for the year ended December 31, 2018, compared to $0.8 million for the year ended December 31, 2017. The decrease was primarily attributable to the completed time vesting of the VFI Class B Interests and East MIP Class B Interests in January 2018.

Financing interest expense on long term borrowings. Financing interest expense on long-term borrowings increased $7.7 million, or 12.0%, to $71.8 million for the year ended December 31, 2018, compared to $64.1 million for the year ended

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December 31, 2017. This increase was due to the refinancing of the senior secured first lien term loan and higher average outstanding borrowings during the year ended December 31, 2018, including the Notes, as discussed in Note 10 "Borrowings" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

Provision for Income Taxes

Following the consummation of the Reorganization Transactions, we incur corporate tax at the U.S. federal income tax rate on our taxable income, as adjusted for noncontrolling interest in Virtu Financial. Our income tax expense reflects such U.S. federal income tax as well as taxes payable by certain of our non-U.S. subsidiaries. Our provision for income taxes decreased $18.1 million, or 19.2%, to $76.2 million for the year ended December 31, 2018, compared to $94.3 million for the year ended December 31, 2017. The year over year change in provision for income taxes resulted from both the increase in profitability for the year ended December 31, 2018 and the decrease in provision for income taxes for the remeasurement of federal net deferred tax assets, as a result of the permanent reduction in the U.S. statutory corporate tax rate to 21% from 35%, of $91.0 million for the year ended December 31, 2017.

Year Ended December 31, 2017 Compared to Year Ended December 31, 2016

Total Revenues

Our total revenues increased $325.7 million, or 46.4%, to $1,028.0 million for the year ended December 31, 2017, compared to $702.3 million for the year ended December 31, 2016. This increase was primarily attributable to an increase in trading income, net, of $100.5 million, $106.1 million increase in commissions, net and technology services, $24.0 million increase in interest and dividend income, and $95.0 million increase in other, net. These increases were primarily attributable to the Acquisition of KCG, as well as the gain on the reduction of our tax receivable agreement obligation as a result of the 2017 Tax Act during the year ended December 31, 2017.

The following table shows the total revenues by segment for the years ended December 31, 2017 and 2016.

(in thousands, except for percentage)	2017	2016	% Change
Market Making			
Trading income, net	$769,556	$665,465	15.6%
Interest and dividends income	51,822	26,419	96.2%
Commissions, net and technology services	13,689	—	NM
Other, net	1,640	—	NM
Total revenues from Market Making	$836,707	$691,884	20.9%
Execution Services			
Trading income, net	$(5,394)	$—	NM
Interest and dividends income	619	—	NM
Commissions, net and technology services	102,814	10,352	893.2%
Other, net	1,096	—	NM
Total revenues from Execution Services	$99,135	$10,352	857.6%
Corporate			
Trading income, net	$1,865	$—	NM
Interest and dividends income	(2,034)	—	NM
Commissions, net and technology services	—	—	NM

Other, net	92,309	36	NM
Total revenues from Corporate	$92,140	$36	NM
Consolidated			
Trading income, net	$766,027	$665,465	15.1%
Interest and dividends income	50,407	26,419	90.8%
Commissions, net and technology services	116,503	10,352	1,025.4%
Other, net	95,045	36	NM
Total revenues	$1,027,982	$702,272	46.4%

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Trading income, net. Trading income, net was primarily earned by our Market Making segment. Trading income, net increased $100.5 million, or 15.1%, to $766.0 million for the year ended December 31, 2017, compared to $665.5 million for the year ended December 31, 2016. The increase was primarily attributable to the Acquisition of KCG. Rather than analyzing trading income, net, in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income, together with interest and dividends income, interest and dividends expense and brokerage, exchange and clearance fees, net, each of which are described below.

Interest and dividends income. Interest and dividends income was primarily earned by our Market Making segment. Interest and dividends income increased $24.0 million, or 90.9%, to $50.4 million for the year ended December 31, 2017, compared to $26.4 million for the year ended December 31, 2016. This increase was primarily attributable to the Acquisition of KCG. As indicated above, rather than analyzing interest and dividends income in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Commissions, net and technology services. Commissions, net and technology services revenues were primarily earned by our Execution Services segment. Technology services revenue increased $106.1 million, or 1,020.2%, to $116.5 million for the year ended December 31, 2017, compared to $10.4 million for the year ended December 31, 2016. The increase was primarily due to the Acquisition of KCG, as well as agency fee revenues arising from new customers we on-boarded.

Other, net. Other, net revenues were primarily earned by our Corporate segment. Other, net increased $95.0 million for the year ended December 31, 2017, compared to $36 thousand for the year ended December 31, 2016. The increase was primarily due to the gain on reduction of our tax receivable agreement obligation as a result of the 2017 Tax Act.

As discussed in Note 6 “Tax Receivable Agreements” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K, and Provision for Income Taxes above, we recognized a $86.6 million gain on the reduction of our tax receivable agreement obligation which is recorded in Other, net for the year ended December 31, 2017.

The increase in other, net was also attributable to the $3.3 million gain recognized from fair value adjustment in our minority interest in SBI Japannext for the year ended December 31, 2017.

Adjusted Net Trading Income

Adjusted Net Trading Income increased $131.8 million, or 31.0%, to $556.3 million for the year ended December 31, 2017, compared to $424.5 million for the year ended December 31, 2016. This increase was primarily attributable to the Acquisition of KCG, which resulted in a significant increase in Americas Equities of $151.5 million, or 122%, from the Market Making segment, and a significant increase of $56.9 million, or 569%, from Execution Services for the year ended December 31, 2017. The overall increase was partially offset by a decrease of $2.2 million, or 2%, to $92.2 million in ROW Equities and a decrease of $67.3 million, or 35%, to $127.7 million in Global FICC, Options and Other categories in the Market Making segment. The number of trading days for the years ended December 31, 2017 and 2016 were 251 and 252, respectively. Adjusted Net Trading Income is a non-GAAP measure. For a full description of Adjusted Net Trading Income and a reconciliation of Adjusted Net Trading Income to trading income, net, see “Non-GAAP Financial Measures and Other Items” in this “Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations”

Operating Expenses

Our operating expenses increased $392.1 million, or75.0%, to $914.8 million for the year ended December 31, 2017, compared to $522.7 million for the year ended December 31, 2016. The increase in operating expenses was primarily attributable to the Acquisition of KCG, which caused increases in all expense areas except for charges related to share based compensation at IPO. There was an increase in brokerage, exchange, and clearance fees, net of $30.7 million, communication of data processing of $60.5 million, employee compensation and payroll taxes of $92.2 million, interest and dividends expense of $35.4 million, operations and administrative expense of $42.1 million, depreciation and amortization expense of $17.6 million, amortization of purchased intangible and acquired capital software of $15.2 million, debt issue cost related to debt refinancing of $4.9 million, transaction advisory fees and expenses of $25.3 million, reserve for legal matters of $0.7 million, and in financing interest expense on our long-term borrowings of $35.8 million. Additionally we incurred $27.7 million in payments for order flow, which was a new expense for the year ended December 31, 2017.

Brokerage, exchange and clearance fees, net. Brokerage exchange and clearance fees, net, increased $35.7 million, or16.1%, to $256.9 million for the year ended December 31, 2017, compared to $221.2 million for the year ended December 31, 2016. This increase was primarily attributable to the increases in market volume traded in Americas Equities instruments in which we make markets as a result of the Acquisition of KCG. As indicated above, rather than analyzing

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brokerage, exchange and clearance fees, net, in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Communication and data processing. Communication and data processing expense increased $60.5 million, or 85.2%, to $131.5 million for the year ended December 31, 2017, compared to $71.0 million for the year ended December 31, 2016. This increase was primarily due to the Acquisition of KCG, which brought on additional connections, co-location connectivity, market data and other subscriptions to us. The increase was partially offset by the reductions in connectivity subscriptions as a result of an on-going effort to consolidate various communication and data processing subscriptions.

Employee compensation and payroll taxes. Employee compensation and payroll taxes increased $92.2 million, or 108.1%, to $177.5 million for the year ended December 31, 2017, compared to $85.3 million for the year ended December 31, 2016. The increase in compensation levels was primarily attributable to the $23.0 million in Acquisition related retention bonus and the increase in headcount as a result of the Acquisition of KCG. Incentive compensation is recorded at management’s discretion and is generally accrued in connection with the overall level of profitability.

Payments for order flow. Payments for order flow were $27.7 million for the year ended December 31, 2017, and were attributable to the Acquisition of KCG. Payments for order flow primarily represent payments to broker-dealer clients, in the normal course of business, for directing to us their order flow primarily in U.S. equities. Payments for order flow also fluctuate based on U.S. equity share and option volumes, our profitability and the mix of market orders, limit orders, and customer mix.

Interest and dividends expense. Interest and dividends expense increased $35.4 million, or 62.5%, to $92.0 million for the year ended December 31, 2017, compared to $56.6 million for the year ended December 31, 2016. This increase was primarily attributable to higher interest expense incurred on cash collateral received as part of securities lending transactions resulting from the Acquisition of KCG. As indicated above, rather than analyzing interest and dividends expense in isolation, we generally evaluate it in the broader context of our Adjusted Net Trading Income.

Operations and administrative. Operations and administrative expense increased $42.1 million, or 183.0%, to $65.1 million for the year ended December 31, 2017, compared to $23.0 million for the year ended December 31, 2016. This increase was primarily attributable to the increases in legal and other professional fees resulting from the Acquisition of KCG. The increase was partially offset by the cancellation of various legal and professional expenses as a result of an on-going effort to consolidate professional services.

Depreciation and amortization. Depreciation and amortization increased $17.6 million, or 59.3%, to $47.3 million for the year ended December 31, 2017, compared to $29.7 million for the year ended December 31, 2016. This increase was primarily attributable to depreciation and amortization of additional assets resulting from the Acquisition of KCG and an increase in capital expenditures on telecommunication, networking and other assets.

Amortization of purchased intangibles and acquired capitalized software. Amortization of purchased intangibles and acquired capitalized software increased $15.2 million, to $15.4 million for the year ended December 31, 2017, compared to $0.2 million for the year ended December 31, 2016. The increase was primarily due to additional intangible assets recognized as part of purchase price accounting for the Teza acquisition and the Acquisition of KCG for $2.0 million and $175.0 million, respectively, as of December 31, 2017. We recognized an aggregated of $15.2 million in amortization expenses related to the Teza acquisition and the Acquisition of KCG for the year ended December 31, 2017.

Debt issue cost related to debt refinancing. Debt issue costs related to debt refinancing increased $4.9 million, or 87.5%, to $10.5 million for the year ended December 31, 2017, compared to $5.6 million for the year ended

December 31, 2016. The increase was primarily attributable to the recognition of an approximately $5.5 million in acceleration of the debt issue costs associated with the $250 million voluntary prepayment made towards our senior secured first lien term loan, as discussed in Note 10 “Borrowings” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Transaction advisory fees and expenses. Transaction advisory fees and expense was $25.3 million for the year ended December 31, 2017. We had no such expense for the year ended December 31, 2016. This expense primarily represents the non-recurring legal and professional fees incurred in connection with the Acquisition of KCG.

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Reserve for legal matters. Reserve for legal matters increased $0.7 million for the year ended December 31, 2017. We had no such expenses for the year ended December 31, 2016. The increase was primarily due to accruals for other legal reserves as a result of the Acquisition of KCG.

Charges related to share based compensation at IPO. Charges related to share based compensation at IPO decreased $1.0 million, or 55.6%, to $0.8 million for the year ended December 31, 2017, compared to $1.8 million for the year ended December 31, 2016. The decrease was primarily attributable to the fact that certain VFI Class B Interests and East MIP Class B Interests became fully vested, and as well as to the increase in forfeitures for the year ended December 31, 2017, comparing to the year ended December 31, 2016.

Financing interest expense on long-term borrowings. Financing interest expense on long-term borrowings increased $35.8 million, or 126.5%, to $64.1 million, compared to $28.3 million for the year ended December 31, 2016. This increase was primarily attributable to the increase in outstanding principal as a result from the refinancing of the senior secured first lien term loan and the offering of the Notes, as discussed in Note 10 “Borrowings” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Provision for Income Taxes

Following the consummation of the Reorganization Transactions, we incur corporate tax at the U.S. federal income tax rate on our taxable income, as adjusted for noncontrolling interest in Virtu Financial. Our income tax expense reflects such U.S. federal income tax as well as taxes payable by certain of our non-U.S. subsidiaries. Our provision for income taxes increased $73.0 million, to $94.3 million for the year ended December 31, 2017, compared to $21.3 million for the year ended December 31, 2016. The increase was primarily attributable to impact of the 2017 Tax Act on our net deferred tax assets, which decreased in value as a result of the lower U.S. corporate income tax rate effective January 1, 2018. This increase was offset in part by the effect of lower income before income taxes in 2017 compared to 2016, and the tax impact of the 2017 Tax Act on our tax receivable agreement obligations. See Note 14 “Income Taxes” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K Item for additional information.

On February 8, 2017, the Company issued an earnings release announcing its unaudited financial results for the quarter and year ended December 31, 2017, and furnished a copy of the release as Exhibit 99.1 to the Company’s current report on Form 8-K filed on the same date. The consolidated statements of comprehensive income for the year ended December 31, 2017 in this Annual Report on Form 10-K revised the amount reported as “Net income available for common stockholders” and “Basic and Diluted Earnings per share” of $17.3 million and $0.26, respectively, to $2.9 million and $0.03, respectively (See Item 8, “Financial Statements and Supplementary Data”). The reason for the revision was a change in the Company’s estimated provision for income tax due to the decrease in deferred tax assets as a result of the 2017 Tax Act that was passed on December 22, 2017.

Liquidity and Capital Resources

General

As of December 31, 2018, we had $736.0 million in cash and cash equivalents. These balances are maintained primarily to support operating activities for capital expenditures and for short-term access to liquidity, and for other general corporate purposes. As of December 31, 2018, we had borrowings under our short-term credit facilities of approximately $184.6 million, borrowing under broker dealer facilities of $17.0 million, and long-term debt outstanding in an aggregate principal amount of approximately $931.9 million. As of December 31, 2018, our regulatory capital requirements for domestic U.S. subsidiaries were $4.0 million, in aggregate.

The majority of our trading assets consists of exchange-listed marketable securities, which are marked-to-market daily, and collateralized receivables from broker-dealers and clearing organizations arising from proprietary securities transactions. Collateralized receivables consist primarily of securities borrowed, receivables from clearing houses for settlement of securities transactions and, to a lesser extent, securities purchased under agreements to resell. We actively manage our liquidity, and we maintain significant borrowing facilities through the securities lending markets and with banks and prime brokers. We have continually received the benefit of uncommitted margin financing from our prime brokers globally. These margin facilities are secured by securities in accounts held at the prime broker. For purposes of providing additional liquidity, we maintain an uncommitted credit facility with two of our wholly owned broker-dealer subsidiaries. Additionally, we also maintain a revolving credit facility with three of our wholly owned broker-dealer subsidiaries, as discussed in Note 10 "Borrowings" of Item 8 "Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

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Based on our current level of operations, we believe our cash flows from operations, available cash and cash equivalents, and available borrowings under our broker-dealer credit facilities will be adequate to meet our future liquidity needs for more than the next twelve months. We anticipate that our primary upcoming cash and liquidity needs will be increased margin requirements from increased trading activities in markets where we currently provide liquidity and in new markets into which we expand. We manage and monitor our margin and liquidity needs on a real-time basis and can adjust our requirements both intra-day and inter-day, as required.

We expect our principal sources of future liquidity to come from cash flows provided by operating activities and financing activities. Certain of our cash balances are insured by the Federal Deposit Insurance Corporation, generally up to $250,000 per account but without a cap under certain conditions. From time to time these cash balances may exceed insured limits, but we select financial institutions deemed highly credit worthy to minimize risk. We consider highly liquid investments with original maturities of less than three months when acquired to be cash equivalents.

Tax Receivable Agreements

Generally, we are required under the tax receivable agreements entered into in connection with our IPO to make payments to certain direct or indirect equityholders of Virtu Financial that are generally equal to 85% of the applicable cash tax savings, if any, that we actually realize as a result of favorable tax attributes that will be available to us as a result of the Reorganization Transactions, for exchanges of membership interests for Class A Common Stock or Class B Common Stock and payments made under the tax receivable agreements. We will retain the remaining 15% of any such cash tax savings. We expect that future payments to certain direct or indirect equityholders of Virtu Financial described in Note 6 “Tax Receivable Agreements” to the consolidated financial statements included in Item 8 "Financial Statements and Supplementary Data” of this Annual Report on Form 10-K are expected to range from approximately $4.7 million to $17.0 million per year over the next 15 years. Such payments will occur only after we have filed our U.S. federal and state income tax returns and realized the cash tax savings from the favorable tax attributes. We made our first payment of $7.0 million in February 2017 and our second payment of $12.4 million in September 2018. Future payments under the tax receivable agreements in respect of subsequent exchanges would be in addition to these amounts. We currently expect to fund these payments from realized cash tax savings from the favorable tax attributes.

Under the tax receivable agreements, as a result of certain types of transactions and other factors, including a transaction resulting in a change of control, we may also be required to make payments to certain direct or indirect equityholders of Virtu Financial in amounts equal to the present value of future payments we are obligated to make under the tax receivable agreements. We would expect any acceleration of these payments to be funded from the realized favorable tax attributes. However, if the payments under the tax receivable agreements are accelerated, we may be required to raise additional debt or equity to fund such payments. To the extent that we are unable to make payments under the tax receivable agreements for any reason (including because our Fourth Amended and Restated Credit Agreement or the indenture governing our Notes restricts the ability of our subsidiaries to make distributions to us) such payments will be deferred and will accrue interest until paid.

Regulatory Capital Requirements

Certain of our principal operating subsidiaries are subject to separate regulation and capital requirements in the United States and other jurisdictions. Virtu Financial BD LLC, Virtu Financial Capital Markets LLC, and Virtu Americas LLC, which became our subsidiary following the Acquisition of KCG, are registered U.S. broker-dealers, and their primary regulators include the SEC, the Chicago Stock Exchange and FINRA. Virtu Financial Ireland Limited is a registered investment firm under the Market in Financial Instruments Directive, and its primary regulator is the Central Bank of Ireland.

The SEC and FINRA impose rules that require notification when regulatory capital falls below certain pre-defined 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 regulatory 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, certain applicable rules impose requirements that may have the effect of prohibiting a broker-dealer from distributing or withdrawing capital and requiring prior notice to and/or approval from the SEC, the Chicago Stock Exchange and FINRA for certain capital withdrawals. Virtu Americas LLC is also subject to rules set forth by NYSE and is required to maintain a certain level of capital in connection with the operation of its designated market maker business. Virtu Financial Ireland Limited is regulated by the Central Bank of Ireland as an Investment Firm and in accordance with European Union law is required to maintain a minimum amount of regulatory capital based upon its positions, financial conditions, and other factors. In addition to periodic requirements to report its regulatory capital and submit other regulatory reports, Virtu Financial Ireland Limited is required to obtain consent prior to receiving capital contributions or making capital distributions from its regulatory capital. Failure to comply with its regulatory capital requirements could result in regulatory sanction or revocation of its regulatory license. KCG Europe Limited, as an FCA-regulated investment firm is also subject to similar prudential capital requirements.

See Note 19 "Regulatory Requirement" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K for a discussion of regulatory capital requirements of our regulated subsidiaries.

Borrowings

We maintain various broker-dealer facilities and short-term credit facilities as part of our daily trading operations. See Note 10 "Borrowings" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K for details on the Company's various credit facilities. As of December 31, 2018, the outstanding principal balance on our broker-dealer facilities was $17.0 million, and the outstanding aggregate short-term credit facilities with various prime brokers and other financial institutions from which the Company receives execution or clearing services was approximately $184.6 million, which was netted within receivables from broker dealers and clearing organizations on the consolidated statement of financial condition of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

Fourth Amended and Restated Credit Agreement

In connection with the Acquisition of KCG, we entered into the Fourth Amended and Restated Credit Agreement, which amended and restated in its entirety the existing credit agreement. The Fourth Amended and Restated Credit Agreement, provided for a $540.0 million first lien secured term loan, drawn in its entirety on June 30, 2017, and continued VFH's existing $100.0 million first lien senior secured revolving credit facility. Also on June 30, 2017, the Escrow Issuer entered into that certain Escrow Credit Agreement with the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent (the "Escrow Credit Agreement"), which provided for a $610.0 million term loan (the "Escrow Term Loan"), the proceeds of which were deposited into escrow pending the closing of the Acquisition of KCG.

Upon the closing of the Acquisition of KCG, the proceeds of the Escrow Term Loan were released to fund in part the consideration for the Acquisition of KCG, the obligations of the Escrow Issuer in respect of the Escrow Term Loan were automatically assumed by VFH, the Escrow Term Loan was deemed to be outstanding under the Fourth Amended and Restated Credit Agreement and the Escrow Credit Agreement and related credit documents automatically terminated and were superseded by the provisions of the Fourth Amended and Restated Credit Agreement. In addition, the first lien senior secured revolving credit facility under the Fourth Amended and Restated Credit Agreement was terminated.

Under the Fourth Amended and Restated Credit Agreement, the $1.15 billion aggregate principal amount of first lien senior secured term loans, including the Escrow Term Loan ("the Term Loan Facility"), will mature on December 30, 2021 and will require scheduled annual amortization payments on each of the first four anniversaries of the closing of the Acquisition of KCG in an amount equal to the sum of 7.5% of the original aggregate principal amount of the term loan issued under the Fourth Amended and Restated Credit Agreement and 7.5% of the aggregate principal amount of the Escrow Term Loan outstanding on the closing date of the Acquisition of KCG.

All obligations under the Term Loan Facility are unconditionally guaranteed by Virtu Financial and the Company's existing direct and indirect wholly-owned domestic restricted subsidiaries (including, KCG and its wholly-owned domestic restricted subsidiaries), subject to certain exceptions, including exceptions for our broker dealer subsidiaries and certain immaterial subsidiaries. The Term Loan Facility and related guarantees are secured by first-priority perfected liens, subject to certain exceptions, on substantially all of VFH's and the guarantors' existing and future assets, including substantially all material personal property and a pledge of the capital stock of VFH, the guarantors (other than Virtu Financial) and the direct domestic subsidiaries of VFH and the guarantors and 100% of the non-voting capital stock and up to 65.0% of the voting capital stock of foreign subsidiaries that are directly owned by VFH or any of the guarantors.

The term loans outstanding under the Fourth Amended and Restated Credit Agreement bear interest:

- at VFH's option, at either (a) the greatest of (i) the prime rate in effect, (ii) the NYFRB rate plus 0.50%, (iii) an adjusted LIBOR rate for a Eurodollar borrowing with an interest period of one month plus 1.00%, and (iv) 2.00% plus, in each case, 2.75% per annum (reduced to 2.25% per annum after the repricing transaction in January 2018 and reduced to 1.75% after the repricing transaction in September 2018); or (b) the greater of (i) an adjusted LIBOR rate for the interest period in effect and (ii) 1.00% plus, in each case, 3.75% per annum (reduced to 3.25% per annum after the repricing transaction in January 2018 and reduced to 2.75% after the repricing transaction in September 2018).

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Under the Fourth Amended and Restated Credit Agreement, we must comply on a quarterly basis with:

- a maximum total net leverage ratio of 5.00 to 1.0 with a step-down to (i) 4.25 to 1.0 from and after the fiscal quarter ending March 31, 2019, (ii) 3.50 to 1.0 from and after the fiscal quarter ending March 31, 2020 and (iii) 3.25 to 1.0 from the fiscal quarter ending March 31, 2021 and thereafter; and
- a minimum interest coverage ratio of 2.75 to 1.0, stepping up to 3.00 to 1.0 from and after the fiscal quarter ending March 31, 2019.

The Fourth Amended and Restated Credit Agreement contains certain customary affirmative covenants. The negative covenants in the Fourth Amended and Restated Credit Agreement include, among other things, limitations on our ability to do the following, subject to certain exceptions: (i) incur additional debt; (ii) create liens on certain assets; (iii) make certain loans or investments (including acquisitions); (iv) pay dividends on or make distributions in respect of our capital stock or make other restricted junior payments; (v) consolidate, merge, sell or otherwise dispose of all or substantially all of our assets; (vi) sell or otherwise dispose of assets, including equity interests in our subsidiaries; (vii) enter into certain transactions with our affiliates; (viii) enter into swaps, forwards and similar agreements; (ix) enter into sale-leaseback transactions; (x) restrict liens and subsidiary dividends; (xi) change our fiscal year; and (xii) modify the terms of certain debt agreements.

The Fourth Amended and Restated Credit Agreement contains certain customary events of default, including relating to a change of control. If an event of default occurs and is continuing, the lenders under the Fourth Amended and Restated Credit Agreement will be entitled to take various actions, including the acceleration of amounts outstanding under the Fourth Amended and Restated Credit Agreement and all actions permitted to be taken by a secured creditor in respect of the collateral securing the obligations under the Fourth Amended and Restated Credit Agreement.

A portion of certain financing costs incurred in connection with the original credit facility that were scheduled to be amortized over the term of the loan, including original issue discount and underwriting and legal fees, were accelerated at the closing of the refinancing.

We were in compliance with all applicable covenants under the Fourth Amended and Restated Credit Agreement as of December 31, 2018.

As of March 1, 2019, we have made total prepayments in the amount of $750 million under the Fourth Amended and Restated Credit Agreement.

Senior Secured Second Lien Notes

On June 16, 2017, the Escrow Issuer and the Co-Issuer completed the offering of $500 million aggregate principal amount of Notes. The Notes were issued under an Indenture, dated as of June 16, 2017 (the “Indenture”), among the Escrow Issuer, the Co-Issuer and U.S. Bank National Association, as the trustee and collateral agent. The Notes mature on June 15, 2022. Interest on the Notes accrues at 6.750% per annum, payable every six months through maturity on each June 15th and December 15th, beginning on December 15, 2017.

On July 20, 2017, VFH assumed all of the obligations of the Escrow Issuer under the Indenture and the Notes. The Notes are guaranteed by Virtu Financial and each of Virtu Financial’s wholly-owned domestic restricted subsidiaries that guarantee the Fourth Amended and Restated Credit Agreement, including KCG and certain of its subsidiaries and the Escrow Issuer. We refer to VFH and the Co-Issuer together as, the “Issuers.”

The Notes and the related guarantees are secured by second-priority perfected liens on substantially all of the Issuers’ and guarantors’ existing and future assets, subject to certain exceptions, including all material personal property, a pledge of the capital stock of the Issuers, the guarantors (other than Virtu Financial) and the direct subsidiaries of the Issuers and the guarantors and 100% of the non-voting capital stock and up to 65.0% of the voting capital stock of any now-owned or later-acquired foreign subsidiaries that are directly owned by the Issuers or any of the guarantors, which assets will also secure obligations under the Fourth Amended and Restated Credit Agreement on a first-priority basis.

The Indenture imposes certain limitations on our ability to (i) incur or guarantee additional indebtedness or issue preferred stock; (ii) pay dividends, make certain investments and make repayments on indebtedness that is subordinated in right of payment to the Notes and make other “restricted payments” (as such term is defined in the Indenture); (iii) create liens on their assets to secure debt; (iv) enter into transactions with affiliates; (v) merge, consolidate or amalgamate with another company; (vi) transfer and sell assets; and (vii) permit restrictions on the payment of dividends by Virtu Financial’s

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subsidiaries. The Indenture also contains customary events of default, including, among others, payment defaults related to the failure to pay principal or interest on Notes, covenant defaults, final maturity default or cross-acceleration with respect to material indebtedness and certain bankruptcy events.

Prior to June 15, 2019, we may redeem some or all of the Notes at a redemption price equal to 100% of the principal amount plus accrued and unpaid interest, if any, to (but not including) the date of redemption, plus an applicable “make whole” premium (calculated based upon the yield of certain U.S. treasury securities plus 0.50%).

Prior to June 15, 2019, we may redeem up to 35% of the aggregate principal amount of the Notes at a redemption price equal to 106.750% of the principal amount thereof, plus accrued and unpaid interest, if any, to (but not including) the date of redemption with the net cash proceeds from certain equity offerings.

On or after June 15, 2019, we may redeem some or all of the Notes, at the following redemption prices (expressed as percentages of principal amount), plus accrued and unpaid interest to (but not including) the date of redemption, if redeemed during the 12-month period beginning on June 15th of the years indicated below:

Period	Percentage
2019	103.375%
2020	101.688%
2021 and thereafter	100.000%

Upon the occurrence of specified change of control events as defined in the Indenture, we must offer to repurchase the Notes at 101% of the principal amount, plus accrued and unpaid interest, if any, to (but excluding) the purchase date.

We were in compliance with all applicable covenants under the indenture governing our Notes as of December 31, 2018.

Cash Flows

Our main sources of liquidity are cash flow from the operations of our subsidiaries, our broker dealer credit facilities (as described above), margin financing provided by our prime brokers and cash on hand.

The table below summarizes our primary sources and uses of cash for the years ended December 31, 2018, 2017, and 2016.

	Years Ended December 31,		
Net cash provided by (used in):	2018	2017	2016
Operating activities	$714,595	$290,574	$239,599
Investing activities	329,174	(838,016)	(59,017)
Financing activities	(835,482)	889,797	(161,237)
Effect of exchange rate changes on cash and cash equivalents	(5,127)	9,117	(1,165)
Net increase (decrease) in cash and cash equivalents	$203,160	$351,472	$18,180

Operating Activities

Net cash provided by operating activities was $714.6 million for the year ended December 31, 2018, compared to $290.6 million for the year ended December 31, 2017. The increase of $424.0 million in net cash provided by operating activities was primarily attributable to the gain recognized on Sale of BondPoint of $337.6 million, and significantly increased our trading capital and net income as a result of the Acquisition of KCG. In addition, in April 2018, we received 56.6 million from BATS (a subsidiary of CBOE Holdings, Inc.), as part of the shared tax benefit agreement when KCG sold KCG Hotspot, an institutional spot foreign exchange electronic communications networks (“ECN”), to BATS.

Net cash provided by operating activities was $290.6 million for the year ended December 31, 2017, compared to $239.6 million for the year ended December 31, 2016. The increase of $51.0 million in net cash provided by operating activities was primarily attributable to the Acquisition of KCG, which significantly increased our trading capital.

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Investing Activities

Net cash provided by investing activities was $329.2 million for the year ended December 31, 2018, compared to net cash used of $838.0 million for the year ended December 31, 2017. The increase in cash provided of $1.2 billion was primarily attributable to the cash provided by the proceeds of $400.2 million received from the sale of BondPoint in 2018, compared to net cash used of $799.6 million in 2017 for the Acquisition of KCG. See Note 3 "Acquisition of KCG" and Note 4 "Sale of BondPoint" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

Net cash used in investing activities was $838.0 million for the year ended December 31, 2017, compared to $59.0 million for the year ended December 31, 2016. The increase in cash used of $779.0 million was primarily attributable to the net cash used for the Acquisition of KCG. See Note 3 “Acquisition of KCG” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Financing Activities

Net cash used in financing activities was $835.5 million for the year ended December 31, 2018, while net cash provided by financing activities was $889.8 million for the year ended December 31, 2017. The decrease in cash provided of $1.7 billion compared to the prior year was primarily attributable to the $736.0 million cash provided from issuance of common stock as part of the Acquisition of KCG and $1.1 billion of proceeds from long term borrowings, offset by $737.5 million of repayments of long term borrowings and KCG Notes (as defined below) during the year ended December 31, 2017, compared to financing cash outflows during the year ended December 31, 2018, including repayments of our senior secured credit facility of $500.0 million. In addition, cash used for purchases of treasury stock increased by $63.5 million, cash used for dividends increased by $36.5 million, and cash used for distribution to non-controlling interest increased by $117.3 million for the year ended December 31, 2018 as compared to the year ended December 31, 2017.

Net cash provided by financing activities was $889.8 million for the year ended December 31, 2017 and net cash used in financing activities of $161.2 million for the year ended December 31, 2016. The increase in cash provided of $1.1 billion was primarily attributable to the $735 million cash provided from issuance of common stock as part of the Acquisition of KCG, as well as the refinancing of the first lien senior secured credit facility of $1.15 billion and the issuance of Notes of $500.0 million during the year ended December 31, 2017. The increase in net cash provided by financing activities was partially offset by the $250.0 million voluntary prepayment on our Term Loan Facility, and the repayment of certain indebtedness of KCG for $481.0 million.

Share Repurchase Program

On February 8, 2018, the Company’s board of directors authorized a share repurchase program of up to $50.0 million in Class A Common Stock and Virtu Financial Units, which was expanded to $100.0 million on July 27, 2018. The stock and common units repurchase program lasts through September 30, 2019. Since the inception of the program, the Company repurchased approximately 2.6 million shares of Class A common stock and common units for approximately $65.9 million. At December 31, 2018, the Company has approximately $34.1 million remaining capacity for future purchases of shares of Class A Common Stock and Virtu Financial Units under the program.

Secondary Offerings

In May 2018, the Company and certain selling stockholders completed a public offering (the “May 2018 Secondary Offering”) of 17,250,000 shares of Class A Common Stock by the Company and certain selling stockholders at a purchase price per share of $27.16 (the offering price to the public of $28.00 per share minus the underwriters' discount), which included the exercise in full by the underwriters of their option to purchase additional shares in the May 2018 Secondary Offering. The Company sold 10,518,750 shares of Class A Common Stock in the offering, the net proceeds of which were used to purchase an equivalent number of Virtu Financial Units and corresponding shares of Class D Common Stock from TJMT Holdings LLC pursuant to that certain Member Purchase Agreement, entered into on May 15, 2018 by and between the Company and TJMT Holdings LLC. The selling stockholders sold 6,731,250 shares of Class A Common Stock in the May 2018 Secondary Offering, including 2,081,250 shares of Class A Common Stock issued by the Company upon the exercise of vested stock options.

In connection with the May 2018 Secondary Offering, the Company, TJMT Holdings LLC, the North Island Stockholder, Havelock Fund Investments Pte. Ltd. ("Havelock") and Aranda entered into that certain Amendment No. 1 to the Amended and Restated Registration Rights Agreement dated April 20, 2017, by and among the Company, TJMT Holdings LLC, the North Island Stockholder, Havelock, Aranda and certain direct or indirect equityholders of the Company (the

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"Amended and Restated Registration Rights Agreement") to add Mr. Vincent Viola and Mr. Michael Viola and to confirm that certain other persons (including the Company's CEO) remain parties to the Amended and Restated Registration Rights Agreement.

Contractual Obligations

The following table reflects our contractual obligations as of December 31, 2018. Amounts we pay in future periods may vary from those reflected in the table.

	Payments due by periods				
(in thousands)	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Long-term debt obligations(1)	931,908	—	431,908	500,000	—
Capital leases	34,917	21,983	12,934	—	—
Operating leases	246,737	32,755	56,037	44,166	113,779
Total contractual obligations	$1,213,562	$54,738	$500,879	$544,166	$113,779

(1) Balances Consist of principal payments under the Notes, Term Loan Facility and the SBI bonds, which do not include unamortized discount, unamortized commitment fees or utilization fees, and interest accrued.

The contractual obligation table above excludes contractual amounts owed under the tax receivable agreement as the ultimate amount and timing of the amounts due are not presently known. As of December 31, 2018, a total of $214.4 million has been recorded in amount due pursuant to tax receivable agreement in the consolidated financial statements representing management's best estimate of the amounts currently expected to be owed under the tax receivable agreement, as savings are realized as a result of favorable tax attributes.

Off-Balance Sheet Arrangements

As of December 31, 2018, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of Regulation S-K, that have or are reasonably likely to have current or future effects on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

Inflation

We believe inflation has not had a material effect on our financial condition as of December 31, 2018, and 2017, or on our results of operations and cash flows for the years ended December 31, 2018, 2017, and 2016.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements, as well as the reported amounts of revenue and expenses during the applicable reporting period. Critical accounting policies are those that are the most important portrayal of our financial condition, results of operations and cash flows, and that require our most difficult, subjective and complex judgments as a result of the need to make estimates about the effect of matters that are inherently uncertain. While our significant accounting policies are described in more detail in the notes to our consolidated financial statements, our most critical accounting policies are discussed below. In applying such policies, we must use some amounts that are based upon our informed judgments and best estimates. Estimates, by their nature, are based upon judgments and available information. The estimates that we make are based upon historical factors, current circumstances and the experience and judgment of management. We evaluate our assumptions and estimates on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

Valuation of Financial Instruments

Due to the nature of our operations, substantially all of our financial instrument assets, comprised of financial instruments owned, securities purchased under agreements to resell, and receivables from brokers, dealers and clearing organizations are carried at fair value based on published market prices and are marked to market daily, or are assets which are short-term in nature and are reflected at amounts approximating fair value. Similarly, all of our financial instrument liabilities

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that arise from financial instruments sold but not yet purchased, securities sold under agreements to repurchase, securities loaned, and payables to brokers, dealers and clearing organizations are short-term in nature and are reported at quoted market prices or at amounts approximating fair value.

Fair value is defined as the price that would be received to sell an asset or would be paid to transfer a liability (i.e., the exit price) in an orderly transaction between market participants at the measurement date. Financial instruments measured and reported at fair value are classified and disclosed in one of the following categories based on inputs:

Level 1 — Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2 — Quoted prices in markets that are not active and financial instruments for which all significant inputs are observable, either directly or indirectly; or

Level 3 — Prices or valuations that require inputs that are both significant to the fair value measurement and unobservable

The fair values for substantially all of our financial instruments owned and financial instruments sold but not yet purchased are based on observable prices and inputs and are classified in levels 1 and 2 of the fair value hierarchy. Instruments categorized within level 3 of the fair value hierarchy are those which require one or more significant inputs that are not observable. Estimating the fair value of level 3 financial instruments requires judgments to be made. See Note 11 "Financial Assets and Liabilities" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K for further information about fair value measurements.

Revenue Recognition

Trading Income, Net

Trading income, net, consists of trading gains and losses that are recorded on a trade date basis and reported on a net basis. Trading income, net, is comprised of changes in fair value of financial instruments owned and financial instruments sold, not yet purchased assets and liabilities (i.e., unrealized gains and losses) and realized gains and losses on equities, fixed income securities, currencies and commodities.

Interest and Dividends Income/Interest and Dividends Expense

Interest income and interest expense are accrued in accordance with contractual rates. Interest income consists of income earned on collateralized financing arrangements and on cash held by brokers. Interest expense includes interest expense from collateralized transactions, margin and related short-term lending facilities. Dividends are recorded on the ex-dividend date, and interest is recognized on an accrual basis.

Commissions, net and Technology Services

Commissions, net, which primarily comprise commissions and commission equivalents earned on institutional client orders, are recorded on a trade date basis, which is the point at which the performance obligation to the customer is satisfied. Under a commission management program, we allow institutional clients to allocate a portion of their gross commissions to pay for research and other services provided by third parties. As we act as an agent in these transactions, we record such expenses on a net basis within Commissions and technology services in the consolidated statements of comprehensive income. The Company recognizes the related revenue when the third party research services are rendered and payments are made.

Technology services revenues consist of fees paid by third parties for licensing of our proprietary risk management and trading infrastructure technology and provision of associated management and hosting services. These fees include both upfront and annual recurring fees, as well as, in certain cases, contingent fees based on client revenues, which represents variable consideration. The services offered under these contracts have the same pattern of transfer; accordingly, they are being measured and recognized as a single performance obligation. The performance obligation is satisfied over time, and accordingly, revenue is recognized as time passes. Variable consideration has not been included in the transaction price as the amount of consideration is contingent on factors outside the Company’s control and thus it is not probable that a significant reversal of cumulative revenue recognized will not occur. Recurring fees, which exclude variable consideration, are billed and collected on a monthly basis.

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Share-Based Compensation

We account for share-based compensation transactions with employees under the provisions of the Financial Accounting Standards Board's Accounting Standards Codification ("ASC") 718, Compensation: Stock Compensation. Share-based compensation transactions with employees are measured based on the fair value of equity instruments issued.

The fair value of awards issued for compensation prior to the Reorganization Transactions and the IPO was determined by management, with the assistance of an independent third party valuation firm, using a projected annual forfeiture rate, where applicable, on the date of grant.

Share-based awards issued for compensation in connection with or subsequent to the Reorganization Transactions and the IPO pursuant to our Amended and Restated 2015 Management Incentive Plan were in the form of stock options, Class A Common Stock and restricted stock units. The fair value of the stock option grants is determined through the application of the Black-Scholes-Merton model. The fair value of the Class A Common Stock and restricted stock units is determined based on the volume weighted average price for the three days preceding the grant, and with respect to the restricted stock units, a projected annual forfeiture rate. The fair value of share-based awards granted to employees is expensed based on the vesting conditions and is recognized on a straight line basis over the vesting period. We record as treasury stock shares repurchased from employees for the purpose of settling tax liabilities incurred upon the issuance of common stock, the vesting of restricted stock units or the exercise of stock options.

Income Taxes and Tax Receivable Agreement Obligations

We conduct our business globally through a number of separate legal entities. Consequently, our effective tax rate is dependent upon the geographic distribution of our earnings or losses and the tax laws and regulations of each legal jurisdiction in which we operate.

Certain of our wholly owned subsidiaries are subject to income taxes in foreign jurisdictions. The provision for income tax is comprised of current tax and deferred tax. Current tax represents the tax on current year tax returns, using tax rates enacted at the balance sheet date. A deferred tax asset is recognized only to the extent that it is probable that future taxable income will be available against which the asset can be utilized.

We are currently subject to audit in various jurisdictions, and these jurisdictions may assess additional income tax liabilities against us. Developments in an audit, litigation, or the relevant laws, regulations, administrative practices, principles, and interpretations could have a material effect on our operating results or cash flows in the period or periods for which that development occurs, as well as for prior and subsequent periods. We recognize the tax benefit from an uncertain tax position, in accordance with ASC 740, Income Taxes only if it is more likely than not that the tax position will be sustained on examination by the applicable taxing authority, including resolution of the appeals or litigation processes, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such a position are measured based on the largest benefit for each such position that has a greater than fifty percent likelihood of being realized upon ultimate resolution. Many factors are considered when evaluating and estimating the tax positions and tax benefits. Such estimates involve interpretations of regulations, rulings, case law, etc. and are inherently complex. Our estimates may require periodic adjustments and may not accurately anticipate actual outcomes as resolution of income tax treatments in individual jurisdictions typically would not be known for several years after completion of any fiscal year.

Goodwill and Intangible Assets

Goodwill represents the excess of the purchase price over the underlying net tangible and intangible assets of our acquisitions. Goodwill is not amortized but is assessed for impairment on an annual basis and between annual assessments whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Goodwill is assessed at the reporting unit level, which is defined as an operating segment or one level below the operating segment.

When assessing impairment, an entity may perform a "Step 0" assessment, under which it assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill. In evaluating whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount, an entity shall assess relevant events and circumstances, including the following:

- general economic conditions;
- limitations on accessing capital;
- fluctuations in foreign exchange rates or other developments in equity and credit markets;

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•industry and market considerations such as a deterioration in the environment in which an entity operates, an increased competitive environment, a decline in market-dependent multiples or metrics (considered in both absolute terms and relative to peers), a change in the market for an entity's products or services, or a regulatory or political development,
•cost factors such as increases in raw materials, labor, or other costs that have a negative effect on earnings and cash flows;
•overall financial performance such as negative or declining cash flows or a decline in actual or planned revenue or earnings compared with actual and projected results of relevant prior periods;
•other relevant entity-specific events such as changes in management, key personnel, strategy, or customers, contemplation of bankruptcy, or litigation.

If, after assessing the totality of such events or circumstances, an entity determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, then the first and second steps of the goodwill impairment test are unnecessary.

The goodwill impairment test is itself a two-step process. The first step is used to identify potential impairment and compares the fair value of a reporting unit with its carrying amount, including goodwill. If the carrying amount of a reporting unit exceeds its fair value, the second step of the goodwill impairment test must be performed. The second step is used to measure the amount of impairment loss, if any, and compares the implied fair value of reporting unit goodwill with the carrying amount of that goodwill. If the carrying amount of reporting unit goodwill exceeds the implied fair value of that goodwill, an impairment loss must be recognized in an amount equal to that excess.

We assess goodwill for impairment on an annual basis on July 1 and on an interim basis when certain events or circumstances exist. In the impairment assessment as of July 1, 2018, we performed a Step 0 qualitative assessment as described in ASC 350-20-35 (as described above) for each reporting unit. No impairment of goodwill was identified.

We amortize finite-lived intangible assets over their estimated useful lives. We test finite-lived intangible assets for impairment when impairment indicators are present, and if impaired, they are written down to fair value.

Recent Accounting Pronouncements

For a discussion of recently issued accounting developments and their impact or potential impact on our consolidated financial statements, see Note 2 "Summary of Significant Accounting Policies" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risk

We are exposed to various market risks in the ordinary course of business. The risks primarily relate to changes in the value of financial instruments due to factors such as market prices, interest rates, and currency rates.

Our on-exchange market making activities are not dependent on the direction of any particular market and are designed to minimize capital at risk at any given time by limiting the notional size of our positions. Our on-exchange market making strategies involve continuously quoting two-sided markets in various financial instruments with the intention of profiting by capturing the spread between the bid and offer price. If another market participant executes against the strategy's bid or offer by crossing the spread, the strategy will instantaneously attempt to lock in a return by either exiting the position or hedging in one or more different correlated instruments that represent economically equivalent value to the primary instrument. Such primary or hedging instruments include but are not limited to securities and derivatives such as: common shares, exchange traded products, American Depositary Receipts ("ADRs"), options, bonds, futures, spot currencies and commodities. Substantially all of the financial instruments we trade are liquid and can be liquidated within a short time frame at low cost.

The market making activities, where we interact with customers, involve taking on position risks. The risks at any point in time are limited by the notional size of positions as well as other factors. The overall portfolio risks are quantified using internal risk models and monitored by the Company's Chief Risk Officer (the "CRO"), the independent risk group and senior management.

We use various proprietary risk management tools in managing our market risk on a continuous basis (including intraday). In order to minimize the likelihood of unintended activities by our market making strategies, if our risk management system detects a trading strategy generating revenues outside of our preset limits, it will freeze, or "lockdown", that strategy and alert risk management personnel and management.

For working capital purposes, we invest in money market funds and maintain interest and non-interest bearing balances at banks and in our trading accounts with clearing brokers, which are classified as Cash and cash equivalents and Receivables from brokers, dealers and clearing organizations, respectively, on the consolidated statements of financial condition. These financial instruments do not have maturity dates; the balances are short term, which helps to mitigate our market risks. We also invest our working capital in short-term U.S. government securities, which are included in Financial instruments owned on the consolidated statements of financial condition. Our cash and cash equivalents held in foreign currencies are subject to the exposure of foreign currency fluctuations. These balances are monitored daily and are hedged or reduced when appropriate and therefore not material to our overall cash position.

In the normal course of business, we maintain inventories of exchange-listed and other equity securities, and to a lesser extent, fixed income securities and listed equity options. The fair value of these financial instruments at December 31, 2018 and December 31, 2017 was $2.6 billion and $2.7 billion, respectively, in long positions and $2.5 billion and $2.4 billion, respectively, in short positions. We also enter into futures contracts, which are recorded on our consolidated statements of financial condition within Receivable from brokers, dealers and clearing organizations or Payable to brokers, dealers and clearing organizations as applicable.

We calculate daily the potential losses that might arise from a series of different stress events. These include both single factor and multi factor shocks to asset prices based off both historical events and hypothetical scenarios. The stress calculations include a full recalculation of any option positions, non-linear positions and leverage. Senior management and the independent risk group carefully monitor the highest stress scenarios to help mitigate the risk of exposure to extreme events.

The purchase and sale of futures contracts requires margin deposits with a Futures Commission Merchant (“FCM”). The Commodity Exchange Act requires an FCM to segregate all customer transactions and assets from the FCM’s proprietary activities. A customer’s cash and other equity deposited with an FCM are considered commingled with all other customer funds subject to the FCM’s segregation requirements. In the event of an FCM’s insolvency, recovery may be limited to the Company’s pro rata share of segregated customer funds available. It is possible that the recovery amount could be less than the total cash and other equity deposited.

Interest Rate Risk, Derivative Instruments

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In the normal course of business, we utilize derivative financial instruments in connection with our proprietary trading activities. We do not designate our derivative financial instruments as hedging instruments under ASC 815 Derivatives and Hedging, other than derivatives used to reduce the impact of fluctuations in foreign exchange rates on our net investment in certain non-U.S. operations as discussed in Note 12 "Derivative Instruments" of Item 8 "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K. Instead, we carry our derivative instruments at fair value with gains and losses included in trading income, net, in the accompanying consolidated statements of comprehensive income. Fair value of derivatives that are freely tradable and listed on a national exchange is determined at their last sale price as of the last business day of the period. Since gains and losses are included in earnings, we have elected not to separately disclose gains and losses on derivative instruments, but instead to disclose gains and losses within trading revenue for both derivative and non-derivative instruments.

Futures Contracts. As part of our proprietary market making trading strategies, we use futures contracts to gain exposure to changes in values of various indices, commodities, interest rates or foreign currencies. A futures contract represents a commitment for the future purchase or sale of an asset at a specified price on a specified date. Upon entering into a futures contract, we are required to pledge to the broker an amount of cash, U.S. government securities or other assets equal to a certain percentage of the contract amount. Subsequent payments, known as variation margin, are made or received by us each day, depending on the daily fluctuations in the fair values of the underlying securities. We recognize a gain or loss equal to the daily variation margin.

Due from Broker Dealers and Clearing Organizations. Management periodically evaluates our counterparty credit exposures to various brokers and clearing organizations with a view to limiting potential losses resulting from counterparty insolvency.

Foreign Currency Risk

As a result of our international market making activities and accumulated earnings in our foreign subsidiaries, our income and net worth are subject to fluctuation in foreign exchange rates. While we generate revenues in several currencies, a majority of our operating expenses are denominated in U.S. dollars. Therefore, depreciation in these other currencies against the U.S. dollar would negatively impact revenue upon translation to the U.S. dollar. The impact of any translation of our foreign denominated earnings to the U.S. dollar is mitigated, however, through the impact of daily hedging practices that are employed by the company.

Assets and liabilities of subsidiaries with non-U.S. dollar functional currencies are translated into U.S. dollars at period-end exchange rates. Income, expense and cash flow items are translated at average exchange rates prevailing during the period. The resulting currency translation adjustments are recorded as foreign exchange translation adjustment in our consolidated statements of comprehensive income and changes in equity. Our primary currency translation exposures historically relate to net investments in subsidiaries having functional currencies denominated in the Euro.

Financial Instruments with Off Balance Sheet Risk

We enter into various transactions involving derivatives and other off-balance sheet financial instruments. These financial instruments include futures, forward contracts, and exchange-traded options. These derivative financial instruments are used to conduct trading activities and manage market risks and are, therefore, subject to varying degrees of market and credit risk. Derivative transactions are entered into for trading purposes or to economically hedge other positions or transactions.

Futures and forward contracts provide for delayed delivery of the underlying instrument. In situations where we write listed options, we receive a premium in exchange for giving the buyer the right to buy or sell the security at a future date at a contracted price. The contractual or notional amounts related to these financial instruments reflect the volume and activity and do not necessarily reflect the amounts at risk. Futures contracts are executed on an exchange, and cash settlement is made on a daily basis for market movements, typically with a central clearing house as the counterparty. Accordingly, futures contracts generally do not have credit risk. The credit risk for forward contracts, options, and swaps is limited to the unrealized market valuation gains recorded in the statements of financial condition. Market risk is substantially dependent upon the value of the underlying financial instruments and is affected by market forces, such as volatility and changes in interest and foreign exchange rates.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA
Index to Consolidated Financial Statements

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Virtu Financial, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statement of financial condition of Virtu Financial, Inc. and its subsidiaries (the “Company”) as of December 31, 2018, and the related consolidated statements of comprehensive income, changes in equity, and cash flows for the year then ended, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audit of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ PricewaterhouseCoopers LLP
New York, New York
March 1, 2019

We have served as the Company's auditor since 2018.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Virtu Financial, Inc.:

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial condition of Virtu Financial, Inc. and Subsidiaries (the ‘‘Company’’) as of December 31, 2017 and 2016, and the related consolidated statements of comprehensive income, changes in equity, and cash flows for each of the two years in the period ended December 31, 2017 and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP
New York, NY
March 13, 2018

We began serving as the Company’s auditor in 2011. In 2018, we became the predecessor auditor.

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Virtu Financial, Inc. and Subsidiaries

Consolidated Statements of Financial Condition

(in thousands, except share data)	December 31, 2018	December 31, 2017
Assets		
Cash and cash equivalents	$ 736,047	$ 532,887
Securities borrowed	1,399,684	1,471,172
Securities purchased under agreements to resell	15,475	—
Receivables from broker dealers and clearing organizations	1,101,449	972,018
Trading assets, at fair value:		
Financial instruments owned	1,848,806	2,117,579
Financial instruments owned and pledged	791,115	595,043
Property, equipment and capitalized software (net of accumulated depreciation of $323,718 and $375,656 as of December 31, 2018 and December 31, 2017, respectively)	113,322	137,018
Goodwill	836,583	844,883
Intangibles (net of accumulated amortization of $148,644 and $123,408 as of December 31, 2018 and December 31, 2017, respectively)	83,989	111,224
Deferred tax assets	200,359	125,760
Assets of business held for sale	—	55,070
Other assets ($48,273 and $98,364, at fair value, as of December 31, 2018 and December 31, 2017, respectively)	254,149	357,352
Total assets	$ 7,380,978	$ 7,320,006
Liabilities and equity		
Liabilities		
Short-term borrowings	$ 15,128	$ 27,883
Securities loaned	1,130,039	754,687
Securities sold under agreements to repurchase	281,861	390,642
Payables to broker dealers and clearing organizations	567,441	716,205
Trading liabilities, at fair value:		
Financial instruments sold, not yet purchased	2,475,395	2,384,598
Tax receivable agreement obligations	214,403	147,040
Accounts payable and accrued expenses and other liabilities	294,975	358,825
Long-term borrowings	907,037	1,388,548
Total liabilities	$ 5,886,279	$ 6,168,428
Commitments and Contingencies (Note 15)		
Virtu Financial Inc. Stockholders' equity		
Class A common stock (par value $0.00001), Authorized — 1,000,000,000 and 1,000,000,000 shares, Issued — 108,955,048 and 90,415,532 shares, Outstanding — 106,776,277 and 89,798,609 shares at December 31, 2018 and December 31, 2017, respectively	1	1
Class B common stock (par value $0.00001), Authorized — 175,000,000 and 175,000,000 shares, Issued and Outstanding — 0 and 0 shares at December 31, 2018 and December 31, 2017, respectively	—	—
Class C common stock (par value $0.00001), Authorized — 90,000,000 and 90,000,000 shares, Issued and Outstanding — 13,749,886 and 17,880,239 shares at December 31, 2018 and December 31, 2017, respectively	—	—

Class D common stock (par value $0.00001), Authorized — 175,000,000 and 175,000,000 shares, Issued and Outstanding — 69,091,740 and 79,610,490 shares at December 31, 2018 and December 31, 2017, respectively	1	1
Treasury stock, at cost, 2,178,771 and 616,923 shares at December 31, 2018 and December 31, 2017, respectively	(55,005)	(11,041)
Additional paid-in capital	1,010,468	900,746
Retained earnings (accumulated deficit)	96,513	(62,129)
Accumulated other comprehensive income	(82)	2,991
Total Virtu Financial Inc. stockholders' equity	$ 1,051,896	$ 830,569
Noncontrolling interest	442,803	321,009
Total equity	$ 1,494,699	$ 1,151,578
Total liabilities and equity	$ 7,380,978	$ 7,320,006

See accompanying notes to the Consolidated Financial Statements.

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Virtu Financial, Inc. and Subsidiaries
Consolidated Statements of Comprehensive Income

	For The Years Ended December 31,		
(in thousands, except share and per share data)	2018	2017	2016
Revenues:			
Trading income, net	$1,266,682	$766,027	$665,465
Interest and dividends income	87,508	50,407	26,419
Commissions, net and technology services	184,339	116,503	10,352
Other, net	340,189	95,045	36
Total revenue	1,878,718	1,027,982	702,272
Operating Expenses:			
Brokerage, exchange and clearance fees, net	301,779	256,926	221,214
Communication and data processing	176,120	131,506	71,001
Employee compensation and payroll taxes	215,556	177,489	85,295
Payments for order flow	74,645	27,727	—
Interest and dividends expense	141,814	91,993	56,557
Operations and administrative	64,749	61,466	23,358
Depreciation and amortization	61,154	47,327	29,703
Amortization of purchased intangibles and acquired capitalized software	26,123	15,447	211
Termination of office leases	23,357	3,671	(319)
Debt issue cost related to debt refinancing and prepayment	11,727	10,460	5,579
Transaction advisory fees and expenses	11,487	25,270	—
Reserve for legal matters	2,020	657	—
Charges related to share based compensation at IPO	24	772	1,755
Financing interest expense on long-term borrowings	71,800	64,107	28,327
Total operating expenses	1,182,355	914,818	522,681
Income before income taxes and noncontrolling interest	696,363	113,164	179,591
Provision for income taxes	76,171	94,266	21,251
Net income	620,192	18,898	158,340
Noncontrolling interest	(330,751)	(15,959)	(125,360)
Net income available for common stockholders	$289,441	$2,939	$32,980
Earnings per share			
Basic	$2.82	$0.03	$0.83
Diluted	$2.78	$0.03	$0.83
Weighted average common shares outstanding			
Basic	100,875,793	62,579,147	38,539,091
Diluted	102,089,139	62,579,147	38,539,091
Net income	$620,192	$18,898	$158,340

Other comprehensive income			
Foreign exchange translation adjustment, net of taxes	(5,127)	9,117	(1,165)
Comprehensive income	615,065	28,015	157,175
Less: Comprehensive income attributable to noncontrolling interest	(328,697)	(21,833)	(124,546)
Comprehensive income attributable to common stockholders	$286,368	$6,182	$32,629

See accompanying notes to the Consolidated Financial Statements.

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Virtu Financial, Inc. and Subsidiaries
Consolidated Statements of Changes in Equity

(in thousands, except share and interest data)	Class A Common Stock		Class C Common Stock		Class D Common Stock		Treasury Stock		Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Acc Oth Con Inco (Lo
	Shares	Amounts	Shares	Amounts	Shares	Amounts	Shares	Amounts	Amounts		
Balance at December 31, 2015	38,379,858	$—	20,976,598	$—	79,610,490	$1	(169,649)	$(3,819)	$130,902	$3,525	$99
Share based compensation	953,054	—	(58,070)	—	—	—	—	—	24,893	—	—
Repurchase of Class C common stock	—	—	(4,153)	—	—	—	—	—	(98)	—	—
Treasury stock purchases	—	—	—	—	—	—	(283,417)	(4,539)	—	—	—
Net income	—	—	—	—	—	—	—	—	—	32,980	—
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	(35
Distribution from Virtu Financial to non-controlling interest	—	—	—	—	—	—	—	—	—	—	—
Dividends	—	—	—	—	—	—	—	—	—	(37,759)	—
Issuance of common stock in connection with secondary offering, net of offering costs	1,103,668	—	—	—	—	—	—	—	16,677	—	—
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with secondary offering	—	—	(1,103,668)	—	—	—	—	—	(17,383)	—	—
Issuance of tax receivable agreements in connection with secondary offering	—	—	—	—	—	—	—	—	545	—	—
Balance at December 31, 2016	40,436,580	$—	19,810,707	$—	79,610,490	$1	(453,066)	$(8,358)	$155,536	$(1,254)	$(2
Share based compensation	546,265	—	(34,019)	—	—	—	—	—	16,846	—	—
Repurchase of Class C common stock	—	—	(540,686)	—	—	—	—	—	(9,143)	—	—
Treasury stock purchases	—	—	—	—	—	—	(163,857)	(2,683)	—	—	—
Net income	—	—	—	—	—	—	—	—	—	2,939	—
	—	—	—	—	—	—	—	—	—	—	3,24

Foreign exchange translation adjustment											
Distribution from Virtu Financial to non-controlling interest	—	—	—	—	—	—	—	—	—	—	—
Dividends	—	—	—	—	—	—	—	—	—	(63,814)	—
Issuance of Class A common stock	48,076,924	1	—	—	—	—	—	—	735,973	—	—
Issuance of common stock in connection with employee exchanges	1,355,763	—	—	—	—	—	—	—	—	—	—
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with employee exchanges	—	—	(1,355,763)	—	—	—	—	—	—	—	—
Issuance of tax receivable agreements in connection with employee exchange	—	—	—	—	—	—	—	—	1,534	—	—
Balance at December 31, 2017	90,415,532	$1	17,880,239	$—	79,610,490	$1	(616,923)	$(11,041)	$900,746	$(62,129)	$2,9
Share based compensation	1,027,861	—	—	—	—	—	—	—	34,909	—	—
Repurchase of Class C common stock	—	—	(210,891)	—	—	—	—	—	—	(8,216)	—
Treasury stock purchases	(1,007,230)	—	—	—	—	—	(1,561,848)	(43,964)	—	(22,254)	—
Stock option exercised	4,080,673	—	—	—	—	—	—	—	76,754	—	—
Net income	—	—	—	—	—	—	—	—	—	289,441	—
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	(3,0
Distribution from Virtu Financial to non-controlling interest	—	—	—	—	—	—	—	—	—	—	—
Dividends	—	—	—	—	—	—	—	—	—	(100,329)	—
Issuance of common stock in connection with employee exchanges	3,919,462	—	—	—	—	—	—	—	—	—	—
Issuance of common stock in connection with secondary offering, net of offering costs	10,518,750	—	—	—	(10,518,750)	—	—	—	(950)	—	—

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(in thousands, except share and interest data)	Class A Common Stock		Class C Common Stock		Class D Common Stock		Treasury Stock		Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Accu Other Comp Incon (Loss
	Shares	Amounts	Shares	Amounts	Shares	Amounts	Shares	Amounts	Amounts		
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with employee exchanges	—	—	(3,919,462)	—	—	—	—	—	—	—	—
Issuance of tax receivable agreements in connection with employee exchange	—	—	—	—	—	—	—	—	(991)	—	—
Balance at December 31, 2018	108,955,048	$1	13,749,886	$—	69,091,740	$1	(2,178,771)	$(55,005)	$1,010,468	$96,513	$(82

See accompanying notes to the Consolidated Financial Statements.

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Virtu Financial, Inc. and Subsidiaries
Consolidated Statements of Cash Flows

(in thousands)	Years Ended December 31, 2018	2017	2016
Cash flows from operating activities			
Net Income (loss)	$620,192	$18,898	$158,340
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	61,154	47,327	29,703
Amortization of purchased intangibles and acquired capitalized software	26,123	15,447	211
Debt issue cost related to debt refinancing and prepayment	10,645	10,460	5,579
Amortization of debt issuance costs and deferred financing fees	10,419	5,822	1,690
Termination of office leases	23,357	3,671	—
Share based compensation	31,934	26,259	22,866
Reserve for legal matters	2,020	657	—
Write-down of assets	3,239	1,216	428
Connectivity early termination	2,000	—	—
Tax receivable agreement obligation reduction	—	(86,599)	—
Deferred taxes	4,131	102,973	13,313
Gain on sale of businesses	(335,211)	—	—
Other	418	(4,577)	(1,070)
Changes in operating assets and liabilities:			
Securities borrowed	71,488	155,277	233,291
Securities purchased under agreements to resell	(15,475)	16,894	14,981
Receivables from broker dealers and clearing organizations	(129,431)	26,145	27,808
Trading assets, at fair value	72,701	1,210,599	(530,668)
Other assets	125,272	44,494	772
Securities loaned	375,352	366,295	(302,400)
Securities sold under agreements to repurchase	(108,781)	(450,964)	—
Payables to broker dealers and clearing organizations	(148,764)	(516,376)	209,374
Trading liabilities, at fair value	90,797	(721,204)	370,065
Accounts payable and accrued expenses and other liabilities	(78,985)	17,860	(14,684)
Net cash provided by operating activities	714,595	290,574	239,599
Cash flows from investing activities			
Development of capitalized software	(21,482)	(14,158)	(8,404)
Acquisition of property and equipment	(26,467)	(18,932)	(11,859)
Proceeds from sale of telecommunication assets	600	—	—
Proceeds from sale of BondPoint	400,192	—	—
Investment in joint ventures	(23,669)	—	—
Investment in SBI Japannext	—	—	(38,754)
Acquisition of KCG Holdings, net of cash acquired, described in Note 3	—	(799,632)	—
Acquisition of Teza Technologies	—	(5,594)	—
Proceeds from sale of DMM business	—	300	—
Net cash provided by (used in) investing activities	329,174	(838,016)	(59,017)
Cash flows from financing activities			
Distribution from Virtu Financial to non-controlling interest	(206,903)	(89,563)	(162,969)
Dividends	(100,329)	(63,814)	(37,759)

Repurchase of Class A-2 interests	—	(11,143)	(2,000)
Repurchase of Class C common stock	(8,216)	—	(98)
Purchase of treasury stock	(66,218)	(2,683)	(4,539)
Stock option exercised	76,754	—	—
Short-term borrowings, net	(15,000)	7,000	(20,000)
Proceeds from long-term borrowings	—	1,115,036	75,753
Repayment of long term borrowings	(500,000)	(256,473)	(3,825)
Repayment of KCG Notes	—	(480,987)	—
Tax receivable agreement obligations	(12,359)	(7,045)	—
Debt issuance costs	(2,261)	(56,505)	(5,094)

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Issuance of common stock, net of offering costs	—	735,974	—
Issuance of common stock in connection with secondary offering, net of offering costs	(950)	—	16,677
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with secondary offering	—	—	(17,383)
Net cash provided by (used in) financing activities	(835,482)	889,797	(161,237)
Effect of exchange rate changes on cash and cash equivalents	(5,127)	9,117	(1,165)
Net increase (decrease) in cash and cash equivalents	203,160	351,472	18,180
Cash and cash equivalents beginning of period	532,887	181,415	163,235
Cash and cash equivalents, end of period	$736,047	$532,887	$181,415
Supplementary disclosure of cash flow information			
Cash paid for interest	$139,412	$112,982	$54,872
Cash paid for taxes	93,991	5,976	16,175
Non-cash investing activities			
Share based compensation to developers relating to capitalized software	2,936	1,605	2,750
See Note 3 for a description of non-cash investing activities relating to the acquisition of KCG			
Non-cash financing activities			
Tax receivable agreement described in Note 6	$(991)	$1,534	$545
Discount on issuance of senior secured credit facility	—	1,438	1,350
Secondary offerings described in Note 16	—	—	—

See accompanying notes to the Consolidated Financial Statements.

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Virtu Financial, Inc. and Subsidiaries
Notes to Consolidated Financial Statements
(dollars in thousands, except shares and per share amounts, unless otherwise noted)

1. Organization and Basis of Presentation

Organization

The accompanying consolidated financial statements include the accounts and operations of Virtu Financial, Inc. (“VFI” or, collectively with its wholly owned or controlled subsidiaries, the “Company”) beginning with its initial public offering (“IPO”) in April of 2015, along with the historical accounts and operations of Virtu Financial LLC (“Virtu Financial”) prior to the Company’s IPO. VFI is a Delaware corporation whose primary asset is its ownership interest in Virtu Financial, which it acquired pursuant to and subsequent to certain reorganization transactions (the “Reorganization Transactions”) consummated in connection with its IPO. As of December 31, 2018, VFI owned approximately 56.7% of the membership interests of Virtu Financial. VFI is the sole managing member of Virtu Financial and operates and controls all of the businesses and affairs of Virtu Financial and, through Virtu Financial and its subsidiaries (the “Group”), continues to conduct the business now conducted by such subsidiaries.

The Company is a leading financial firm that leverages cutting edge technology to deliver liquidity to the global markets and innovative, transparent market making trading solutions to its clients. The Company has broad diversification, in combination with its proprietary technology platform and low-cost structure, which enables the Company to facilitate risk transfer between global capital markets participants by supplying competitive liquidity and execution services while at the same time earning attractive margins and returns.

On July 20, 2017 (the “Closing Date”), the Company completed the all-cash acquisition of KCG Holdings, Inc. (“KCG”) (the “Acquisition of KCG”) . Pursuant to the terms of the Agreement and Plan of Merger, dated as of April 20, 2017, by and among the Company, Orchestra Merger Sub, Inc., a Delaware corporation and an indirect wholly-owned subsidiary of the Company (“Merger Sub”), and KCG, Merger Sub merged with and into KCG (the “KCG Merger”), with KCG surviving the KCG Merger as a wholly owned subsidiary of the Company. See Note 3 “Acquisition of KCG” for further details.

Virtu Financial’s principal subsidiaries include Virtu Financial BD LLC (“VFBD”), Virtu Americas LLC (“VAL”), and Virtu Financial Capital Markets LLC (“VFCM”, collectively with VFBD and VAL, the "broker-dealers"), which are self-clearing U.S. broker-dealers. Other principal subsidiaries include Virtu Financial Global Markets LLC, a U.S. trading entity focused on futures and currencies; Virtu Financial Ireland Limited, formed in Ireland; Virtu Financial Asia Pty Ltd, formed in Australia; and Virtu Financial Singapore Pte. Ltd., formed in Singapore, each of which are trading entities focused on asset classes in their respective geographic regions.

On January 2, 2018, the Company completed the sale of its fixed income trading venue, BondPoint, to Intercontinental Exchange (“ICE”) for total gross proceeds of $400.2 million. See Note 4 "Sale of BondPoint" for further details.

Prior to the Acquisition of KCG, the Company was managed and operated as one business, under one operating segment. As a result of the Acquisition of KCG, beginning in the third quarter of 2017 the Company has two operating segments: (i) Market Making and (ii) Execution Services; and one non-operating segment: Corporate. See Note 20 "Geographic Information and Business Segments" for a further discussion of the Company’s segments.

Basis of Consolidation and Form of Presentation

These consolidated financial statements are presented in U.S. dollars, have been prepared pursuant to the rules and regulations of the U.S. Securities and Exchange Commission ("SEC") regarding financial reporting with respect to Form 10-K and accounting standards generally accepted in the United States of America ("U.S. GAAP") promulgated by the Financial Accounting Standards Board ("FASB") in the Accounting Standards Codification ("ASC" or the "Codification"), and reflect all adjustments that, in the opinion of management, are normal and recurring, and that are necessary for a fair statement of the results for the periods presented. The consolidated financial statements of the Company include its equity interests in Virtu Financial and its subsidiaries. The Company operates and controls all business and affairs of Virtu Financial and its operating subsidiaries indirectly through its equity interest in Virtu Financial.

Certain reclassifications have been made to the prior periods' consolidated financial statements in order to conform to the current period presentation. Such reclassifications are immaterial, individually and in the aggregate, to both current and all

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previously issued financial statements taken as a whole and have no effect on previously reported consolidated net income available to common stockholders.

The consolidated financial statements include the accounts of the Company and its majority and wholly owned subsidiaries. As sole managing member of Virtu Financial, the Company exerts control over the Group's operations. The Company consolidates Virtu Financial and its subsidiaries' financial statements and records the interests in Virtu Financial that the Company does not own as noncontrolling interests. All intercompany accounts and transactions have been eliminated in consolidation.

As discussed in Note 3 "Acquisition of KCG", the Company has accounted for the Acquisition of KCG under the acquisition method of accounting. Under the acquisition method of accounting, the assets and liabilities of KCG, as of the Closing Date, were recorded at their respective fair values and added to the carrying value of the Company's existing assets and liabilities. The reported financial condition, results of operations and cash flows of the Company for the periods following the Acquisition reflect KCG's and the Company's balances, and reflect the impact of purchase accounting adjustments. The financial results for the years ended December 31, 2017 and 2016 comprise the results of the Company for the entire applicable periods and results of KCG from the Closing Date through December 31, 2017. All periods prior to the Closing Date comprise solely results of the Company.

2. Summary of Significant Accounting Policies

Use of Estimates

The Company's consolidated financial statements are prepared in conformity with U.S. GAAP, which require management to make estimates and assumptions regarding measurements including the fair value of trading assets and liabilities, goodwill and intangibles, compensation accruals, capitalized software, income tax, and other matters that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. Accordingly, actual results could differ materially from those estimates.

Earnings Per Share

Earnings per share ("EPS") is calculated on both a basic and diluted basis. Basic EPS excludes dilution and is calculated by dividing income available to common stockholders by the weighted-average number of common shares outstanding for the period. Diluted EPS is calculated by dividing the net income available for common stockholders by the diluted weighted average shares outstanding for that period. Diluted EPS includes the determinants of the basic EPS and, in addition, reflects the dilutive effect of shares of common stock estimated to be distributed in the future under the Company's share based compensation plans.

The Company grants restricted stock units ("RSUs"), which entitle recipients to receive nonforfeitable dividends during the vesting period on a basis equivalent to the dividends paid to holders of common stock. As a result, the unvested RSUs meet the definition of a participating security requiring the application of the two-class method. Under the two-class method, earnings available to common shareholders, including both distributed and undistributed earnings, are allocated to each class of common stock and participating securities according to dividends declared and participating rights in undistributed earnings, which may cause diluted EPS to be more dilutive than the calculation using the treasury stock method.

Cash and Cash Equivalents

Cash and cash equivalents include money market accounts, which are payable on demand, and short-term investments with an original maturity of less than 90 days.

The Company maintains cash in bank deposit accounts that, at times, may exceed federally insured limits. The Company manages this risk by selecting financial institutions deemed highly creditworthy to minimize the risk.

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Securities Borrowed and Securities Loaned

The Company conducts securities borrowing and lending activities with external counterparties. In connection with these transactions, the Company receives or posts collateral, which comprises cash and/or securities. In accordance with substantially all of its stock borrow agreements, the Company is permitted to sell or repledge the securities received. Securities borrowed or loaned are recorded based on the amount of cash collateral advanced or received. The initial cash collateral advanced or received generally approximates or is greater than 102% of the fair value of the underlying securities borrowed or loaned. The Company monitors the fair value of securities borrowed and loaned, and delivers or obtains additional collateral as appropriate. Receivables and payables with the same counterparty are not offset in the consolidated statements of financial condition. Interest received or paid by the Company for these transactions is recorded gross on an accrual basis under interest and dividends income or interest and dividends expense in the consolidated statements of comprehensive income.

Securities Purchased Under Agreements to Resell and Securities Sold Under Agreements to Repurchase

In a repurchase agreement, securities sold under agreements to repurchase are treated as collateralized financing transactions and are recorded at contract value, plus accrued interest, which approximates fair value. It is the Company's policy that its custodian take possession of the underlying collateral securities with a fair value approximately equal to the principal amount of the repurchase transaction, including accrued interest. For reverse repurchase agreements, the Company typically requires delivery of collateral with a fair value approximately equal to the carrying value of the relevant assets in the consolidated statements of financial condition. To ensure that the fair value of the underlying collateral remains sufficient, the collateral is valued daily with additional collateral obtained or excess collateral returned, as permitted under contractual provisions. The Company does not net securities purchased under agreements to resell transactions with securities sold under agreements to repurchase transactions entered into with the same counterparty.

The Company has entered into bilateral and tri-party term and overnight repurchase and other collateralized financing agreements which bear interest at negotiated rates. The Company receives cash and makes delivery of financial instruments to a custodian who monitors the market value of these instruments on a daily basis. The market value of the instruments delivered must be equal to or in excess of the principal amount loaned under the repurchase agreements plus the agreed upon margin requirement. The custodian may request additional collateral, if appropriate. Interest received or paid by the Company for these transactions is recorded gross on an accrual basis under interest and dividends income or interest and dividends expense in the consolidated statements of comprehensive income.

Receivables from/Payables to Broker-dealers and Clearing Organizations

As of December 31, 2018 and 2017, receivables from and payables to broker-dealers and clearing organizations primarily represented amounts due for unsettled trades, open equity in futures transactions, securities failed to deliver or failed to receive, deposits with clearing organizations or exchanges and balances due from or due to prime brokers in relation to the Company’s trading. Amounts receivable from broker-dealers and clearing organizations may be restricted to the extent that they serve as deposits for securities sold, not yet purchased. The Company presents its balances, including outstanding principal balances on all credit facilities, on a net by counterparty basis within receivables from and payables to broker-dealers and clearing organizations when the criteria for offsetting are met.

In the normal course of business, a significant portion of the Company’s securities transactions, money balances, and security positions are transacted with several third-party brokers. The Company is subject to credit risk to the extent any broker with whom it conducts business is unable to fulfill contractual obligations on its behalf. The Company monitors the financial condition of such brokers and to minimize the risk of any losses from these counterparties.

Financial Instruments Owned Including Those Pledged as Collateral and Financial Instruments Sold, Not Yet Purchased

Financial instruments owned and Financial instruments sold, not yet purchased relate to market making and trading activities, and include listed and other equity securities, listed equity options and fixed income securities.

The Company records financial instruments owned, including those pledged as collateral, and financial instruments sold, not yet purchased at fair value. Gains and losses arising from financial instrument transactions are recorded net on a trade-date basis in trading income, net, in the consolidated statements of comprehensive income.

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Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or would be paid to transfer a liability (i.e., the exit price) in an orderly transaction between market participants at the measurement date. Fair value measurements are not adjusted for transaction costs. The recognition of "block discounts" for large holdings of unrestricted financial instruments where quoted prices are readily and regularly available in an active market is prohibited. The Company categorizes its financial instruments into a three level hierarchy which prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy level assigned to each financial instrument is based on the assessment of the transparency and reliability of the inputs used in the valuation of such financial instruments at the measurement date based on the lowest level of input that is significant to the fair value measurement. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurement) and the lowest priority to unobservable inputs (level 3 measurements).

Financial instruments measured and reported at fair value are classified and disclosed in one of the following categories based on inputs:

Level 1 — Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2 — Quoted prices in markets that are not active and financial instruments for which all significant inputs are observable, either directly or indirectly; or

Level 3 — Prices or valuations that require inputs that are both significant to the fair value measurement and unobservable.

Transfers in or out of levels are recognized based on the beginning fair value of the period in which they occurred.

Fair Value Option

The fair value option election allows entities to make an irrevocable election of fair value as the initial and subsequent measurement attribute for certain eligible financial assets and liabilities. Unrealized gains and losses on items for which the fair value option has been elected are recorded in other, net in the consolidated statements of comprehensive income. The decision to elect the fair value option is determined on an instrument by instrument basis, which must be applied to an entire instrument and is irrevocable once elected.

Derivative Instruments

Derivative instruments are used for trading purposes, including economic hedges of trading instruments, are carried at fair value, and include futures, forward contracts, and options. Gains or losses on these derivative instruments are recognized currently within trading income, net in the consolidated statement of comprehensive income. Fair values for exchange-traded derivatives, principally futures, are based on quoted market prices. Fair values for over-the-counter derivative instruments, principally forward contracts, are based on the values of the underlying financial instruments within the contract. The underlying instruments are currencies, which are actively traded. The Company presents its derivatives balances on a net-by-counterparty basis when the criteria for offsetting are met. Cash flows associated with such derivative activities are included in cash flows from operating activities on the consolidated statements of cash flows.

Property, Equipment and Occupancy

Property and equipment are carried at cost, less accumulated depreciation, except for the assets acquired in connection with acquisitions using the purchase accounting method, which were recorded at fair value on the respective date of acquisitions. Depreciation is provided using the straight-line method over estimated useful lives of the underlying assets. Routine maintenance, repairs and replacement costs are expensed as incurred and improvements that appreciably extend the useful life of the assets are capitalized. When property and equipment are sold or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is recognized in income. Property and equipment are reviewed for impairment whenever events or changes in circumstances indicate that the related carrying amount may not be recoverable. Furniture, fixtures, and equipment are depreciated over three to seven years. Leasehold improvements are amortized over the lesser of the life of the improvement or the term of the lease.

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The Company recognizes rent expense under operating leases with fixed rent escalations, lease incentives and free rent periods on a straight-line basis over the lease term beginning on the date the Company takes possession of or controls the use of the space, including during free rent periods.

Lease Loss Accrual

The Company's policy is to identify excess real estate capacity and where applicable, accrue for related future costs, net of projected sub-lease income upon the date the Company ceases to use the excess real estate, which is recorded under operating and administrative in the consolidated statements of comprehensive income. Such accrual is adjusted to the extent the actual terms of sub-leased property differ from the previous assumptions used in the calculation of the accrual.

Capitalized Software

The Company capitalizes costs of materials, consultants, and payroll and payroll related costs for employees incurred in developing internal-use software. Costs incurred during the preliminary project and post-implementation stages are charged to expense.

Management's judgment is required in determining the point at which various projects enter the stages at which costs may be capitalized, in assessing the ongoing value of the capitalized costs, and in determining the estimated useful lives over which the costs are amortized.

Capitalized software development costs and related accumulated amortization are included in property, equipment and capitalized software in the accompanying consolidated statements of financial condition and are amortized over a period of 1.5 to 2.5 years, which represents the estimated useful lives of the underlying software.

Goodwill

Goodwill represents the excess of the purchase price over the underlying net tangible and intangible assets of the Company's acquisitions. Goodwill is not amortized but is assessed for impairment on an annual basis and between annual assessments whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Goodwill is assessed at the reporting unit level, which is defined as an operating segment or one level below the operating segment.

The Company assesses goodwill for impairment on an annual basis on July 1 and on an interim basis when certain events or circumstances exist. In the impairment assessment as of July 1, 2018, the Company assessed qualitative factors as described in ASC 350-20 for each of its reporting units for any indicators that the fair values of the reporting units were less than their carrying values.

Intangible Assets

The Company amortizes finite-lived intangible assets over their estimated useful lives. Finite-lived intangible assets are tested for impairment when impairment indicators are present, and if impaired, they are written down to fair value.

Exchange Memberships and Stock

Exchange memberships are recorded at cost or, if any other than temporary impairment in value has occurred, at a value that reflects management's estimate of fair value. Exchange memberships acquired in connection with the Acquisition of KCG were recorded at their fair value on the date of acquisition. Exchange stock includes shares that entitle the Company to certain trading privileges. The Company's exchange memberships and stock are included in intangibles in the consolidated statements of financial condition.

Trading Income, net

Trading income, net is comprised of changes in the fair value of trading assets and liabilities (i.e., unrealized gains and losses) and realized gains and losses on trading assets and liabilities. Trading gains and losses on financial instruments owned and financial instruments sold, not yet purchased are recorded on the trade date and reported on a net basis in the consolidated statements of comprehensive income.

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Commissions, net and Technology Services

Commissions, net, which primarily comprise commissions and commission equivalents earned on institutional client orders, are recorded on a trade date basis. Under a commission management program, the Company allows institutional clients to allocate a portion of their gross commissions to pay for research and other services provided by third parties. The Company recognizes the related revenue when the third party research services are rendered and payments are made. As the Company acts as an agent in these transactions, it records such expenses on a net basis within commissions, net and technology services in the consolidated statements of comprehensive income.

Technology services revenues consist of technology licensing fees and agency commission fees. Technology licensing fees are earned from third parties for licensing of the Company's proprietary risk management and trading infrastructure technology and the provision of associated management and hosting services. These fees include both upfront and annual recurring fees, as well as, in certain cases, contingent fees based on client revenues, which represent variable consideration. The services offered under these contracts have the same pattern of transfer; accordingly, they are being measured and recognized as a single performance obligation. The performance obligation is satisfied over time, and accordingly, revenue is recognized as time passes. Variable consideration has not been included in the transaction price as the amount of consideration is contingent on factors outside the Company's control and thus it is not probable that a significant reversal of cumulative revenue recognized will not occur. Recurring fees, which exclude variable consideration, are billed and collected on a quarterly basis.

Interest and Dividends Income/Interest and Dividends Expense

Interest income and interest expense are accrued in accordance with contractual rates. Interest income consists of interest earned on collateralized financing arrangements and on cash held by brokers. Interest expense includes interest expense from collateralized transactions, margin and related lines of credit. Dividends on financial instruments owned including those pledged as collateral and financial instruments sold, not yet purchased are recorded on the ex-dividend date and interest is recognized on an accrual basis.

Brokerage, Exchange and Clearance Fees, Net

Brokerage, exchange and clearance fees, net, comprise the costs of executing and clearing trades and are recorded on a trade date basis. Rebates consist of volume discounts, credits or payments received from exchanges or other market places related to the placement and/or removal of liquidity from the order flow in the marketplace. Rebates are recorded on an accrual basis and included net within brokerage, exchange and clearance fees in the accompanying consolidated statements of comprehensive income.

Payments for Order Flow

Payments for order flow represent payments to broker-dealer clients, in the normal course of business, for directing their order flow in U.S. equities to the Company. Payments for order flow are recorded on a trade-date basis in the consolidated statements of comprehensive income.

Income Taxes

Subsequent to consummation of the Reorganization Transactions and the IPO, the Company is subject to U.S. federal, state and local income taxes on its taxable income. The Company's subsidiaries are subject to income taxes in the respective jurisdictions (including foreign jurisdictions) in which they operate. Prior to the consummation of the Reorganization Transactions and the IPO, no provision for United States federal, state and local income tax was required, as Virtu Financial is a limited liability company and is treated as a pass-through entity for United States federal, state, and local income tax purposes.

The provision for income tax is comprised of current tax and deferred tax. Current tax represents the tax on current year tax returns, using tax rates enacted at the balance sheet date. The deferred tax assets are recognized in full and then reduced by a valuation allowance if it is more likely than not that some or all of the deferred tax assets will not be recognized.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the applicable taxing authority, including resolution of the appeals or litigation processes, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such a position are measured based on the largest benefit for each such position that has a greater than fifty percent likelihood of being realized upon ultimate resolution. Many factors are considered when evaluating and estimating the tax positions and tax benefits. Such estimates involve interpretations of regulations, rulings, case law, etc. and are inherently

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complex. The Company’s estimates may require periodic adjustments and may not accurately anticipate actual outcomes as resolution of income tax treatments in individual jurisdictions typically would not be known for several years after completion of any fiscal year.

Comprehensive Income and Foreign Currency Translation

Comprehensive income consists of two components: net income and other comprehensive income (“OCI”). The Company’s OCI is comprised of foreign currency translation adjustments. Assets and liabilities of operations having non-U.S. dollar functional currencies are translated at period-end exchange rates, and revenues and expenses are translated at weighted average exchange rates for the period. Gains and losses resulting from translating foreign currency financial statements, net of related tax effects, are reflected in accumulated other comprehensive income, a separate component of stockholders’ equity.

The Company's foreign subsidiaries generally use the U.S. dollar as their functional currency. The Company also has subsidiaries that utilize a functional currency other than the U.S. dollar, primarily comprising its subsidiaries domiciled in Ireland, which utilize the Euro as the functional currency.

The Company may seek to reduce the impact of fluctuations in foreign exchange rates on its net investment in certain non-U.S. operations through the use of foreign currency forward contracts. For foreign currency forward contracts designated as hedges, the Company assesses its risk management objectives and strategy, including identification of the hedging instrument, the hedged item and the risk exposure and how effectiveness is to be assessed prospectively and retrospectively. The effectiveness of the hedge is assessed based on the overall changes in the fair value of the forward contracts. For qualifying net investment hedges, any gains or losses, to the extent effective, are included in Accumulated other comprehensive income on the consolidated statements of financial condition and Cumulative translation adjustment, net of tax, on the consolidated statements of comprehensive income. The ineffective portion, if any, is recorded in investment income and other, net on the consolidated statements of operations.

Share-Based Compensation

The fair value of awards issued for compensation prior to the Reorganization Transactions and the IPO was determined by management, with the assistance of an independent third party valuation firm, using a projected annual forfeiture rate, where applicable, on the date of grant.

Share-based awards issued for compensation in connection with or subsequent to the Reorganization Transactions and the IPO pursuant to the Virtu Financial, Inc. 2015 Management Incentive Plan, adopted by the Company's Board of Directors and stockholders effective upon consummation of the IPO (as amended, the “Amended and Restated 2015 Management Incentive Plan”) were in the form of stock options, Class A common stock, par value $0.00001 (the "Class A Common Stock") and RSUs. The fair value of the stock option grants is determined through the application of the Black-Scholes-Merton model. The fair value of the Class A Common Stock and RSUs are determined based on the volume weighted average price for the three days preceding the grant, and with respect to the RSUs, a projected annual forfeiture rate. The fair value of share-based awards granted to employees is expensed based on the vesting conditions and are recognized on a straight line basis over the vesting period. The Company records as treasury stock shares repurchased from its employees for the purpose of settling tax liabilities incurred upon the issuance of Class A Common Stock, the vesting of RSUs or the exercise of stock options.

Variable Interest Entities

A variable interest entity (“VIE”) is an entity that lacks one or more of the following characteristics (i) the total equity investment at risk is sufficient to enable the entity to finance its activities independently and (ii) the equity holders have the power to direct the activities of the entity that most significantly impact its economic performance, the obligation to absorb the losses of the entity and the right to receive the residual returns of the entity.

The Company will be considered to have a controlling financial interest and will consolidate a VIE if it has both (i) the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and (ii) the obligation to absorb losses of the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE.

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In October 2016, the Company invested in a joint venture ("JV") with nine other parties. One of the parties was KCG. Upon the KCG Merger, KCG was required to relinquish their ownership in the JV. As of December 31, 2018, each of the remaining parties owns approximately 11% of the voting shares and 11% of the equity of this JV. In addition, as a result of the Acquisition of KCG, the Company owns 50% of the voting shares and 50% of the equity of another JV. These two JVs build and maintain microwave communication networks in the U.S., Europe, and Asia. The Company and its JV partners each pay monthly fees for the use of the microwave communication networks in connection with their respective trading activities, and the JVs may sell excess bandwidth that is not utilized by the JV members to third parties. The JVs meet the criteria to be considered VIEs.

In each of the JVs, the Company does not have the power to direct the activities of the VIE that most significantly impact the VIE's economic performance; therefore it does not have a controlling financial interest in and does not consolidate the JVs. The Company records its interest in each JV under the equity method of accounting and records its investment in the JVs within Other assets and its amounts payable for communication services provided by the JV within Accrued expenses and other liabilities on the consolidated statements of financial condition. The Company records its pro-rata share of each JV's earnings or losses within Other, net and fees related to the use of communication services provided by the JVs within communications and data processing on the consolidated statements of comprehensive income.

The Company's exposure to the obligations of these VIEs is generally limited to its interests in each respective JV, which is the carrying value of the equity investment in each JV.

The following table presents the Company's nonconsolidated VIEs at December 31, 2018:

	Carrying Amount		Maximum	VIEs'
(in thousands)	Asset	Liability	Exposure to Loss	assets
Equity investment	$18,254	$ —	$ 18,254	$49,450

The following table presents the Company's nonconsolidated VIEs at December 31, 2017:

	Carrying Amount		Maximum	VIEs'
(in thousands)	Asset	Liability	Exposure to Loss	assets
Equity investment	$18,799	$ —	$ 18,799	$41,936

Accounting Pronouncements, Recently Adopted

Revenue Recognition - In May 2014, the FASB issued Accounting Standard Update ("ASU") 2014-9, Revenue from Contracts with Customers. ASU 2014-09 is a comprehensive new revenue recognition model that requires a company to recognize revenue to depict the transfer of goods or services to a customer at an amount that reflects the consideration it expects to receive in exchange for those goods or services. ASU 2014-09 also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract.

The Company adopted the new revenue standard on January 1, 2018 by applying the modified retrospective method, which did not result in a transition adjustment. The new standard does not apply to revenue associated with financial instruments that are accounted for under other U.S. GAAP, and as a result, did not have a material impact on the Company's consolidated financial statements, which are most closely associated with financial instruments, including trading income, net, and interest and dividends income. The new revenue standard primarily impacts revenues from technology services, commissions and soft-dollar arrangements generated by execution services. The additional disclosures required by the new standard have been included in Note 13 "Revenues from Contracts with Customers".

Financial Assets and Liabilities — In January 2016, the FASB issued ASU 2016-01, Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities. The ASU affects the accounting for equity investments, financial liabilities under fair value option and presentation and disclosure requirements of financial instruments. The ASU affects all entities that hold financial assets or owe financial liabilities and is effective for annual reporting periods (including interim periods) beginning after December 15, 2017. The Company does not currently classify any equity securities as available for sale, and it does not apply the fair value option to its own debt issuances. The

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Company has adopted this ASU as of January 1, 2018, and it did not have a material impact on its consolidated financial statements.

Income Taxes – In October 2016, the FASB issued ASU 2016-16, Income Taxes (Topic 749): Intra-Entity Transfers of Assets Other Than Inventory. The ASU requires the reporting entity to recognize the tax expense from the sale of an asset in the seller's tax jurisdiction when the transfer occurs, even though the pre-tax effects of the transactions are eliminated in consolidation. Any deferred tax asset that arises in the buyer's jurisdiction would also be recognized at the time of the transfer. The ASU is effective for reporting periods beginning after December 15, 2017. The Company adopted this ASU on January 1, 2018, and it did not have a material impact on its consolidated financial statements.

Business Combinations - In January 2017, the FASB issued ASU 2017-01, Business Combinations (Topic 805), Clarifying the Definition of a Business, to amend the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The ASU is effective for reporting periods beginning after December 15, 2017. The Company adopted this ASU on January 1, 2018, and it did not have a material impact on its consolidated financial statements.

Accounting Pronouncements, Not Yet Adopted as of December 31, 2018

Leases — In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). Under the new ASU, a lessee will be required to recognize assets and liabilities for leases with lease terms of more than 12 months. The liability will be equal to the present value of the future lease payments. The asset, referred to as a "right-of-use asset" will be based on the liability, subject to adjustment, such as for initial direct costs. For statement of comprehensive income purposes, leases will be classified as either operating or finance. Operating leases will result in straight-line expense (similar to current operating leases) while finance leases will result in a front-loaded expense pattern (similar to current capital leases). Classification will be based on criteria that are largely similar to those applied in current lease accounting, but without explicit bright lines.

In July 2018, the FASB issued ASU 2018-10, Codification Improvements to Topic 842, Leases, which modified certain aspects of ASC Topic 842, including allowing entities to adopt the new leasing standard as of January 1, 2019, without restating prior periods presented, and providing certain practical expedients including allowing lessors not to separate out lease and non-lease components when certain conditions are met.

The Company adopted this ASU on January 1, 2019 using the modified retrospective method of implementation, and it is finalizing the impact on the financial statements. The Company elected to recognize the cumulative effect adjustment to the opening balance of retained earnings in the period of adoption rather than in the earliest period presented. The Company does not plan to recognize lease assets and lease liabilities for leases with a determined lease term of twelve months or less and which are not expected to be renewed. Upon implementation, the Company estimated an impact of $334.0 million to $369.2 million in lease liabilities and $303.8 million to $335.7 million in right-of-use assets on its Statement of Financial Condition related to certain occupancy, equipment, communications and data processing, and other contractual arrangements under noncancelable operating lease agreements held under the Company's name, which currently are not reflected in its Statement of Financial Condition as of December 31, 2018.

Goodwill - In January 2017, the FASB issued ASU 2017-04, Intangibles—Goodwill and Other (Topic 350), Simplifying the Test for Goodwill Impairment. To simplify the subsequent measurement of goodwill, this ASU eliminated Step 2 from the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity had to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities (including unrecognized assets and liabilities) following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Instead, under this ASU, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. This ASU also eliminated the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. This ASU is effective for public entities in fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company does not expect the adoption of this ASU to have a material impact on its consolidated financial statements.

Stock Compensation - In June 2018, the FASB issued ASU 2018-07, Compensation, Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting, with the objective of conforming the accounting for share-based awards to non-employees to the accounting for awards granted to employees. Previously, non-employee awards were measured at the vesting date, rather than the grant date, which effectively required the awards to be marked to market until the award vested. Under the new ASU, companies will be required to measure non-employee awards at the fair value of the instruments issued at the grant date. Entities will also be able to consider the probability of the recipient satisfying any performance conditions. The ASU is effective for periods beginning after December 15, 2018, including interim periods within that fiscal year. The Company does not currently make share-based awards to non-employees, and does not expect the adoption of this ASU to have a material impact on its consolidated financial statements.

Fair Value Measurement - In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement, which modified the disclosure requirements on fair value measurements in ASC Topic 820, Fair Value Measurement. Disclosure requirements were eliminated for the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy, the policy for timing of transfers between levels, and the valuation processes for Level 3 fair value measurements. Disclosure requirements were modified for liquidation of investments in certain entities that calculate net asset value, and for measurement uncertainty disclosures. Disclosure requirements were added for changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements held at the end of the reporting period and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. The ASU is effective for periods beginning after December 15, 2019, including interim periods within that fiscal year. The Company does not expect the adoption of this ASU to have a material impact on its consolidated financial statements.

Consolidation - In October 2018, the FASB issued ASU 2018-17, Consolidation (Topic 810): Targeted Improvements to Related Party Guidance for Variable Interest Entities, which modified how VIEs are assessed for consolidation purposes under ASC Topic 810, Consolidation. Under the update, indirect interests held through related parties in common control arrangements should be considered on a proportional basis for determining whether fees paid to decision makers and service providers are variable interests. The ASU is effective for periods beginning after December 15, 2019, including interim periods within that fiscal year. The Company does not expect the adoption of this ASU to have a material impact on its consolidated financial statements.

Measurement of Credit Losses on Financial Instruments - In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses (Topic 326) -Measurement of Credit Losses on Financial Instruments. This ASU amends several aspects of the measurement of credit losses on financial instruments, including replacing the existing incurred credit loss model and other models with the Current Expected Credit Losses model ("CECL"). Under CECL, the allowance for losses for financial assets that are measured at amortized cost reflects management’s estimate of credit losses over the remaining expected life of the financial assets. Expected credit losses for newly recognized financial assets, as well as changes to expected credit losses during the period, would be recognized in earnings, and adoption of the ASU will generally result in earlier recognition of credit losses. Expected credit losses will be measured based on historical experience, current conditions and forecasts that affect the collectability of the reported amount, and credit losses are generally recognized earlier than under current GAAP. The ASU is effective for periods beginning after December 15, 2019, including interim periods within that fiscal year.

The Company is currently in the process of identifying and developing the changes to the Company’s existing models and processes that will be required under CECL. As of December 31, 2018, the ASU is expected to impact only those financial instruments that are carried by the Company at amortized cost such as collateralized financing arrangements (repurchase agreements and securities borrowing/ lending transactions) and receivables from broker dealers and clearing organizations, and therefore the Company expects the ASU to have a limited impact on its financial condition, results of operations and cash flows. However, the ultimate impact of adoption of this ASU on the firm’s financial condition, results of operations and cash flows will depend on, among other things, the economic environment and the type of financial assets held by the firm on the date of adoption.

3. Acquisition of KCG

As of the Closing Date of the Acquisition of KCG, each of KCG's issued and outstanding shares of Class A common stock, par value $0.01 per share was cancelled and extinguished and converted into the right to receive $20.00 in cash, without interest, less any applicable withholding taxes.

On the Closing Date, and in connection with the financing of the Acquisition of KCG, as described in Note 10 "Borrowings", the Company issued to Aranda Investments Pte. Ltd. ("Aranda"), an affiliate of Temasek Holdings (Private) Limited ("Temasek"), 6,346,155 shares of the Company's Class A Common Stock, pursuant to the investment agreement with Aranda (as amended, the "Aranda Investment Agreement") for an aggregate purchase price of approximately $99.0 million. On

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August 10, 2017, the Company issued an additional 1,666,666 shares of its Class A Common Stock for an aggregate purchase price of $26.0 million (collectively, the “Temasek Investment”).

On the Closing Date, and in connection with the financing of the Acquisition of KCG, the Company issued to North Island Holdings I, LP (the “North Island Stockholder”) 39,725,979 shares of the Company’s Class A Common Stock for an aggregate purchase price of approximately $613.5 million. On August 10, 2017 the Company issued an additional 338,124 shares of its Class A Common Stock for an aggregate purchase price of $5.2 million (collectively, the “North Island Investment”). In connection with the Temasek Investment and North Island Investment, the Company incurred approximately $7.8 million in fees which were recorded as a reduction to additional paid-in capital.

On July 21, 2017, the outstanding 6.875% Senior Secured Notes due 2020 issued by KCG (the "KCG Notes") were redeemed at a redemption price equal to 103.438% of the $465.0 million principal amount, plus accrued and unpaid interest. The redemption was pursuant to the indenture, dated as of March 13, 2015 (as amended, restated, supplemented or otherwise modified), by and among KCG, the subsidiary guarantors party thereto and The Bank of New York Mellon, as trustee and collateral agent. See "Fourth Amended and Restated Credit Agreement" and "Senior Secured Second Lien Notes" in Note 10 "Borrowings".

Accounting treatment of the Acquisition of KCG

The Acquisition of KCG has been accounted for as a purchase of KCG by the Company, pursuant to provisions of ASC 805, Business Combinations. Under the acquisition method of accounting, the assets and liabilities of KCG, as of the Closing Date, were recorded at their respective fair values and added to the carrying value of the Company's existing assets and liabilities. These fair values were determined with the assistance of third party valuation professionals. The reported financial condition, results of operations and cash flows of the Company for the periods following the Acquisition of KCG reflect KCG’s and the Company's balances and reflect the impact of purchase accounting adjustments.

Certain former KCG management employees were terminated upon the Acquisition of KCG, and as a result were paid an aggregate of $6.4 million pursuant to their existing employment contracts. This amount was recognized as an expense by the Company and was included in Employee compensation and payroll taxes in the consolidated statements of comprehensive income for the year ending December 31, 2017. The Company also made annual incentive compensation payments in 2018 to former KCG employees who became employees of the Company following the Acquisition of KCG, and accrued related compensation expense of approximately $35.3 million during the year ended December 31, 2017, which was included in Employee compensation and payroll taxes in the consolidated statements of comprehensive income for the year ended December 31, 2017.

Purchase price and goodwill

The aggregate cash purchase price of $1.4 billion was determined as the sum of the fair value, at $20.00 per share, of KCG shares and warrants outstanding to former KCG stockholders at closing and the fair value of KCG employee stock based awards that were outstanding, and which vested at the Closing Date.

The purchase price has been allocated to the assets acquired and liabilities assumed using their estimated fair values at the Closing Date of the Acquisition of KCG. Adjustments to the provisional values during the measurement period were recorded in the reporting period in which the adjustment amounts were determined. No further adjustments to the provisional values remain. The Company engaged third party specialists for the purchase price allocation.

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Amounts allocated to intangible assets, the amortization period and goodwill were as follows:

(in thousands)	Amount	Amortization Years
Technology	$67,700	1-6 years
Customer relationships	94,000	13 - 17 years
Trade names	1,000	10 years
Favorable leases	5,895	2-15 years
Exchange memberships	6,400	Indefinite
Intangible assets	$174,995	
Goodwill	128,286	
Total	$303,281	

Of the total Goodwill of $128.3 million, $96.2 million has been assigned to the Market Making segment and $32.1 million has been assigned to the Execution Services segment. Such goodwill is attributable to the expansion of products offerings and expected synergies of the combined workforce, products and technologies of the Company and KCG.

Tax treatment of the Acquisition of KCG

The Company believes that the Acquisition of KCG will be treated as a tax-free transaction to the Company that does not result in a step up in tax basis in the acquired assets and, therefore, KCG’s tax basis in its assets and liabilities generally carries over to the Company following the Acquisition of KCG. None of the goodwill is expected to be deductible for tax purposes.

The Company recorded net deferred tax assets of $23.9 million with respect to recording KCG’s assets and liabilities under the purchase method of accounting as described above as well as recording the value of other tax attributes acquired as a result of the Acquisition of KCG, as described in Note 14 "Income Taxes".

4. Sale of BondPoint

In October 2017, the Company entered into an Asset Purchase Agreement with Intercontinental Exchange ("ICE") pursuant to which the Company has agreed to sell specified assets and to assign specified liabilities constituting its BondPoint division and fixed income venue (“BondPoint”). BondPoint is a provider of electronic fixed income trading solutions for the buy-side and sell-side offering access to centralized liquidity and automated trade execution services.

As of December 31, 2017, the Company transferred the carrying value of BondPoint to assets held for sale. On January 2, 2018, the Company completed the sale of BondPoint to ICE for total gross proceeds of $400.2 million in cash. The Company incurred one-time transaction costs of $8.5 million, which included professional fees of $7.1 million related to the sale and $1.4 million of compensation expense, which is recorded in Transaction advisory fees and expenses and Employee compensation and payroll taxes, respectively, on the consolidated statement of comprehensive income. The Company recognized a gain on sale of $337.6 million, which is recorded in Other, net on the consolidated statement of comprehensive income for the year ended December 31, 2018.

A summary of the carrying value of BondPoint and gain on sale of BondPoint is as follows:

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(in thousands)	
Total sale proceeds received	$400,192
Business assets and liabilities held for sale as of December 31, 2017:	
Receivables from broker dealers and clearing organizations	3,383
Intangibles and other assets	51,687
Liabilities	(728)
Total carrying value of BondPoint as of December 31, 2017:	54,342
Goodwill adjustment allocated to BondPoint	8,300
Gain on sale of BondPoint	337,550
Transaction costs	8,568
Gain on sale of BondPoint, net of transaction costs	$328,982

5. Earnings per Share

The below table contains a reconciliation of net income before noncontrolling interest to net income available for common stockholders:

	Years Ended December 31,		
(in thousands)	2018	2017	2016
Income (loss) before income taxes and noncontrolling interest	$696,363	$113,164	179,591
Provision for (benefit from) income taxes	76,171	94,266	21,251
Net income	620,192	18,898	158,340
Noncontrolling interest	(330,751)	(15,959)	(125,360)
Net income (loss) available for common stockholders	$289,441	$2,939	$32,980

The calculation of basic and diluted earnings per share is presented below:

	Years Ended December 31,		
(in thousands, except for share or per share data)	2018	2017	2016
Basic earnings per share:			
Net income (loss) available for common stockholders	$289,441	$ 2,939	$ 32,980
Less: Dividends and undistributed earnings allocated to participating securities	(5,418)	(1,326)	(809)
Net income (loss) available for common stockholders, net of dividends and undistributed earnings allocated to participating securities	284,023	1,613	32,171
Weighted average shares of common stock outstanding:			
Class A	100,875,793	62,579,147	38,539,091
Basic earnings per share	$2.82	$ 0.03	0.83

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(in thousands, except for share or per share data)	Years Ended December 31, 2018	2017	2016
Diluted earnings per share:			
Net income (loss) available for common stockholders, net of dividends and undistributed earnings allocated to participating securities	$284,023	$ 1,613	$ 32,171
Weighted average shares of common stock outstanding:			
Class A			
Issued and outstanding	100,875,793	62,579,147	38,539,091
Issuable pursuant to Amended and Restated 2015 Management Incentive Plan (1)	1,213,346	—	—
	102,089,139	62,579,147	38,539,091
Diluted earnings per share	$2.78	$ 0.03	$ 0.83

(1) The dilutive impact of unexercised stock options excludes from the computation of EPS 1,740,630 and 743,096 options for the years ended December 31, 2017 and 2016, respectively, because inclusion of the options would have been anti-dilutive.

6. Tax Receivable Agreements

In connection with the IPO and the Reorganization Transactions, the Company entered into tax receivable agreements to make payments to certain pre-IPO equityholders ("Virtu Members") that are generally equal to 85% of the applicable cash tax savings, if any, that the Company actually realizes as a result of favorable tax attributes that were and will continue to be available to the Company as a result of the Reorganization Transactions, exchanges of membership interests for Class A Common Stock or Class B common stock, par value $0.00001 per share (the "Class B Common Stock"), and payments made under the tax receivable agreements. Payments will occur only after the filing of the U.S. federal and state income tax returns and realization of the cash tax savings from the favorable tax attributes. The Company made its first payment of $7.0 million in February 2017 and its second payment of $12.4 million in September 2018.

As a result of (i) the purchase of equity interests in Virtu Financial from certain Virtu Members in connection with the Reorganization Transactions, (ii) the purchase of non-voting common interest units in Virtu Financial (the “Virtu Financial Units”) (along with the corresponding shares of Class C common stock, par value $0.00001 per share (the "Class C Common Stock")) from certain of the Virtu Members in connection with the IPO, and (iii) the purchase of Virtu Financial Units (along with the corresponding shares of Class C Common Stock) and the exchange of Virtu Financial Units (along with the corresponding shares of Class C Common Stock) for shares of Class A Common Stock in connection with the secondary offerings completed in November 2015, September 2016 and May 2018 (the “Secondary Offerings”), payments to certain Virtu Members in respect of the purchases are expected to range from approximately $4.7 million to $17.0 million per year over the next 15 years.

In connection with the employee exchanges and May 2018 secondary offering between the Company and TJMT Holdings LLC and employee exchanges, both as described in Note 16 "Capital Structure", the Company recorded an additional deferred tax asset of $78.7 million and payment liability pursuant to the tax receivable agreements of $79.7 million, with the $1.0 million difference recorded as a decrease to additional paid-in capital.

As a result of the reduction in the U.S. corporate income tax rate as described below, the aforementioned deferred tax asset and related payment liability were subsequently reduced as described below. The amounts recorded as of December 31, 2018 are based on best estimates available at the respective dates and may be subject to change after the filing of the Company’s U.S. federal and state income tax returns for the years in which tax savings were realized.

The 2017 Tax Act includes, among other items, a permanent reduction to the U.S. corporate income tax rate from 35% to 21% effective January 1, 2018 as further described in Note 14 "Income Taxes". As a result, at December 31, 2017, the Company recorded a reduction of its tax receivable agreement obligation of $86.6 million. As further described in Note 14 "Income Taxes", the Company also recorded a reduction of its deferred tax assets, including the deferred tax assets described above. At December 31, 2018 and 2017, the Company’s remaining deferred tax assets described above were approximately $167.1 million and $101.6 million, respectively, and the Company’s liabilities over the next 15 years pursuant to the tax receivable agreements are approximately $214.4 million and $147.0 million, respectively.

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For the tax receivable agreements discussed above, the cash savings realized by the Company are computed by comparing the actual income tax liability of the Company to the amount of such taxes the Company would have been required to pay had there been (i) no increase to the tax basis of the assets of Virtu Financial as a result of the purchase or exchange of Virtu Financial Units, (ii) no tax benefit from the tax basis in the intangible assets of Virtu Financial on the date of the IPO and (iii) no tax benefit as a result of the Net Operating Losses (“NOLs”) and other tax attributes of Virtu Financial. Subsequent adjustments of the tax receivable agreements obligations due to certain events (e.g., changes to the expected realization of NOLs or changes in tax rates) will be recognized within income before taxes and noncontrolling interests in the consolidated statements of comprehensive income.

7. Goodwill and Intangible Assets

Prior to the Acquisition of KCG, the Company was managed and operated as one business, and accordingly, operated under one operating segment. As a result of the Acquisition of KCG, beginning in the third quarter of 2017 the Company has two operating segments: (i) Market Making; (ii) Execution Services; and one non-operating segment: Corporate. The Company allocated goodwill to the new reporting units using a relative fair value approach. In addition, the Company performed an assessment of potential goodwill impairment for all reporting units immediately prior to the reallocation and determined that no impairment was indicated.

The following table presents the details of goodwill by segment:

(in thousands)	Market Making	Execution Services	Corporate	Total
Balance as of December 31, 2017	$755,292	$89,591	$ —	$844,883
Goodwill adjustment allocated to BondPoint	—	(8,300)	—	(8,300)
Balance as of December 31, 2018	$755,292	$81,291	$ —	$836,583

As of December 31, 2018 and 2017, the Company’s total amount of goodwill recorded was $836.6 million and $844.9 million, respectively. As described in Note 4 "Sale of BondPoint", the Company allocated $8.3 million of goodwill to BondPoint as part of the sale. No goodwill impairment was recognized during the years ended December 31, 2018 and 2017.

Acquired intangible assets consisted of the following as of December 31, 2018 and 2017:

	As of December 31, 2018			
(in thousands)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Useful Lives (Years)
Purchased technology	$110,000	$ 110,000	$—	1.4 to 2.5
ETF issuer relationships	950	665	285	9
ETF buyer relationships	950	665	285	9
Technology	60,000	30,185	29,815	1 to 6
Customer relationships	49,000	5,905	43,095	12
Favorable occupancy leases	5,895	1,224	4,671	3 to 15
Exchange memberships	5,838	—	5,838	Indefinite
	$232,633	$ 148,644	$ 83,989	

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(in thousands)	As of December 31, 2017 Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Useful Lives (Years)
Purchased technology	$110,000	$ 110,000	$—	1.4 to 2.5
ETF issuer relationships	950	559	391	9
ETF buyer relationships	950	559	390	9
Leases	1,800	397	1,403	3
FCC licenses	200	19	181	7
Technology	60,000	9,644	50,356	1 to 6
Customer relationships	49,000	1,822	47,178	12 to 17
Favorable occupancy leases	5,895	408	5,487	7
Exchange memberships	5,838	—	5,838	Indefinite
	$234,633	$ 123,408	$111,224	

Amortization expense relating to finite-lived intangible assets was approximately $26.1 million, $15.4 million, and $0.2 million for the years ended December 31, 2018, 2017, and 2016, respectively. This is included in amortization of purchased intangibles and acquired capitalized software in the accompanying consolidated statements of comprehensive income.

In the third quarter of 2018, the Company sold certain assets to one of its joint ventures, including the intangible assets associated with leases with a net carrying value of $1.1 million at the time of sale.

8. Receivables from/Payables to Broker-Dealers and Clearing Organizations

The following is a summary of receivables from and payables to brokers-dealers and clearing organizations at December 31, 2018 and December 31, 2017:

(in thousands)	December 31, 2018	December 31, 2017
Assets		
Due from prime brokers	$302,152	$219,573
Deposits with clearing organizations	84,509	112,847
Net equity with futures commission merchants	294,884	203,711
Unsettled trades with clearing organization	193,544	173,778
Securities failed to deliver	218,663	248,088
Commissions and fees	7,697	14,021
Total receivables from broker-dealers and clearing organizations	$1,101,449	$972,018
Liabilities		
Due to prime brokers	$354,300	$197,439
Net equity with futures commission merchants	47,998	44,526
Unsettled trades with clearing organization	90,021	420,029
Securities failed to receive	73,547	51,143
Commissions and fees	1,575	3,068
Total payables to broker-dealers and clearing organizations	$567,441	$716,205

Included as a deduction from “Due from prime brokers” and “Net equity with futures commission merchants” is the outstanding principal balance on all of the Company’s short-term credit facilities (described in Note 10 "Borrowings") of approximately $184.6 million and $205.7 million as of December 31, 2018 and 2017, respectively. The loan proceeds from the credit facilities are available only to meet the initial margin requirements associated with the Company’s ordinary course futures and other trading positions, which are held in the Company’s trading accounts with an affiliate of the respective financial institutions. The credit facilities are fully collateralized by the Company’s trading accounts and deposit accounts with these financial institutions. “Securities failed to deliver” and “Securities failed to receive” include amounts with a clearing organization and other broker-dealers.

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9. Collateralized Transactions

The Company is permitted to sell or repledge securities received as collateral and use these securities to secure repurchase agreements, enter into securities lending transactions or deliver these securities to counterparties or clearing organizations to cover short positions. At December 31, 2018 and December 31, 2017, substantially all of the securities received as collateral have been repledged. The fair value of the collateralized transactions at December 31, 2018 and December 31, 2017 are summarized as follows:

(in thousands)	December 31, 2018	December 31, 2017
Securities received as collateral:		
Securities borrowed	$1,361,635	$1,415,793
Securities purchased under agreements to resell	15,475	—
	$1,377,110	$1,415,793

In the normal course of business, the Company pledges qualified securities with clearing organizations to satisfy daily margin and clearing fund requirements.

Financial instruments owned and pledged, where the counterparty has the right to repledge, at December 31, 2018 and December 31, 2017 consisted of the following:

(in thousands)	December 31, 2018	December 31, 2017
Equities	$748,846	$586,251
U.S. and Non-U.S. government obligations	—	99
Exchange traded notes	42,269	8,693
	$791,115	$595,043

10. Borrowings

Broker-Dealer Credit Facilities

The Company is a party to two secured credit facilities with a financial institution to finance overnight securities positions purchased as part of its ordinary course broker-dealer market making activities. One of the facilities (the "Uncommitted Facility"), is provided on an uncommitted basis collateralized by one of the Company's broker-dealer subsidiaries trading and deposit account with the financial institution.

On November 3, 2017, the Company entered the second credit facility ("Revolving Credit Facility") with the same financial institution for an aggregated borrowing limit of $500.0 million. The Revolving Credit Facility consists two borrowing bases: Borrowing Base A Loan is to be used to finance the purchase and settlement of securities; Borrowing Base B Loan is to be used to fund margin deposit with the NSCC. Each of the three broker-dealers has a sublimit under Borrowing Base A Loan, from $25 million to $500 million, which bears interest at the adjusted LIBOR or base rate plus 1.25% per annum. Two out of the three broker-dealers have a sublimit under Borrowing Base B Loan, from $40 million to $100 million, which bears interest at the adjusted LIBOR or base rate plus 2.50% per annum. A commitment fee of 0.50% per annum on the average daily unused portion of this facility is payable quarterly in arrears.

The following summarizes the Company's broker-dealer credit facilities' carrying values, net of unamortized debt issuance costs, where applicable:

(in thousands)	At December 31, 2018 Interest Rate

		Financing Available	Borrowing Outstanding	Deferred Debt Issuance Cost	Outstanding Borrowings, net
Broker-dealer credit facilities:					
Uncommitted facility	3.40%	$ 200,000	$ 10,000	$ (832)	$ 9,168
Revolving credit facility	3.75%	500,000	7,000	(1,040)	5,960
		$ 700,000	$ 17,000	$ (1,872)	$ 15,128

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(in thousands)	At December 31, 2017 Interest Rate	Financing Available	Borrowing Outstanding	Deferred Debt Issuance Cost	Outstanding Borrowings, net
Broker-dealer credit facilities:					
Uncommitted facility	2.42%	$150,000	$ 25,000	$—	$ 25,000
Revolving credit facility	2.81%	500,000	7,000	(4,117)	2,883
		$650,000	$ 32,000	$(4,117)	$ 27,883

The following summarizes interest expense for the broker-dealer facilities. Interest expense is included within interest and dividends expense in the accompanying consolidated statements of comprehensive income.

	Years Ended December 31,		
(in thousands)	2018	2017	2016
Broker-dealer credit facilities:			
Uncommitted facility	$1,794	$1,667	$1,191
Committed facility (1)	—	33	41
Revolving credit facility	306	19	—
	$2,100	$1,719	$1,232

(1) Facility was terminated in July 2017.

Short-Term Credit Facilities

The Company maintains short-term credit facilities with various prime brokers and other financial institutions from which it receives execution or clearing services. The proceeds of these facilities are used to meet margin requirements associated with the products traded by the Company in the ordinary course, and amounts borrowed are collateralized by the Company's trading accounts with the applicable financial institution.

	At December 31, 2018 Weighted Average Interest Rate	Financing Available	Borrowing Outstanding
Short-Term Credit Facilities:			
Short-term credit facilities (2)	5.03%	$566,000	$ 184,608
		$566,000	$ 184,608

	At December 31, 2017 Weighted Average Interest Rate	Financing Available	Borrowing Outstanding
Short-Term Credit Facilities:			
Short-term credit facilities (2)	3.86%	$543,000	$ 205,677
		$543,000	$ 205,677

(2) Outstanding borrowings are included with Receivables from/ Payables to broker-dealers and clearing organizations within the consolidated statements of financial condition.

Interest expense in relation to the facilities was approximately $7.1 million, $6.6 million, and $6.3 million for the years ended December 31, 2018, 2017, and 2016, respectively.

Long-Term Borrowings

The following summarizes the Company’s long-term borrowings, net of unamortized discount and debt issuance costs, where applicable:

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(in thousands)	Maturity Date	At December 31, 2018 Interest Rate	Outstanding Principal	Discount	Deferred Debt Issuance Cost	Outstanding Borrowings, net
Long-term borrowings:						
Fourth Amended and Restated Credit Agreement	December 2021	5.55%	$ 400,000	$ (332)	$ (6,704)	$ 392,964
Senior Secured Second Lien Notes	June 2022	6.75%	500,000	—	(17,811)	482,189
SBI bonds	January 2020	5.00%	31,908	—	(24)	31,884
			$ 931,908	$ (332)	$ (24,539)	$ 907,037

(in thousands)	Maturity Date	At December 31, 2017 Interest Rate	Outstanding Principal	Discount	Deferred Debt Issuance Cost	Outstanding Borrowings, net
Long-term borrowings:						
Fourth Amended and Restated Credit Agreement	December 2021	5.13%	$ 900,000	$ (999)	$ (18,504)	$ 880,497
Senior secured Second Lien Notes	June 2022	6.75%	500,000	—	(22,961)	477,039
SBI bonds	January 2020	5.00%	31,059	—	(47)	31,012
			$ 1,431,059	$ (999)	$ (41,512)	$ 1,388,548

Fourth Amended and Restated Credit Agreement

To finance the Acquisition of KCG, on June 30, 2017, Virtu Financial and VFH Parent LLC (“VFH”) entered into a fourth amended and restated credit agreement (as amended on January 2, 2018 and September 19, 2018, the “Fourth Amended and Restated Credit Agreement”) with the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent, sole lead arranger and bookrunner, which amended and restated in its entirety the existing credit agreement, and upon the closing of the Acquisition of KCG, provided for an aggregate $1.15 billion of first lien secured term loans (the “Term Loan Facility”).

For the year ended December 31, 2018, $500.0 million of prepayments were made under the Fourth Amended and Restated Credit Agreement, for an aggregate total of $750.0 million of principal prepayments under the Term Loan Facility since its closing. As a result of these prepayments, the aggregate principal outstanding under the senior secured credit facility is $400.0 million. VFH also entered into a repricing transaction on January 2, 2018 to reprice the first lien secured term loans under the Fourth Amended and Restated Credit Agreement at LIBOR plus 3.25%, and another repricing transaction on September 19, 2018 to reprice such first lien secured term loans at LIBOR plus 2.75%. In connection with the debt refinancing and the debt prepayment, the Company accelerated approximately $10.6 million for unamortized financing costs incurred that were scheduled to be amortized over the term of the loan, including original issue discount and underwriting and legal fees, which is included within debt issue cost related to debt refinancing in the consolidated statements of comprehensive income.

The Fourth Amended and Restated Credit Agreement contains certain customary covenants and certain customary events of default, including relating to a change of control. If an event of default occurs and is continuing, the lenders under the Fourth Amended and Restated Credit Agreement will be entitled to take various actions, including the acceleration of amounts outstanding under the Fourth Amended and Restated Credit Agreement and all actions permitted to be taken by a secured creditor in respect of the collateral securing the obligations under the Fourth

Amended and Restated Credit Agreement.

Senior Secured Second Lien Notes

To finance the Acquisition of KCG, on June 16, 2017, the Escrow Issuer and Orchestra Co-Issuer, Inc. (the “Co-Issuer”) completed the offering of $500.0 million aggregate principal amount of 6.750% Senior Secured Second Lien Notes due 2022 (the “Notes”). The Notes were issued under an Indenture, dated June 16, 2017 (the “Indenture”), among the Escrow Issuer, the Co-Issuer and U.S. Bank National Association, as trustee and collateral agent.

On July 20, 2017, VFH assumed all of the obligations of the Escrow Issuer under the Indenture and the Notes. The Notes are guaranteed by Virtu Financial and each of Virtu Financial’s wholly-owned domestic restricted subsidiaries that guarantees the Fourth Amended and Restated Credit Agreement.

The Indenture imposes certain limitations on the Company, and contains certain customary events of default, including, among others, payment defaults related to the failure to pay principal or interest on the Notes, covenant defaults, final maturity default or cross-acceleration with respect to material indebtedness and certain bankruptcy events. The gross proceeds from the Notes were deposited into a segregated escrow account with an escrow agent. The proceeds were released

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from escrow as of the Closing Date and were used to finance, in part, the Acquisition of KCG, and to repay certain indebtedness of the Company and KCG. (See Note 3 “Acquisition of KCG” for further details).

SBI Bonds

On July 25, 2016, VFH issued Japanese Yen Bonds (collectively the “SBI Bonds”) in the aggregate principal amount of ¥3.5 billion ($33.1 million at issuance date) to SBI Life Insurance Co., Ltd. and SBI Insurance Co., Ltd. The proceeds from the SBI Bonds were used to partially fund the investment in SBI (as described in Note 11 "Financial Assets and Liabilities"). The SBI Bonds are guaranteed by Virtu Financial. The SBI Bonds are subject to fluctuations on the Japanese Yen currency rates relative to the Company’s reporting currency (U.S. Dollar) with the changes reflected in other, net in the consolidated statements of comprehensive income. The principal balance was ¥3.5 billion ($31.9 million) as of December 31, 2018 and ¥3.5 billion ($31.1 million) as of December 31, 2017. The Company recorded a gain of $0.8 million, a gain of $1.1 million, and a loss of $3.2 million due to the change in currency rates during the years ended December 31, 2018, 2017 and 2016, respectively.

Aggregate future required minimum principal payments based on the terms of the long-term borrowings were as follows:

(in thousands)	December 31, 2018
2019	$ —
2020	31,908
2021	400,000
2022 and thereafter	500,000
Total principal of long-term borrowings	$ 931,908

11. Financial Assets and Liabilities

Financial Instruments Measured at Fair Value

The fair value of equities, options, on the run U.S. government obligations and exchange traded notes is estimated using recently executed transactions and market price quotations in active markets and are categorized as Level 1 with the exception of inactively traded equities and certain other financial instruments, which are categorized as Level 2. The Company’s corporate bonds, derivative contracts and other U.S. and non-U.S. government obligations have been categorized as Level 2. Fair value of the Company’s derivative contracts is based on the indicative prices obtained from a number of banks and broker dealers, as well as management’s own analyses. The indicative prices have been independently validated through the Company’s risk management systems, which are designed to check prices with information independently obtained from exchanges and venues where such financial instruments are listed or to compare prices of similar instruments with similar maturities for listed financial futures in foreign exchange.

As of March 31, 2017, the Company began pricing certain financial instruments held for trading at fair value based on theoretical prices, which can differ from quoted market prices. The theoretical prices reflect price adjustments primarily caused by the fact that the Company continuously prices its financial instruments based on all available information. This information includes prices for identical and near-identical positions, as well as the prices for securities underlying the Company’s positions, on other exchanges that are open after the exchange on which the financial instruments is traded closes. The Company validates that all price adjustments can be substantiated with market inputs and checks the theoretical prices independently. Consequently, such financial instruments are classified as Level 2. The Company concluded that this is a change in accounting estimate and no retrospective adjustments were necessary.

There were no transfers of financial instruments between levels during the years ended December 31, 2018 and 2017.

Fair value measurements for those items measured on a recurring basis are summarized below as of December 31, 2018:

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(in thousands)	December 31, 2018 Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Counterparty and Cash Collateral Netting	Total Fair Value
Assets					
Financial instruments owned, at fair value:					
Equity securities	$587,680	$1,022,221	$ —	$—	$1,609,901
U.S. and Non-U.S. government obligations	91,466	14,547	—	—	106,013
Corporate Bonds	—	87,500	—	—	87,500
Exchange traded notes	3,396	27,966	—	—	31,362
Currency forwards	—	2,792,373	—	(2,790,242)	2,131
Options	11,899	—	—	—	11,899
	694,441	3,944,607	—	(2,790,242)	1,848,806
Financial instruments owned, pledged as collateral:					
Equity securities	$389,810	$359,036	$ —	$—	$748,846
Exchange traded notes	6,968	35,301	—	—	42,269
	396,778	394,337	—	—	791,115
Other Assets					
Equity investment	$—	$—	$ 45,856	$—	$45,856
Exchange stock	2,417	—	—	—	2,417
	2,417	—	45,856	—	48,273
Liabilities					
Financial instruments sold, not yet purchased, at fair value:					
Equity securities	$931,992	$1,336,338	$ —	$—	$2,268,330
U.S. and Non-U.S. government obligations	112,058	3,054	—	—	115,112
Corporate Bonds	—	40,123	—	—	40,123
Exchange traded notes	371	39,613	—	—	39,984
Currency forwards	—	2,720,749	—	(2,719,954)	795
Options	11,051	—	—	—	11,051
	$1,055,472	$4,139,877	$ —	$(2,719,954)	$2,475,395

Fair value measurements for those items measured on a recurring basis are summarized below as of December 31, 2017:

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(in thousands)	December 31, 2017 Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Counterparty and Cash Collateral Netting	Total Fair Value
Assets					
Financial instruments owned, at fair value:					
Equity securities	$758,596	$1,167,995	$ —	$—	$1,926,591
Non-U.S. government obligations	5,968	16,815	—	—	22,783
Corporate Bonds	—	60,975	—	—	60,975
Exchange traded notes	13,576	68,819	—	—	82,395
Currency forwards	—	2,045,487	—	(2,027,697)	17,790
Options	7,045	—	—	—	7,045
	$785,185	$3,360,091	$ —	$(2,027,697)	$2,117,579
Financial instruments owned, pledged as collateral:					
Equity securities	$410,670	$175,581	$ —	$—	$586,251
U.S. and Non-U.S. government obligations	99	—	—	—	99
Exchange traded notes	82	8,611	—	—	8,693
	$410,851	$184,192	$ —	$—	$595,043
Other Assets					
Equity investment	$—	$—	$ 40,588	$—	$40,588
Exchange stock	1,952	—	—	—	1,952
Other(1)	—	55,824	—	—	55,824
	$1,952	$55,824	$ 40,588	$—	$98,364
Liabilities					
Financial instruments sold, not yet purchased, at fair value:					
Equity securities	$847,816	$1,355,616	$ —	$—	$2,203,432
U.S. and Non-U.S. government obligations	18,940	12,481	—	—	31,421
Corporate Bonds	—	81,118	—	—	81,118
Exchange traded notes	1,514	54,248	—	—	55,762
Currency forwards	—	2,032,017	—	(2,024,991)	7,026
Options	5,839	—	—	—	5,839
	$874,109	$3,535,480	$ —	$(2,024,991)	$2,384,598

(1) Other primarily consists of a $55.8 million receivable from BATS related to the sale of KCG Hotspot (see Receivable from Bats Global Markets, Inc. ("BATS") below).

SBI Investment

As of December 31, 2018, the fair value of the Company's SBI Investment was determined using the discounted cash flow method, an income approach, with the discount rate of 15.0% applied to the cash flow forecasts. The Company also used a market approach based on 12.6x average price/earnings multiples of comparable companies to corroborate the income approach. The fair value of the SBI Investment at December 31, 2018 was determined by taking the weighted average of enterprise valuations based on discounted cash flow on projected income from the next five years, the implied enterprise valuations on comparable companies, and the implied enterprise valuations on comparable transactions. The fair value measurement is highly sensitive to significant changes in the unobservable inputs and significant increases (decreases) in discount rate or decreases (increases) in price/earnings multiples would result in a significantly lower (higher) fair value measurement. Changes in the fair value of the SBI Investment are reflected in other, net in the consolidated statements of comprehensive income.

Receivable from Bats Global Markets, Inc. (“BATS”)

In March 2015, KCG sold KCG Hotspot, an institutional spot foreign exchange electronic communications networks (“ECN”), to BATS, which is now a subsidiary of CBOE Holdings, Inc. KCG and BATS agreed to share certain tax benefits, which comprised a $50.0 million payment and an annual payment of up to $6.6 million, both of which were paid to the Company in April 2018.

Financial Instruments Not Measured at Fair Value

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The table below presents the carrying value, fair value and fair value hierarchy category of certain financial instruments that are not measured at fair value on the consolidated statement of financial condition. The table below excludes non-financial assets and liabilities. The carrying value of financial instruments not measured at fair value categorized in the fair value hierarchy as Level 1 and Level 2 approximates fair value due to the relatively short-term nature of the underlying assets. The fair value of the Company's long-term borrowings is based on quoted prices from the market for similar instruments, and is categorized as Level 2 in the fair value hierarchy.

The table below summarizes financial assets and liabilities not carried at fair value on a recurring basis as of December 31, 2018:

	December 31, 2018				
			Quoted Prices in Active Markets for Identical Assets	Significant Other Observable Inputs	Significant Unobservable Inputs
(in thousands)	Carrying Value	Fair Value	(Level 1)	(Level 2)	(Level 3)
Assets					
Cash and cash equivalents	$736,047	$736,047	$ 736,047	$—	$ —
Securities borrowed	1,399,684	1,399,684	—	1,399,684	—
Securities purchased under agreements to resell	15,475	15,475	—	15,475	—
Receivables from broker dealers and clearing organizations	1,101,449	1,101,449	71,288	1,030,161	—
Total Assets	$3,252,655	$3,252,655	$ 807,335	$2,445,320	$ —
Liabilities					
Short-term borrowings	$15,128	$15,128	$ —	$15,128	$ —
Long-term borrowings	907,037	916,465	—	916,465	—
Securities loaned	1,130,039	1,130,039	—	1,130,039	—
Securities sold under agreements to repurchase	281,861	281,861	—	281,861	—
Payables to broker dealer and clearing organizations	567,441	567,441	1,031	566,410	—
Total Liabilities	$2,901,506	$2,910,934	$ 1,031	$2,909,903	$ —

The table below summarizes financial assets and liabilities not carried at fair value on a recurring basis as of December 31, 2017:

	December 31, 2017				
			Quoted Prices in Active Markets for Identical Assets	Significant Other Observable Inputs	Significant Unobservable Inputs
(in thousands)	Carrying Value	Fair Value	(Level 1)	(Level 2)	(Level 3)
Assets					
Cash and cash equivalents	$532,887	$532,887	$ 532,887	$—	$ —
Securities borrowed	1,471,172	1,471,172	—	1,471,172	—
Receivables from broker dealers and clearing organizations	972,018	972,018	36,513	935,505	—
Total Assets	$2,976,077	$2,976,077	$ 569,400	$2,406,677	$ —

Liabilities					
Short-term borrowings	$27,883	$27,883	$ —	$27,883	$ —
Long-term borrowings	1,388,548	1,465,489	—	1,465,489	—
Securities loaned	754,687	754,687	—	754,687	—
Securities sold under agreements to repurchase	390,642	390,642	—	390,642	—
Payables to broker dealer and clearing organizations	716,205	716,205	2,925	713,280	—
Total Liabilities	$3,277,965	$3,354,906	$ 2,925	$3,351,981	$ —

The following presents the changes in Level 3 financial instruments measured at fair value on a recurring basis:

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	Year Ended December 31, 2018						
(in thousands)	Balance at December 31, 2017	Purchases	Total Realized and Unrealized Gains / (Losses)	Net Transfers into (out of) Level 3	Settlement	Balance at December 31, 2018	Change in Net Unrealized Gains / (Losses) on Investments still held at December 31, 2018
Assets							
Other assets:							
Equity investment	$40,588	$ —	$ 5,268	$ —	$ —	$ 45,856	$ 5,268
Total	$40,588	$ —	$ 5,268	$ —	$ —	$ 45,856	$ 5,268

	Year Ended December 31, 2017						
(in thousands)	Balance at December 31, 2016	Purchases	Total Realized and Unrealized Gains / (Losses)	Net Transfers into (out of) Level 3	Settlement	Balance at December 31, 2017	Change in Net Unrealized Gains / (Losses) on Investments still held at December 31, 2017
Assets							
Other assets:							
Equity investment	$36,031	$ —	$ 4,557	$ —	$ —	$ 40,588	$ 4,557
Other	—	3,000	—	—	(3,000)	—	—
Total	$36,031	$ 3,000	$ 4,557	$ —	$ (3,000)	$ 40,588	$ 4,557

Offsetting of Financial Assets and Liabilities

The Company does not net securities borrowed and securities loaned, or securities purchased under agreements to resell and securities sold under agreements to repurchase. These financial instruments are presented on a gross basis in the consolidated statements of financial condition. In the tables below, the amounts of financial instruments owned that are not offset in the consolidated statements of financial condition, but could be netted against financial liabilities with specific counterparties under legally enforceable master netting agreements in the event of default, are presented to provide financial statement readers with the Company's estimate of its net exposure to counterparties for these financial instruments.

The following tables set forth the gross and net presentation of certain financial assets and financial liabilities as of December 31, 2018 and December 31, 2017:

	December 31, 2018			
	Gross Amounts of Recognized Assets	Gross Amounts Offset in the Consolidated	Net Amounts of Assets Presented in the	Gross Amounts Not Offset In the Consolidated Statement

(in thousands)		Statement of Financial Condition	Consolidated Statement of Financial Condition	of Financial Condition Financial Instruments	Cash Collateral Received	Net Amount
Offsetting of Financial Assets:						
Securities borrowed	$1,399,684	$—	$ 1,399,684	$(1,361,635)	$ (8,822)	$ 29,227
Securities purchased under agreements to resell	15,475	—	15,475	(15,475)	—	—
Trading assets, at fair value:						
Currency forwards	2,792,373	(2,790,242)	2,131	—	—	2,131
Options	11,899	—	11,899	(11,899)	—	—
Total	$4,219,431	$(2,790,242)	$ 1,429,189	$(1,389,009)	$ (8,822)	$ 31,358

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(in thousands)	Gross Amounts of Recognized Liabilities	Gross Amounts Offset in the Consolidated Statement of Financial Condition	Net Amounts of Assets Presented in the Consolidated Statement of Financial Condition	Gross Amounts Not Offset In the Consolidated Statement of Financial Condition: Financial Instruments	Cash Collateral Pledged	Net Amount
Offsetting of Financial Liabilities:						
Securities loaned	$ 1,130,039	$—	$ 1,130,039	$(1,108,461)	$(8,822)	$ 12,756
Securities sold under agreements to repurchase	281,861	—	$ 281,861	(281,861)	—	—
Trading liabilities, at fair value:						
Currency forwards	2,720,749	(2,719,954)	795	—	(792)	3
Options	11,051	—	11,051	(11,051)	—	—
Total	$ 4,143,700	$(2,719,954)	$ 1,423,746	$(1,401,373)	$(9,614)	$ 12,759

December 31, 2017

(in thousands)	Gross Amounts of Recognized Assets	Gross Amounts Offset in the Consolidated Statement of Financial Condition	Net Amounts of Assets Presented in the Consolidated Statement of Financial Condition	Gross Amounts Not Offset In the Statement of Financial Condition: Financial Instruments	Cash Collateral Received	Net Amount
Offsetting of Financial Assets:						
Securities borrowed	$1,471,172	$—	$ 1,471,172	$(1,418,672)	$(13,318)	$ 39,182
Trading assets, at fair value:						
Currency forwards	2,045,487	(2,027,697)	17,790	—	—	17,790
Options	7,045	—	7,045	(45)	—	7,000
Total	$3,523,704	$(2,027,697)	$ 1,496,007	$(1,418,717)	$(13,318)	$ 63,972

(in thousands)	Gross Amounts of Recognized Liabilities	Gross Amounts Offset in the Consolidated Statement of Financial Condition	Net Amounts of Assets Presented in the Consolidated Statement of Financial Condition	Gross Amounts Not Offset In the Statement of Financial Condition: Financial Instruments	Cash Collateral Pledged	Net Amount
Offsetting of Financial Liabilities:						
Securities loaned	$ 754,687	$—	$ 754,687	$(737,731)	$(10,776)	$ 6,180
Securities sold under agreements to repurchase	390,642	—	390,642	(390,642)	—	—
Trading liabilities, at fair value:						
Currency forwards	2,032,017	(2,024,991)	7,026	—	—	7,026
Options	5,839	—	5,839	(56)	—	5,783

Total	$ 3,183,185	$ (2,024,991)	$ 1,158,194	$ (1,128,429)	$ (10,776)	$ 18,989

The following table presents gross obligations for securities sold under agreements to repurchase and for securities lending transactions by remaining contractual maturity and the class of collateral pledged:

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(in thousands)	December 31, 2018 Remaining Contractual Maturity Overnight and Continuous	Less than 30 days	30 - 60 days	61 - 90 Days	Total
Securities sold under agreements to repurchase:					
Equity securities	$—	$45,000	$65,000	$160,000	$270,000
U.S. and Non-U.S. government obligations	11,861	—	—	—	11,861
Total	11,861	45,000	65,000	160,000	281,861
Securities loaned:					
Equity securities	1,130,039	—	—	—	1,130,039
Total	$1,130,039	$—	$—	$—	$1,130,039

(in thousands)	December 31, 2017 Remaining Contractual Maturity Overnight and Continuous	Less than 30 days	30 - 60 days	61 - 90 Days	Total
Securities sold under agreements to repurchase:					
Equity securities	$—	$100,000	$90,000	$200,000	$390,000
U.S. and Non-U.S. government obligations	642	—	—	—	642
Total	642	100,000	90,000	200,000	390,642
Securities loaned:					
Equity securities	754,687	—	—	—	754,687
Total	$754,687	$—	$—	$—	$754,687

12. Derivative Instruments

The fair value of the Company’s derivative instruments on a gross basis consisted of the following at December 31, 2018 and December 31, 2017:

(in thousands)		December 31, 2018		December 31, 2017	
Derivatives Assets	Financial Statements Location	Fair Value	Notional	Fair Value	Notional
Derivative instruments not designated as hedging instruments:					
Equities futures	Receivables from broker dealers and clearing organizations	$(15,382)	$2,891,606	$(505)	$1,985,770
Commodity futures	Receivables from broker dealers and clearing organizations	69,235	11,595,215	971	21,231,001
Currency futures	Receivables from broker dealers and clearing organizations	(9,432)	3,756,914	26,548	3,994,412
Fixed income futures	Receivables from broker dealers and clearing organizations	(28)	18,694	73	44,395

Options	Financial instruments owned	11,899	659,101	7,045	682,369
Currency forwards	Financial instruments owned	2,792,373	171,288,432	2,045,487	124,000,221

Derivatives Liabilities	Financial Statements Location	Fair Value	Notional	Fair Value	Notional
Derivative instruments not designated as hedging instruments:					
Equities futures	Payables to broker dealers and clearing organizations	$468	$106,487	$(575)	$142,658
Commodity futures	Payables to broker dealers and clearing organizations	(375)	54,782	(1,602)	130,042
Currency futures	Payables to broker dealers and clearing organizations	(30,643)	6,239,725	(13,947)	7,756,958

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Fixed income futures	Payables to broker dealers and clearing organizations	93	8,591	(1	2,584
Options	Financial instruments sold, not yet purchased	11,051	608,756	5,839	681,147
Currency forwards	Financial instruments sold, not yet purchased	2,720,749	171,252,220	2,432,017	123,993,234
Derivative instruments designated as hedging instruments:					
Currency forwards	Financial instruments sold, not yet purchased	(792	13,501	(514	16,115

Amounts included in receivables from and payables to broker-dealers and clearing organizations represent net variation margin on long and short futures contracts.

The following table summarizes the net gain from derivative instruments not designated as hedging instruments under ASC 815, which are recorded in trading income, net, and from those designated as hedging instrument under ASC 815, which are recorded in accumulated other comprehensive income in the accompanying consolidated statements of comprehensive income for the years ended December 31, 2018, 2017, and 2016.

		Years Ended December 31,		
(in thousands)	Financial Statements Location	2018	2017	2016
Derivative instruments not designated as hedging instruments:				
Futures	Trading income, net	$(309,598)	$290,609	$559,626
Currency forwards	Trading income, net	174,310	2,603	1,915
Options	Trading income, net	(6,161)	(7,166)	(410)
Others	Trading income, net	—	—	(6)
		$(141,449)	$286,046	$561,125
Derivative instruments designated as hedging instruments:				
Foreign exchange - forward contract	Accumulated other comprehensive income	$63	$(642)	—

13. Revenues from Contracts with Customers

Revenue Recognition

The Company adopted ASC Topic 606, Revenue from Contracts with Customers as of January 1, 2018 in the consolidated financial statements by applying the modified retrospective method. The Company’s revenue recognition methods for its contracts with customers prior to the adoption of Topic 606 are consistent with its methods after the adoption of Topic 606. Accordingly, the adoption of the new standard did not result in a transition adjustment to opening retained earnings, and as a result, revenues for contracts with customers would not have been adjusted in prior periods and are not presented herein on an adjusted basis.

The new revenue guidance does not apply to revenue associated with financial instruments, including loans and securities that are accounted for under other U.S. GAAP, and as a result, did not have an impact on the elements of the Company’s consolidated statement of comprehensive income most closely associated with financial instruments, including trading income, net and interest and dividend income. The new standard primarily impacts the presentation of the following revenue streams:

- Commissions, net. The Company earns commission revenue by acting as an agent on behalf of customers. The Company's performance obligations consist of trade execution and clearing services and are satisfied on the trade date; accordingly, commission revenues are recorded on the trade date. Commission revenues are paid on settlement date; therefore, a receivable is recognized as of the trade date. Under a commission management program, the Company allows institutional clients to allocate a portion of their gross commissions to pay for research and other services provided by third parties. As the Company acts as an agent in these transactions, it records such expenses on a net basis within Commissions and technology services in the consolidated statements of comprehensive income.

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- Technology services. The Company's technology services revenues consist of technology licensing fees and agency commission fees. Technology licensing fees are earned from third parties for licensing of the Company's proprietary risk management and trading infrastructure technology and the provision of associated management and hosting services. These fees include both upfront and annual recurring fees as well as, in certain cases, contingent fees based on customer revenues, which represent variable consideration. The services offered under these contracts are delivered as an integrated package and are interdependent and have the same pattern of transfer to the customer; accordingly, the Company measures and recognizes them as a single performance obligation. The performance obligation is satisfied over time, and, therefore, revenue is recognized as time passes. Variable consideration has not been included in the transaction price as the amount of consideration is contingent on factors outside the Company's control and thus it is not probable that a significant reversal of cumulative revenue recognized will not occur. Recurring fees, which exclude variable consideration, are billed and collected on a quarterly basis and are included within Receivables from broker dealers and clearing organizations.

Disaggregation of Revenues

The following table presents the Company's revenue from contracts with customers disaggregated by the services described above, by timing of revenue recognition, reconciled to the Company's segments, for the year ended December 31, 2018:

	Year Ended December 31, 2018			
(in thousands)	Market Making	Execution Services	Corporate	Total
Revenues from Contracts with Customers:				
Commissions, net	$28,813	$150,206	$—	$179,019
Technology services	—	5,320	—	5,320
Total revenue from contracts with customers	28,813	155,526	—	184,339
Other sources of revenue	1,355,662	340,807	(2,090)	1,694,379
Total revenues	1,384,475	496,333	(2,090)	1,878,718
Timing of revenue recognition:				
Services transferred at a point in time	1,384,475	491,013	(2,090)	1,873,398
Services transferred over time	—	5,320	—	5,320
Total revenues	$1,384,475	$496,333	$(2,090)	$1,878,718

Information on Remaining Performance Obligations and Revenue Recognized

As of December 31, 2018, the aggregate amount of the transaction price allocated to the performance obligations relating to Technology Services revenues that are unsatisfied (or partially unsatisfied) was not material.

Contract Assets and Contract Liabilities

The timing of the revenue recognition may differ from the timing of payment from customers. The Company records a receivable when revenue is recognized prior to payment, and when the Company has an unconditional right to payment. The Company records a contract liability when payment is received prior to the time at which the satisfaction of the service obligation occurs. Receivables related to revenues from contracts with customers amounted to $1.7 million and $7.1 million as of December 31, 2018 and December 31, 2017, respectively.

14. Income Taxes

Income before income taxes and noncontrolling interest is as follows for the years ended December 31, 2018, 2017, and 2016:

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	For the Year Ended December 31,		
	2018	2017	2016
(in thousands)			
U.S. operations	$659,937	$70,484	$138,950
Non-U.S. operations	36,426	42,680	40,641
	$696,363	$113,164	$179,591

The provision for income taxes consists of the following for the years ended December 31, 2018, 2017, and 2016:

	For the Year Ended December 31,		
(in thousands)	2018	2017	2016
Current provision (benefit)			
Federal	$49,047	$(9,991)	$2,690
State and Local	18,697	65	38
Foreign	4,276	1,219	5,210
Deferred provision (benefit)			
Federal	4,986	106,415	13,547
State and Local	(1,599)	(3,380)	194
Foreign	764	(62)	(428)
Provision for income taxes	$76,171	$94,266	$21,251

The reconciliation of the tax provision at the U.S. Federal Statutory Rate to the provision for income taxes for the years ended December 31, 2018, 2017, and 2016:

	For the Year Ended December 31,		
	2018	2017	2016
(in thousands, except percentages)			
Tax provision at the U.S. federal statutory rate	21.0 %	35.0 %	35.0 %
Less: rate attributable to noncontrolling interest	(10.2)	(19.1)	(24.4)
State and local taxes, net of federal benefit	1.9	(1.9)	1.3
Impact of 2017 Tax Act on deferred tax assets	—	80.1	—
Impact of 2017 Tax Act on tax receivable agreement obligation	—	(12.9)	—
Non-deductible expenses, net	(0.3)	1.9	—
Other, net	(1.5)	0.2	—
Effective tax rate	10.9 %	83.3 %	11.9 %

The components of the deferred tax assets and liabilities as of December 31, 2018, and 2017 are as follows

	December 31,	
(in thousands)	2018	2017
Deferred income tax assets		
Tax Receivable Agreement	$167,117	$101,594
Share-based compensation	9,419	5,213
Intangibles	12,738	14,547
Fixed assets and other	21,088	13,425
Tax credits and net operating loss carryforwards	44,972	50,867
Less: Valuation allowance on net operating loss carryforwards and tax credits	(44,947)	(43,544)
Total deferred income tax assets	$210,387	$142,102
Deferred income tax liabilities		

Intangibles	10,028	16,342
Total deferred income tax liabilities	$10,028	$16,342

Subsequent to consummation of the Reorganization Transactions and the IPO, the Company is subject to U.S. federal, state and local income tax at the rate applicable to corporations less the rate attributable to the noncontrolling interest in Virtu Financial. These noncontrolling interests are subject to U.S. taxation as partnerships. Accordingly, for years ended December 31, 2018, 2017 and 2016, the income attributable to these noncontrolling interests is reported in the consolidated statements of comprehensive income, but the related U.S. income tax expense attributable to these noncontrolling interests is not reported by the Company as it is the obligation of the individual partners. Income tax expense is also affected by the differing effective tax rates in foreign, state and local jurisdictions where certain of the Company's subsidiaries are subject to corporate taxation.

Included in Other assets on the consolidated statements of financial condition at December 31, 2018 and December 31, 2017 are current income tax receivables of $41.1 million and $115.2 million, respectively. The balance at December 31, 2018 primarily comprises income taxes due to the Company from federal, state and local, and foreign tax jurisdictions based on income before taxes, and the balance at December 31, 2017 primarily comprises the income tax benefit of KCG net operating losses that were generated prior to the Acquisition of KCG and are eligible to be carried back by the Company. Included in Accounts payable and accrued expenses and other liabilities on the consolidated statements of financial condition at December 31, 2018 and December 31, 2017 are current tax liabilities of $10.3 million and $7.6 million, respectively. The balances primarily comprise income taxes owed to federal, state and local, and foreign tax jurisdictions based on income before taxes.

Deferred income taxes arise primarily due to the amortization of the deferred tax assets recognized in connection with the IPO (Note 6 "Tax Receivable Agreements") and the Acquisition of KCG (Note 3 "Acquisition of KCG"), differences in the valuation of financial assets and liabilities, and other temporary differences arising from the deductibility of compensation, depreciation, and other expenses in different time periods for book and income tax return purposes.

There are no expiration dates on the deferred tax assets. The Company's deferred tax asset at December 31, 2017 includes an alternative minimum tax credit carryforward of $0.6 million, which can be either refunded over a period of years or applied against future income tax liability pursuant to the 2017 Tax Act. The provisions of ASC 740 require that carrying amounts of deferred tax assets be reduced by a valuation allowance if, based on the available evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Accordingly, the need to establish valuation allowances for deferred tax assets is assessed periodically with appropriate consideration given to all positive and negative evidence related to the realization of the deferred tax assets. As a result of the Acquisition of KCG, the Company has non-U.S. net operating losses at December 31, 2018 and December 31, 2017 of $239.3 million and $231.8 million, respectively, and has recorded a related deferred tax asset of $44.9 million and $43.5 million, respectively. A full valuation allowance was also recorded against this deferred tax asset at December 31, 2018 and December 31, 2017 as it is more likely than not that this deferred tax asset will not be realized. No valuation allowance against the remaining deferred taxes was recorded as of December 31, 2018 and December 31, 2017 because it is more likely than not that these deferred tax assets will be fully realized.

The Company is subject to taxation in U.S. federal, state, local and foreign jurisdictions. As of December 31, 2018, the Company's tax years for 2013 through 2017 and 2010 through 2017 are subject to examination by U.S. and non-U.S. tax authorities, respectively. As a result of the Acquisition of KCG, the Company has assumed any KCG tax exposures. KCG is currently subject to U.S. federal income tax examinations for 2013 through 2017, and to non-U.S. income tax examinations for the tax years 2007 through 2017. In addition, the Company is subject to state and local income tax examinations in various jurisdictions for the tax years 2013 through 2017. The final outcome of these examinations is not yet determinable. However, the Company anticipates that adjustments to the unrecognized tax benefits, if any, will not result in a material change to the financial condition, results of operations and cash flows.

The Company's policy for recording interest and penalties associated with audits is to record such items as a component of income or loss before income taxes and noncontrolling interest. Penalties, if any, are recorded in operations and administrative expense and interest received or paid is recorded in other, net or operations and administrative expense in the consolidated statement of comprehensive income.

The Company had $7.3 million of unrecognized tax benefits as of December 31, 2018, all of which would affect the Company's effective tax rate if recognized. The Company has determined that there are no uncertain tax positions that would have a material impact on the Company’s financial position as of December 31, 2018.

(in thousands)	December 31, 2018
Balance at December 31, 2017	$ 7,300
Increase from Acquisition of KCG	—
Decreases based on tax positions related to prior period	(840)
Increase based on tax positions related to current period	868
Balance at December 31, 2018	$ 7,333

The 2017 Tax Act was signed into law on December 22, 2017 and significantly revises the U.S. corporate income tax

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by, among other things, lowering the statutory corporate tax rate from 35% to 21%, and eliminating certain deductions. As of December 31, 2017, the Company recorded a reduction of its deferred tax assets for the impact of the 2017 Tax Act of approximately $90.6 million, which was primarily composed of the remeasurement of federal net deferred tax assets as a result of the permanent reduction in the U.S. statutory corporate tax rate from 35% to 21%. During the year ended December 31, 2018, the Company did not make any further adjustments due to the 2017 Tax Act. The Company has completed its determination of the accounting implications of the 2017 Tax act on its tax balances.

15. Commitments, Contingencies and Guarantees

At December 31, 2018, minimum rental commitments under non-cancellable leases are approximately as follows:

	Minimum Rental Commitments			
Year Ending December 31	Capital	Operating	Subleases	Net Rental Commitments
2019	$21,983	$32,755	(8,979)	45,759
2020	11,283	30,473	(9,324)	32,432
2021	1,651	25,564	(8,844)	18,371
2022	—	22,710	(8,552)	14,158
2023	—	21,456	(8,695)	12,761
Thereafter	—	113,779	(36,312)	77,467
Total minimum lease payments	$34,917	$246,737	$(80,706)	$ 200,948

Total operating lease expense, net of amortization expense related to landlord incentives, for the years ended December 31, 2018, 2017, and 2016, was approximately $12.7 million, $13.1 million, and $2.4 million, respectively. Occupancy lease expense for the years ended December 31, 2018, 2017, and 2016 of $12.5 million, $12.9 million, and $1.3 million, respectively, is included within operations and administrative expenses in the consolidated statements of comprehensive income. Communication equipment lease expense for the years ended December 31, 2018, 2017, and 2016 of $0.2 million, $0.2 million, and $1.1 million, respectively, is included within communication and data processing in the accompanying consolidated statements of comprehensive income.

Legal Proceedings

In the ordinary course of business, the nature of the Company’s business subjects it to claims, lawsuits, regulatory examinations or investigations and other proceedings. The Company and its subsidiaries are subject to several of these matters at the present time. Given the inherent difficulty of predicting the outcome of litigation and regulatory matters, particularly in regulatory examinations or investigations or other proceedings in which substantial or indeterminate damages or fines are sought, or where such matters are in the early stages, the Company cannot estimate losses or ranges of losses for such matters where there is only a reasonable possibility that a loss may be incurred. In addition, there are numerous factors that result in a greater degree of complexity in class-action lawsuits as compared to other types of litigation. There can be no assurance that these legal proceedings will not have a material adverse effect on the Company’s results of operations in any future period, and a material judgment, fine or sanction could have a material adverse impact on the Company’s financial condition, results of operations and cash flows. However, it is the opinion of management, after consultation with legal counsel that, based on information currently available, the ultimate outcome of these matters will not have a material adverse impact on the business, financial condition or operating results of the Company, although they might be material to the operating results for any particular reporting period. The Company carries directors’ and officers’ liability insurance coverage for potential claims, including securities actions, against the Company and its respective directors and officers.

In connection with the Acquisition of KCG, a previously filed complaint, which was initially captioned Greenway v. KCG Holdings, Inc., et al., Case No. 2017-421-JTL and filed on behalf of a putative class in Delaware Chancery Court, was recaptioned Chester County Employees' Retirement Fund v. KCG Holdings, Inc., et al., amended and refiled on February 14, 2018 to include claims for the alleged breach of fiduciary duties against former KCG board members, claims against each of the Company and Jefferies LLC for allegedly aiding and abetting the KCG board members' alleged breaches of fiduciary duty and a claim against the Company and Jefferies LLC for alleged civil conspiracy. The amended complaint was again amended on July 16, 2018 with the filing of the Verified Second Amended Class Action Complaint (the "Second Amended Complaint") to include additional factual allegations. No amount of damages is stated in the Second Amended Complaint, against which Virtu intends to defend vigorously.

On January 29, 2019, the Company was named as a defendant in Ford v. ProShares Trust II, et al., No. 19-cv-886. The complaint was filed in federal district court in New York on behalf of a putative class, and asserts claims against the Company and numerous other financial institutions under Section 11 of the Securities Act of 1933 in connection with trading in a ProShares inverse-volatility ETF. The complaint does not specify the amount of alleged damages. The Company believes that the claims are without merit and intends to defend the lawsuit vigorously. Additionally, on February 27, 2019, the Company was named as a defendant in Bittner v. ProShares Trust, et al., No. 19-cv-1840. The complaint was filed in federal district court in New York on behalf of a putative class, and asserts substantially similar allegations to those in the Ford complaint. The complaint does not specify the amount of alleged damages. The Company believes that the claims are without merit and intends to defend the lawsuit vigorously.

Other Legal and Regulatory Matters

The Company owns subsidiaries including regulated entities that are subject to extensive oversight under federal, state and applicable international laws as well as self-regulatory organization ("SRO") rules. Changes in market structure and the need to remain competitive require constant changes to the Company's systems, order routing and order handling procedures. The Company makes these changes while continuously endeavoring to comply with many complex laws and rules. Compliance, surveillance and trading issues common in the securities industry are monitored by, reported to, and/or reviewed in the ordinary course of business by the Company's regulators in the U.S. and abroad. As a major order flow execution destination, the Company is named from time to time in, or is asked to respond to a number of regulatory matters brought by U.S. regulators, foreign regulators, SROs, as well as actions brought by private plaintiffs, which arise from its business activities. There has recently been an increased focus by regulators on Anti-Money Laundering and sanctions compliance by broker-dealers and similar entities, as well as an enhanced interest on suspicious activity reporting and transactions involving microcap securities. In addition, there has been an increased focus by Congress, federal and state regulators, SROs and the media on market structure issues, and in particular, high frequency trading, best execution, internalization, ATS manner of operations, market fragmentation and complexity, colocation, cybersecurity, access to market data feeds and remuneration arrangements, such as payment for order flow and exchange fee structures. From time to time, the Company is the subject of requests for information and documents from the SEC, FINRA and other regulators. It is the Company's practice to cooperate and comply with the requests for information and documents.

The Company is currently the subject of various regulatory reviews and investigations by federal and foreign regulators and SROs, including the SEC and the Financial Industry Regulatory Authority. In some instances, these matters may rise to a disciplinary action and/or a civil or administrative action. For example, the Autorité des Marchés Financiers ("AMF") fined the Company’s European subsidiary in the amount of €5.0 million (approximately $5.4 million) based on its allegations that the subsidiary of a predecessor entity engaged in price manipulation and violations of the AMF General Regulation and Euronext Market Rules. The fine was subsequently reduced in 2017 to €3.3 million (approximately $3.9 million) and recently was reduced to €3.0 million. The Company has fully reserved for the monetary penalty as of December 31, 2018 and anticipates paying the fine during the year ended December 31, 2019.

Representations and Warranties; Indemnification Arrangements

In the normal course of its operations, the Company enters into contracts that contain a variety of representations and warranties in addition to indemnification obligations. The Company's maximum exposure under these arrangements is currently unknown, as any such exposure could relate to claims not yet brought or events which have not yet occurred. For example, in November 2013, KCG sold Urban Financial of America, LLC ("Urban"), the reverse mortgage origination and securitization business previously owned by Knight Capital Group, Inc., to an investor group now known as Finance of America Reverse, LLC ("FAR"). Pursuant to the terms of the Stock Purchase Agreement between KCG and FAR, Virtu has certain continuing obligations related to KCG's prior ownership of Urban and has been and, in the future may be, advised by FAR of potential claims thereunder.

Consistent with standard business practices in the normal course of business, the Company has provided general indemnifications to its managers, officers, directors, employees, and agents against expenses, legal fees, judgments, fines, settlements, and other amounts actually and reasonably incurred by such persons under certain circumstances as more fully disclosed in its operating agreement. The overall maximum amount of the obligations (if any) cannot reasonably be estimated as it will depend on the facts and circumstances that give rise to any future claims.

16. Capital Structure

The Company has four classes of authorized common stock. The Class A Common Stock and the Class C Common Stock have one vote per share. The Class B Common Stock and the Class D common stock, par value $0.00001 per share (the "Class D Common Stock") have 10 votes per share. Shares of the Company’s common stock generally vote together as a single class on all matters submitted to a vote of the Company’s stockholders.

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During the period prior to the Reorganization Transactions and IPO, Class A-2 profits interests and Class B interests in Virtu Financial were issued to Employee Holdco (as defined below) on behalf of certain key employees and stakeholders. In connection with the Reorganization Transactions, all Class A-2 profits interests and Class B interests were reclassified into non-voting common interest units (the "Virtu Financial Units"). As of December 31, 2018 and December 31, 2017, respectively, there were 8,760,755 and 12,301,067 Virtu Financial Units outstanding, respectively, and 3,540,312, 1,930,468, and 1,162,891 Virtu Financial Units and corresponding Class C Common Stock were exchanged into Class A Common Stock, forfeited or repurchased during the years ended December 31, 2018, 2017, and 2016, respectively.

Amended and Restated 2015 Management Incentive Plan

The Company’s board of directors and stockholders adopted the 2015 Management Incentive Plan, which became effective upon consummation of the IPO, and was subsequently amended and restated following receipt of approval from the Company’s stockholders on June 30, 2017. The Amended and Restated 2015 Management Incentive Plan provides for the grant of stock options, restricted stock units, and other awards based on an aggregate of 16,000,000 shares of Class A Common Stock, subject to additional sublimits, including limits on the total option grant to any one participant in a single year and the total performance award to any one participant in a single year.

Acquisition of KCG

On the Closing Date and in connection with the financing of the Acquisition of KCG, the Company issued 6,346,155 shares of Class A Common Stock to Aranda for an aggregate purchase price of approximately $99.0 million and 39,725,979 shares of Class A Common Stock to the North Island Shareholder for an aggregate purchase price of approximately $613.5 million. On August 10, 2017, the Company issued an additional 1,666,666 shares of Class A Common Stock for an aggregate purchase price of $26.0 million and an additional 338,124 shares of Class A Common Stock for an aggregate purchase price of $5.2 million. See Note 3 "Acquisition of KCG" for further details.

Share Repurchase Program

In February 2018, the Company's board of directors authorized a new share repurchase program of up to $50.0 million in Class A Common Stock and Virtu Financial Units by March 31, 2019. The Company may repurchase shares from time to time in open market transactions, privately negotiated transactions or by other means. Repurchases may also be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions will be determined by the Company's management based on its evaluation of market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time without prior notice.

On July 27, 2018, the Company's board of directors authorized the expansion of the Company's share repurchase program, increasing the total authorized amount by $50.0 million to $100.0 million and extending the duration of the program through September 30, 2019. Since the inception of the program in February 2018, the Company has repurchased approximately 2.6 million shares of Class A Common Stock and Virtu Financial Units for approximately $65.9 million. The Company now has approximately $34.1 million remaining capacity for future purchases of shares of Class A Common Stock and Virtu Financial Units under the program.

Secondary Offerings

In May 2018, the Company and certain selling stockholders completed a public offering (the “May 2018 Secondary Offering”) of 17,250,000 shares of Class A Common Stock by the Company and certain selling stockholders at a purchase price per share of $27.16 (the offering price to the public of $28.00 per share minus the underwriters’ discount), which included the exercise in full by the underwriters of their option to purchase additional shares in the May 2018 Secondary Offering. The Company sold 10,518,750 shares of Class A Common Stock in the offering, the net proceeds of which were used to purchase an equivalent number of Virtu Financial Units and corresponding shares of Class D Common Stock from TJMT Holdings LLC pursuant to that certain Member Purchase Agreement, entered into on May 15, 2018 by and between the Company and TJMT Holdings LLC. The selling stockholders sold 6,731,250 shares of Class A Common Stock in the May 2018 Secondary Offering, including 2,081,250 shares of Class A Common Stock issued by the Company upon the exercise of vested stock options.

In connection with the May 2018 Secondary Offering, the Company, TJMT Holdings LLC, the North Island Stockholder, Havelock Fund Investments Pte. Ltd. ("Havelock") and Aranda entered into that certain Amendment No. 1 to the Amended and Restated Registration Rights Agreement dated April 20, 2017, by and among the Company, TJMT Holdings LLC, the North Island Stockholder, Havelock, Aranda and certain direct or indirect equityholders of the Company (the

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“Amended and Restated Registration Rights Agreement”) to add Mr. Vincent Viola and Mr. Michael Viola and to confirm that certain other persons (including the Company’s CEO) remain parties to the Amended and Restated Registration Rights Agreement.

Employee Exchanges

During the years ended December 31, 2018 and 2017, pursuant to the exchange agreement by and among the Company, Virtu Financial and holders of Virtu Financial Units, certain current and former employees elected to exchange 3,919,462 and 1,355,763 units, respectively in Virtu Financial held directly or on their behalf by Virtu Employee Holdco LLC (“Employee Holdco”) on a one-for-one basis for shares of Class A Common Stock.

As a result of the completion of the IPO, the Reorganization Transactions, the Secondary Offerings, employee exchanges, and the share issuance in connection with the Acquisition of KCG, the Company holds approximately 56.7% interest in Virtu Financial at December 31, 2018.

17. Share-based Compensation

Pursuant to the Amended and Restated 2015 Management Incentive Plan as described in Note 16 "Capital Structure", and in connection with the IPO, non-qualified stock options to purchase shares of Class A Common Stock were granted, each of which vests in equal annual installments over a period of the four years from grant date and expires not later than 10 years from the date of grant.

The following table summarizes activity related to stock options for the year ended December 31, 2018 and 2017:

	Options Outstanding			Options Exercisable	
	Number of Options	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life	Number of Options	Weighted Average Exercise Price Per Share
At December 31, 2016	8,234,000	$ 19.00	8.29	2,058,500	$ 19.00
Granted	—	—	—	—	—
Exercised	—	—	—	—	—
Forfeited or expired	(496,000)	—	—	—	—
At December 31, 2017	7,738,000	$ 19.00	7.29	3,869,000	$ 19.00
Granted	—	—	—	—	—
Exercised	(4,168,100)	19.00	—	—	—
Forfeited or expired	(83,750)	—	—	—	—
At December 31, 2018	3,486,150	$ 19.00	6.30	1,660,400	$ 19.00

The expected life has been determined based on an average of vesting and contractual period. The risk-free interest rate was determined based on the yields available on U.S. Treasury zero-coupon issues. The expected stock price volatility was determined based on historical volatilities of comparable companies. The expected dividend yield was determined based on estimated future dividend payments divided by the IPO stock price.

The Company recognized $5.8 million, $5.2 million, and $5.6 million for the years ended December 31, 2018, 2017, and 2016, respectively, of compensation expense in relation to the stock options issued and outstanding. As of December 31, 2018 and December 31, 2017, total unrecognized share-based compensation expense related to unvested stock options was $1.6 million and $7.5 million, respectively, and these amounts are to be recognized over a weighted average period of 0.3 and 1.3 years, respectively.

Class A Common Stock and Restricted Stock Units

Pursuant to the Amended and Restated 2015 Management Incentive Plan as described in Note 16 "Capital Structure", subsequent to the IPO, shares of immediately vested Class A Common Stock and restricted stock units were granted, the latter which vest over a period of up to 4 years. The fair value of the Class A Common Stock and RSUs was determined based on a volume weighted average price and is being recognized on a straight line basis over the vesting period. For the years ended December 31, 2018, 2017, and 2016, respectively, there were 594,536, 19,719, and 656,019 shares of immediately vested Class A Common Stock granted as part of year-end compensation. In addition, the Company accrued compensation expense of $11.2 million and $11.0 million for the years ended December 31, 2018 and 2017, respectively, related to immediately vested Class A Common Stock expected to be awarded as part of year-end incentive compensation, which was included in employee

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compensation and payroll taxes on the consolidated statements of comprehensive income and accounts payable and accrued expenses and other liabilities on the consolidated statements of financial condition.

The following table summarizes activity related to the RSUs:

	Number of Shares	Weighted Average Fair Value
At December 31, 2016	1,573,441	18.28
Granted	64,402	18.09
Forfeited	(258,250)	18.4
Vested	(526,546)	18.75
At December 31, 2017	853,047	17.94
Granted	1,265,899	20.89
Forfeited	(127,493)	18.30
Vested	(612,531)	18.76
At December 31, 2018	1,378,922	$ 20.03

The Company recognized $17.9 million, $9.9 million, and $6.3 million for the years ended December 31, 2018, 2017, and 2016, respectively, of compensation expense in relation to the restricted stock units. As of December 31, 2018 and December 31, 2017, total unrecognized share-based compensation expense related to unvested RSUs was $21.3 million and $14.3 million, respectively, and this amount is to be recognized over a weighted average period of 1.7 and 1.5 years, respectively.

18. Property, Equipment and Capitalized Software

Property, equipment and capitalized software consisted of the following at December 31, 2018 and 2017:

(in thousands)	2018	2017
Capitalized software costs	$108,220	$94,915
Leasehold improvements	67,995	93,624
Furniture and equipment	260,825	324,135
Total	437,040	512,674
Less: Accumulated depreciation and amortization	(323,718)	(375,656)
Total property, equipment and capitalized software, net	$113,322	$137,018

Depreciation expense for property and equipment for the years ended December 31, 2018, 2017, and 2016 was approximately $48.4 million, $36.8 million, and $19.6 million, respectively, and is included within depreciation and amortization expense in the consolidated statements of comprehensive income.

The Company’s capitalized software development costs excluding the compensation charges recognized in relation to the IPO disclosed below were approximately $24.4 million, $15.7 million, and $11.1 million for the years ended December 31, 2018, 2017, and 2016, respectively. The related amortization expense was approximately $20.4 million, $10.1 million, and $10.1 million for the years ended December 31, 2018, 2017, and 2016, respectively, and is included within depreciation and amortization expense in the consolidated statements of comprehensive income.

Additionally, in connection with the compensation charges related to non-voting interest units (formerly Class B interests) recognized upon the IPO, the Company continuously capitalized the vesting of the interest units through December 31, 2017 as the non-voting interest units were fully vested. The Company capitalized approximately $0.04

million and $0.09 million for the years ended December 31, 2017 and 2016, respectively. The amortization costs related to these capitalized compensation charges and previously capitalized compensation charges related to the Class B Interests of Virtu East MIP LLC and the Company's Class B interests were approximately $0.02 million, $0.07 million, and $0.7 million for the years ended December 31, 2018, 2017, and 2016, respectively.

19. Regulatory Requirement

As of December 31, 2018 and December 31, 2017, broker-dealer subsidiaries of the Company are subject to the SEC Uniform Net Capital Rule 15c3-1, which requires the maintenance of minimum net capital of $1.0 million for each of the three broker-dealers. Pursuant to NYSE rules, VAL was also required to maintain $1.0 million of capital in connection with the

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operation of its designated market maker ("DMM") business as of December 31, 2018. The required amount is determined under the exchange rules as the greater of (i) $1 million or (ii) $75,000 for every 0.1% of NYSE transaction dollar volume in each of the securities for which the Company is registered as the DMM. The DMM business was transferred from VFCM to VAL during the second quarter of 2018. VFCM was required to maintain $4.1 million in connection with the operation of its DMM business as of December 31, 2017.

The regulatory capital and regulatory capital requirements of these subsidiaries as of December 31, 2018 were as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Virtu Americas LLC	$ 381,211	$ 2,035	$ 379,176
Virtu Financial BD LLC	133,850	1,000	132,850
Virtu Financial Capital Markets LLC	9,457	1,000	8,457

The regulatory capital and regulatory capital requirements of these subsidiaries as of December 31, 2017 were as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Virtu Americas LLC	$ 379,875	$ 1,000	$ 378,875
Virtu Financial BD LLC	40,683	1,000	39,683
Virtu Financial Capital Markets LLC	8,308	5,114	3,194

20. Geographic Information and Business Segments

The Company operates its business in the U.S. and internationally, primarily in Europe and Asia. Significant transactions and balances between geographic regions occur primarily as a result of certain Company's subsidiaries incurring operating expenses such as employee compensation, communications and data processing and other overhead costs, for the purpose of providing execution, clearing and other support services to affiliates. Charges for transactions between regions are designed to approximate full costs. Intra-region income and expenses and related balances have been eliminated in the geographic information presented below to accurately reflect the external business conducted in each geographical region. The revenues are attributed to countries based on the locations of the subsidiaries. The following table presents total revenues by geographic area for the years ended December 31, 2018, 2017, and 2016:

	Years Ended December 31,		
(in thousands)	2018	2017	2016
Revenues:			
United States	$ 1,644,641	$ 791,044	$ 455,418
Ireland	81,531	97,637	139,642
United Kingdom	15,681	21,143	—
Singapore	136,161	113,891	106,813
Others	704	4,267	399
Total revenues	$ 1,878,718	$ 1,027,982	$ 702,272

Prior to the Acquisition of KCG, the Company was managed and operated as one business, and, accordingly, operated under one reportable segment. As a result of the acquisition of KCG, beginning in the third quarter of 2017 the Company has two operating segments: (i) Market Making and (ii) Execution Services; and one non-operating segment: Corporate.

The Market Making segment principally consists of market making in the cash, futures and options markets across global equities, options, fixed income, currencies and commodities. As a market maker, the Company commits capital on a principal basis by offering to buy securities from, or sell securities to, broker dealers, banks and institutions. The Company engages in principal trading in the Market Making segment direct to clients as well as in a supplemental capacity on exchanges, ECNs and alternative trading systems ATSs. The Company is an active participant on all major global equity and futures exchanges and also trades on substantially all domestic electronic options exchanges. As a complement to electronic market making, the cash trading business handles specialized orders and also transacts on the OTC Link ATS operated by OTC Markets Group Inc. and the AIM.

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The Execution Services segment comprises agency-based trading and trading venues, offering execution services in global equities, options, futures and fixed income on behalf of institutions, banks and broker dealers as well as technology services revenues. The Company earns commissions and commission equivalents as an agent on behalf of clients as well as between principals to transactions; in addition, the Company will commit capital on behalf of clients as needed. Agency-based, execution-only trading in the segment is done primarily through a variety of access points including: (i) algorithmic trading and order routing in global equities and options; (ii) institutional sales traders executing program, block and riskless principal trades in global equities and ETFs; and (iii) an ATS for U.S. equities. Technology licensing fees are earned from third parties for licensing of the Company’s proprietary risk management and trading infrastructure technology and the provision of associated management and hosting services.

The Corporate segment contains the Company's investments, principally in strategic trading-related opportunities and maintains corporate overhead expenses and all other income and expenses that are not attributable to the Company's other segments.

Management evaluates the performance of its segments on a pre-tax basis. Segment assets and liabilities are not used for evaluating segment performance or in deciding how to allocate resources to segments. The Company’s total revenues and income before income taxes and noncontrolling interest (“Pre-tax earnings”) by segment for the years ended December 31, 2018, 2017, and 2016 are summarized in the following table:

(in thousands)	Market Making	Execution Services	Corporate (1)	Consolidated Total
2018				
Total revenue	$1,384,475	$496,333	$(2,090)	$1,878,718
Income before income taxes and noncontrolling interest	422,648	325,043	(51,328)	696,363
2017				
Total revenue	836,707	99,135	92,140	1,027,982
Income (loss) before income taxes and noncontrolling interest	74,633	(12,519)	51,050	113,164
2016				
Total revenue	691,884	10,352	36	702,272
Income (loss) before income taxes and noncontrolling interest	176,145	4,403	(957)	179,591

(1) Amounts shown in the Corporate segment include eliminations of income statement and balance sheet items included in the Company's other segments.

21. Related Party Transactions

The Company incurs expenses and maintains balances with its affiliates in the ordinary course of business. As of December 31, 2018, and December 31, 2017 the Company had a payable of $3.0 million to and a receivable of $0.1 million from its affiliates, respectively.

The Company purchases network connections services from affiliates of Level 3 Communications (“Level 3”). An affiliate has a significant ownership interest in Level 3. The Company paid $1.5 million, $2.5 million, and $2.4 million for the years ended December 31, 2018, 2017, and 2016, respectively, to Level 3 for these services.
The Company purchases and leases computer equipment and maintenance and support from affiliates of Dell Inc. (“Dell”). An affiliate has a significant ownership interest in Dell. The Company paid $0.8 million, $2.5 million, and $2.7 million for the years ended December 31, 2018, 2017, and 2016, respectively, to Dell for these purchases and leases.

The Company purchases market data and software licenses from affiliates of Markit Group Holdings Limited (“MarkIt”). An affiliate has a significant ownership interest in MarkIt. For the year ended December 31, 2018, the amount paid to MarkIt for these services was $0.4 million. The amounts paid to MarkIt were immaterial for the years ended December 31, 2017 and 2016.

The Company has held a minority interest in SBI since 2016 (See Note 11 "Financial Assets and Liabilities"). The Company pays exchange fees to SBI for the trading activities conducted on its proprietary trading system. The Company paid $9.5 million, $6.0 million, and $2.2 million for the years ended December 31, 2018, 2017, and 2016, respectively, to SBI for these trading activities.

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The Company makes payments to two JVs (See Note 2, “Summary of Significant Accounting Policies”) to fund the construction of the microwave communication networks, and to purchase microwave communication networks, which are recorded within communications and data processing on the consolidated statements of comprehensive income. The Company made payments of $20.0 million, $8.3 million, and $0.6 million for the years ended December 31, 2018, 2017, and 2016, respectively. Additionally, in the third quarter of 2018, the Company sold certain assets to one of its joint ventures, including the intangible assets associated with leases with a net carrying value of $1.1 million at the time of sale, for $0.6 million.

22. Parent Company

VFI is the sole managing member of Virtu Financial, which guarantees the indebtedness of its direct subsidiary under the senior secured facility and the Notes (see Note 10 "Borrowings"). VFI is limited to its ability to receive distributions (including for purposes of paying corporate and other overhead expenses and dividends) from Virtu Financial under its Fourth Amended and Restated Credit Agreement and the Notes. The following financial statements (the “Parent Company Only Financial Statements”) should be read in conjunction with the consolidated financial statements of the Company and the foregoing.

Virtu Financial, Inc.
(Parent Company Only)
Condensed Statements of Financial Condition

	As of December 31,	
(In thousands except interest data)	2018	2017
Assets		
Cash	$3,841	$60,193
Deferred tax asset	189,627	124,631
Investment in subsidiary	1,730,867	1,549,162
Other assets	35,998	10,731
Total assets	$1,960,333	$1,744,717
Liabilities, redeemable membership interest and equity		
Liabilities		
Payable to affiliate	$694,028	$767,101
Accounts payable and accrued expenses and other liabilities	6	7
Tax receivable agreement obligations	214,403	147,040
Total liabilities	$908,437	$914,148
Virtu Financial Inc. Stockholders' equity		
Class A-1 — Authorized and Issued — 0 and 0 interests, Outstanding — 0 and 0 interests, at December 31, 2017 and 2016, respectively	—	—
Class A-2 — Authorized and Issued — 0 and 0 interests, Outstanding — 0 and 0 interests, at December 31, 2017 and 2016, respectively	—	—
Class A common stock (par value $0.00001), Authorized — 1,000,000,000 and 1,000,000,000 shares, Issued — 90,415,532 and 40,436,580 shares, Outstanding — 89,798,609 and 39,983,514 shares at December 31, 2017 and 2016, respectively	1	1
Class B common stock (par value $0.00001), Authorized — 175,000,000 and 175,000,000 shares, Issued and Outstanding — 0 and 0 shares at December 31, 2017 and 2016, respectively	—	—
	—	—

Class C common stock (par value $0.00001), Authorized — 90,000,000 and 90,000,000 shares, Issued — 17,880,239 and 19,810,707 shares, Outstanding — 17,880,239 and 19,810,707, at December 31, 2017 and 2016, respectively		
Class D common stock (par value $0.00001), Authorized — 175,000,000 and 175,000,000 shares, Issued and Outstanding — 79,610,490 and 79,610,490 shares at December 31, 2017 and 2016, respectively	1	1
Treasury stock, at cost, 616,923 and 453,066 shares at December 31, 2017 and 2016, respectively	(55,005)	(11,041)
Additional paid-in capital	1,010,468	900,746
Accumulated deficit	96,513	(62,129)
Accumulated other comprehensive income (loss)	(82)	2,991
Total Virtu Financial Inc. stockholders' equity	$1,051,896	$830,569
Total liabilities and stockholders' equity	$1,960,333	$1,744,717

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Virtu Financial, Inc.
(Parent Company Only)
Condensed Statements of Comprehensive Income

(in thousands)	For the Years Ended December 31, 2018	2017	2016
Revenues:			
Other Income	—	86,599	—
	—	86,599	—
Operating Expenses:			
Operations and administrative	1	181	198
Income (loss) before equity in income of subsidiary	(1)	86,418	(198)
Equity in income of subsidiary, net of tax	620,193	(83,479)	33,178
Net income	$620,192	$2,939	$32,980
Net income attributable to common stockholders	620,192	2,939	32,980
Other comprehensive income (loss):			
Foreign currency translation adjustment, net of taxes	(3,073)	3,243	(351)
Comprehensive income	$617,119	$6,182	$32,629

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Virtu Financial, Inc.
(Parent Company Only)
Condensed Statements of Cash Flows

(in thousands)	For the Years Ended December 31, 2018	2017	2016
Cash flows from operating activities			
Net income	$620,192	$2,939	$32,980
Adjustments to reconcile net income to net cash provided by operating activities:			
Equity in income of subsidiary, net of tax	(305,936)	(513,601)	157,975
Tax receivable agreement obligation reduction	79,722	(86,599)	—
Deferred taxes	(64,996)	102,973	13,197
Other	—	(8,500)	—
Changes in operating assets and liabilities:	(25,268)	(8,832)	(4,012)
Net cash provided by (used in) operating activities	303,714	(511,620)	200,140
Cash flows from investing activities			
Acquisition of KCG, net of cash acquired, described in Note 3	—	(23,908)	—
Investments in subsidiaries, equity basis	34,909	16,846	24,893
Net cash provided by (used in) investing activities	34,909	(7,062)	24,893
Cash flows from financing activities			
Distribution from Virtu Financial to non-controlling interest	(206,903)	(89,563)	(162,969)
Dividends	(100,329)	(63,814)	(37,759)
Payments on repurchase of non-voting common interest	—	(11,143)	(2,000)
Repurchase of Class C common stock	(8,216)	—	(98)
Purchase of treasury stock	(66,218)	(2,683)	(4,539)
Tax receivable agreement obligations	(12,359)	(7,045)	—
Issuance of common stock, net of offering costs	—	735,974	—
Issuance of common stock in connection with secondary offering, net of offering costs	(950)	—	16,677
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with secondary offering	—	—	(17,383)
Net cash provided by (used in) financing activities	$(394,975)	$561,726	$(208,071)
Net increase (decrease) in Cash	$(56,352)	$43,044	$16,962
Cash, beginning of period	60,193	17,149	187
Cash, end of period	$3,841	$60,193	$17,149
Supplemental disclosure of cash flow information:			
Taxes paid	$—	$133	$8,813
Non-cash financing activities			
Tax receivable agreement described in Note 6	—	1,534	—
Secondary offerings described in Note 16	—	—	1,350

23. Subsequent Events

The Company has evaluated subsequent events for adjustment to or disclosure in its consolidated financial statements through the date of this report, and has not identified any recordable or disclosable events, not otherwise reported in these consolidated financial statements or the notes thereto, except for the following:

On February 7, 2019, the Company's board of directors declared a dividend of $0.24 per share of Class A Common Stock and Class B Common Stock and per Restricted Stock Unit that will be paid on March 14, 2019 to holders of record as of February 28, 2019.

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On March 1, 2019 (the “ITG Closing Date”), the Company announced the completion of its previously announced acquisition of Investment Technology Group, Inc. (“ITG”) in a cash transaction valued at $30.30 per ITG share, or a total of approximately $1.0 billion (the “ITG Acquisition”). In connection with the ITG Acquisition, Virtu Financial, VFH and Impala Borrower LLC (the “Acquisition Borrower”), a subsidiary of the Company, entered into a Credit Agreement (the “New Credit Agreement”), with the lenders party thereto, Jefferies Finance LLC, as administrative agent and Jefferies Finance LLC and RBC Capital Markets, as joint lead arrangers and joint bookrunners. The New Credit Agreement provides (i) a senior secured first lien term loan in an aggregate principal amount of $1.5 billion, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million being borrowed by VFH to repay all amounts outstanding under its existing term loan facility and the remaining approximately $1,095 million being borrowed by the Acquisition Borrower to finance the consideration and fees and expenses to be paid in connection with the ITG Acquisition, and (ii) a $50.0 million senior secured first lien revolving facility to VFH, with a $5.0 million letter of credit subfacility and a $5.0 million swingline subfacility. After the closing of ITG Acquisition, VFH will assume the obligations of the Acquisition Borrower in respect of the acquisition term loans. Additionally, on the ITG Closing Date, the Fourth Amended and Restated Credit Agreement was terminated.

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SUPPLEMENTAL FINANCIAL INFORMATION

Consolidated Quarterly Results of Operations (Unaudited)

(in thousands, except share and per share data)	For the Three Months Ended March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018
Total revenue	$815,053	$328,126	$ 295,123	$ 440,416
Total operating expenses	346,517	278,504	265,698	291,636
Operating income	$468,536	$49,622	$ 29,425	$ 148,780
Net income	410,022	46,622	15,610	147,938
Less: net income attributable to noncontrolling interests	235,271	21,413	6,998	67,069
Net income attributable to Virtu Financial, Inc.	$174,751	$25,209	$ 8,612	$ 80,869
Net income per share of common stock:				
Basic	$1.89	$0.25	$ 0.08	$ 0.75
Diluted	$1.86	$0.24	$ 0.08	$ 0.74

(in thousands, except share and per share data)	For the Three Months Ended March 31, 2017	June 30, 2017	September 30, 2017	December 31, 2017
Total revenue	$147,287	$144,888	$ 271,286	$ 464,521
Total operating expenses	123,405	139,696	317,781	333,936
Operating income (loss)	$23,882	$5,192	$ (46,495)	$ 130,585
Net income (loss)	21,074	4,413	(39,990)	33,401
Less: net income (loss) attributable to noncontrolling interests	16,494	3,512	(26,472)	22,425
Net income (loss) attributable to Virtu Financial, Inc.	$4,580	$901	$ (13,518)	$ 10,976
Net income per share of common stock:				
Basic	$0.10	$0.01	$ (0.17)	$ 0.12
Diluted	$0.10	$0.01	$ (0.17)	$ 0.12

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, management has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) or 15d-15(e) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) as of December 31, 2018. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2018, our disclosure controls and procedures were effective to ensure information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the periods specified in the

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Securities and Exchange Commission's rules and forms and is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, with the Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error and mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of controls.

The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, a control may become inadequate because of changes in conditions or because the degree of compliance with the policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and may not be detected.

Management's Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) under the Exchange Act. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those written policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles;
- provide reasonable assurance that receipts and expenditures are being made only in accordance with management and director authorization; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of assets that could have a material effect on the consolidated financial statements.

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

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2018. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control - Integrated Framework (2013).

Based on this assessment, management determined that as of December 31, 2018, internal control over financial reporting is effective.

PricewaterhouseCoopers LLP has audited our internal control over financial reporting as of December 31, 2018; their report is included in Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Changes to Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) occurred during the quarter ended December 31, 2018 that has or is reasonably likely to materially affect, our internal control over financial reporting.

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ITEM 9B. OTHER INFORMATION

None.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

Information with respect to this Item will be set forth in our 2019 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2018. For the limited purpose of providing the information necessary to comply with this Item 10, the 2019 Proxy Statement is incorporated herein by this reference. All references to the 2019 Proxy Statement in this Part III are exclusive of the information set forth under the caption “Audit Committee Report.”

Our board of directors has adopted a Code of Business Conduct and Ethics applicable to all officers, directors and employees, which is available on our website (www.virtu.com) under “Corporate Governance.” We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding amendment to, or waiver from, a provision of our Code of Business Conduct and Ethics by posting such information on our website at the address and location specified above.

ITEM 11. EXECUTIVE COMPENSATION

Information with respect to this Item will be set forth in our 2019 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2018. For the limited purpose of providing the information necessary to comply with this Item 11, the 2019 Proxy Statement is incorporated herein by this reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information with respect to this Item will be set forth in our 2019 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2018. For the limited purpose of providing the information necessary to comply with this Item 12, the 2019 Proxy Statement is incorporated herein by this reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Information with respect to this Item will be set forth in our 2019 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2018. For the limited purpose of providing the information necessary to comply with this Item 13, the 2019 Proxy Statement is incorporated herein by this reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information with respect to this Item will be set forth in our 2019 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2018. For the limited purpose of providing the information necessary to comply with this Item 14, the 2019 Proxy Statement is incorporated herein by this reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

1. Consolidated Financial statements

The consolidated financial statement required to be filed in the Annual Report on Form 10-K are listed in Part II, Item 8 hereof.

2. Financial Statement Schedule

See “Index to Consolidated Financial Statements” in this Annual Report on Form 10-K listed in Part II, Item 8 hereof.

3. Exhibits

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Exhibit Number	Description
3.1	Reorganization Agreement, dated April 15, 2015, by and among Virtu Financial, Inc., Virtu Financial Merger Sub LLC, Virtu Financial Intermediate Holdings LLC, Virtu Financial Merger Sub II LLC, Virtu Financial Intermediate Holdings II LLC, Virtu Financial LLC, VFH Parent LLC, SLP Virtu Investors, LLC, SLP III EW Feeder I, L.P., SLP III EW Feeder II, L.P., Silver Lake Technology Associates III, L.P., SLP III EW Feeder LLC, Havelock Fund Investments Pte Ltd., Wilbur Investments LLC, VV Investment LLC, Virtu East MIP LLC, Virtu Employee Holdco LLC, TJMT Holdings LLC (f/k/a Virtu Holdings LLC), Virtu Financial Holdings LLC and the Other Class A Members named therein (incorporated herein by reference to Exhibit 2.1 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
2.2	Merger Agreement, dated April 15, 2015, by and among Virtu Financial, Inc., Virtu Financial Merger Sub LLC, Virtu Financial Intermediate Holdings LLC, SLP III EW Feeder Corp., SLP III EW Feeder I, L.P. and Havelock Fund Investments Pte Ltd (incorporated herein by reference to Exhibit 2.2 to the Company's quarterly report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
2.3	Merger Agreement, dated April 15, 2015, by and among Virtu Financial, Inc., Virtu Financial Merger Sub II LLC, Virtu Financial Intermediate Holdings II LLC and Wilbur Investments LLC (incorporated herein by reference to Exhibit 2.3 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
2.4	Agreement and Plan of Merger, dated April 20, 2017, by and among Virtu Financial, Inc., Orchestra Merger Sub, Inc. and KCG Holdings, Inc. (incorporated herein by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 001-37352) filed on April 21, 2017).
2.5	Temasek Investment Agreement, dated April 20, 2017, by and between Virtu Financial, Inc. and Aranda Investments Pte. Ltd. (incorporated herein by reference to Exhibit 2.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2017).
2.6	Agreement and Plan of Merger, dated November 6, 2018, by and among Virtu Financial, Inc., Impala Merger Sub, Inc. and Investment Technology Group, Inc. (incorporated herein by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 001-37352) filed on November 8, 2018).
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated herein by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
3.2	Amended and Restated By-laws of the Registrant (incorporated herein by reference to Exhibit 3.2 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
4.1	Indenture, dated as of June 16, 2017, by and among Orchestra Borrower LLC, Orchestra Co-Issuer , Inc. and U.S. Bank National Association (incorporated herein by reference to Exhibit 4.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
4.2	Escrow End Date Supplemental Indenture, dated as July 20, 2017, by and among VFH Parent LLC, Orchestra Borrower LLC, Orchestra Co-Issuer, Inc. Virtu Financial LLC, the other parties that are signatories thereto as Guarantors and U.S. Bank National Association (incorporated herein by reference to Exhibit 4.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
4.3†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan (incorporated herein by reference to Exhibit 4.3 to the Company's Registration Statement on Form S-8 (File No. 333-219110) filed on June 30, 2017).
4.4†	

	Form of Restricted Stock Unit and Common Stock Award Agreement (incorporated herein by reference to Exhibit 4.4 to the Company's Registration Statement on Form S-8 (File No. 333-219110) filed on June 30, 2017).
10.1†	Form of Indemnification Agreement (incorporated herein by reference to Exhibit 10.2 to the Company's Amendment No. 2 to Form S-1 Registration Statement (File No. 333-194473) filed on February 20, 2015).
10.2†	Employment Agreement, dated as of August 7, 2013, by and between Virtu Financial, Inc. and Mr. Joseph Molluso (incorporated herein by reference to Exhibit 10.23 to the Company's Amendment No. 1 to Form S-1 Registration Statement (File No. 333-194473) filed on March 26, 2014)
10.3†	Amended and Restated Employment Agreement, dated as of November 15, 2017, by and between Virtu Financial, Inc. and Mr. Douglas A. Cifu.
10.4†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of December 31, 2015, by and between Virtu Financial, Inc. and Joseph Molluso (incorporated herein by reference to Exhibit 10.12 to the Company's Quarterly Report on Form 10-Q, (File No. 001-37352) filed on August 9, 2017).

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10.5†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of December 31, 2016, by and between Virtu Financial, Inc. and Joseph Molluso (incorporated herein by reference to Exhibit 10.13 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.6†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2018, by and between Virtu Financial, Inc. and Joseph Molluso.
10.7†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2018, by and between Virtu Financial, Inc. and Douglas A. Cifu.
10.8†	Virtu Financial, Inc. 2015 Amended and Restated Management Incentive Plan Employee Restricted Stock Award Agreement, dated as of February 2, 2018, by and between Virtu Financial, Inc. and Douglas A. Cifu.
10.9	Fourth Amended and Restated Credit Agreement, dated June 30, 2017, by and between Virtu Financial LLC, VFH Parent LLC, the lenders party thereto and JPMorgan Chase Bank, N.A. (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.10	Escrow Credit Agreement, dated as of June 30, 2017, by and between Orchestra Borrower LLC, the lenders party thereto and JPMorgan Chase Bank, N.A. as Administrative Agent (incorporated herein by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.11	Stockholders Agreement, dated as of April 15, 2015, by and among Virtu Financial, Inc. and the stockholders named therein (incorporated herein by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.12	Exchange Agreement, dated as of April 15, 2015, by and among Virtu Financial LLC, Virtu Financial, Inc. and the holders of Common Units and shares of Class C Common Stock or Class D Common Stock (as each defined therein) (incorporated herein by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.13	Tax Receivable Agreement, dated as of April 15, 2015, by and among Virtu Financial, Inc., TJMT Holdings LLC, Virtu Employee Holdco, the Management Members and other pre-IPO investors (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.14	Tax Receivable Agreement, dated as of April 15, 2015, by and between Virtu Financial, Inc. and the Investor Post-IPO Stockholders (incorporated herein by reference to Exhibit 10.6 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.15	Tax Receivable Agreement, dated as of April 15, 2015, by and among Virtu Financial, Inc. and the Silver Lake Post-IPO Members (incorporated herein by reference to Exhibit 10.7 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.16	Third Amended and Restated Limited Liability Company Agreement of Virtu Financial LLC, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.17	Amended and Restated Limited Liability Company Agreement of Virtu Employee Holdco LLC, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015)
10.18	Class C Common Stock Subscription Agreement, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.10 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.19	Class D Common Stock Subscription Agreement, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.11 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.20	Voting Agreement, dated April 20, 2017, by and among Virtu Financial, Inc., Orchestra Merger Sub, Inc. and Jefferies LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, (File No. 001-37352) filed on April 21, 2017).

10.21	Stockholders Agreement, dated April 20, 2017, by and among Virtu Financial, Inc., TJMT Holdings LLC, Aranda Investments Pte. Ltd., Havelock Fund Investments Pte Ltd. and North Island Holdings I, LP (incorporated herein by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, (File No. 001-37352) filed on May 10, 2017).

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10.22	Amended and Restated Registration Rights Agreement, dated April 20, 2017, by and among Virtu Financial, Inc., TJMT Holdings LLC, Aranda Investments Pte. Ltd., Havelock Fund Investments Pte Ltd., North Island Holdings I, LP and the additional holders named therein (incorporated herein by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2017).
10.23	Second Amendment, dated as of June 2, 2017, to the Third Amended and Restated Limited Liability Company Agreement of Virtu Financial LLC, by and among Virtu Financial LLC, Virtu Financial, Inc. and TJMT Holdings LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-37352) filed on June 2, 2017).
10.24	Amended and Restated Investment Agreement, dated as of June 23, 2017, by and between Virtu Financial, Inc. and North Island Holdings I, LP (incorporated herein by reference to Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.25	Amendment No. 1, dated as of January 2, 2018, to the Fourth Amended and Restated Credit Agreement, dated June 30, 2017, by and between Virtu Financial LLC, VFH Parent LLC, the lenders party thereto and JPMorgan Chase Bank, N.A.
10.26	Third Amendment, dated as of January 5, 2018, to the Third Amended and Restated Limited Liability Company Agreement of Virtu Financial LLC, dated as of April 15, 2015.
10.27†	Employment Agreement, dated as of June 24, 2015, by and between Stephen Cavoli and Virtu Financial Operating LLC (incorporated by reference to Exhibit 10.7 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.28†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit Award Agreement, dated as of August 24, 2015, by and between Virtu Financial, Inc. and Stephen Cavoli (incorporated by reference to Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.29†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of December 31, 2016, by and between Virtu Financial, Inc. and Stephen Cavoli (incorporated by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.30†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit Agreement, dated as of March 21, 2018, by and between Virtu Financial, Inc. and Joseph Molluso (incorporated by reference to Exhibit 10.10 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.31	Underwriting Agreement, dated May 10, 2018, by and among Virtu Financial, Inc., Virtu Financial LLC, the selling stockholders and the Underwriters party thereto (incorporated herein by reference to Exhibit 1.1 to the Company's Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
10.32	Amendment No. 1 to the Amended and Restated Registration Rights Agreement, dated May 10, 2018, by and among Virtu Financial, Inc., TJMT Holdings LLC, North Island Holdings I, LP, Havelock Fund Investments Pte Ltd and Aranda Investments Pte. Ltd (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
10.33	Amendment No. 1 to Amended and Restated Lock-up Waivers Agreement, dated May 10, 2018, by and among Virtu Financial, Inc., TJMT Holdings LLC, Mr. Vincent Viola, Havelock Fund Investments Pte Ltd, Aranda Investments Pte. Ltd., North Island Holdings I, LP and the stockholders named therein (incorporated herein by reference to Exhibit 99.8 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.34	Purchase Agreement, dated May 10, 2018, by and among Virtu Financial, Inc. and TJMT Holdings LLC (incorporated herein by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
10.35	Lock-up Agreement, dated May 10, 2018, entered into by Vincent Viola (incorporated herein by reference to Exhibit 99.2 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.36	

	Lock-up Agreement, dated May 10, 2018, entered into by Michael T. Viola (incorporated herein by reference to Exhibit 99.3 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.37	Lock-up Agreement, dated May 10, 2018, entered into by TJMT Holdings LLC (incorporated herein by reference to Exhibit 99.4 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.38	Lock-up Agreement, dated May 10, 2018, entered into by Virtu Employee Holdco LLC (incorporated herein by reference to Exhibit 99.5 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).

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10.39	Amendment No. 2, dated as of September 19, 2018, to the Fourth Amended and Restated Credit Agreement, dated June 30, 2017, by and between Virtu Financial LLC, VFH Parent LLC, the lenders party thereto and JPMorgan Chase Bank, N.A. (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2018).
12.1	Statement of Calculation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends (incorporated herein by reference to Exhibit 12.1 to the Company's Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
21.1*	Subsidiaries of Virtu Financial, Inc.
23.1*	Consent of Deloitte & Touche LLP.
23.2*	Consent of PricewaterhouseCoopers LLP.
31.1*	Certification of Chief Executive Officer required by Rule 13a-14(a)/15d-14(a) under the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Chief Financial Officer required by Rule 13a-14(a)/15d-14(a) under the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase
101.LAB*	XBRL Taxonomy Extension Label Linkbase
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase
101.DEF*	XBRL Taxonomy Extension Definition Document

* Filed herewith.
†Management contract or compensatory plan or arrangement.

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EXHIBIT INDEX

Exhibit Number	Description
3.1	Reorganization Agreement, dated April 15, 2015, by and among Virtu Financial, Inc., Virtu Financial Merger Sub LLC, Virtu Financial Intermediate Holdings LLC, Virtu Financial Merger Sub II LLC, Virtu Financial Intermediate Holdings II LLC, Virtu Financial LLC, VFH Parent LLC, SLP Virtu Investors, LLC, SLP III EW Feeder I, L.P., SLP III EW Feeder II, L.P., Silver Lake Technology Associates III, L.P., SLP III EW Feeder LLC, Havelock Fund Investments Pte Ltd., Wilbur Investments LLC, VV Investment LLC, Virtu East MIP LLC, Virtu Employee Holdco LLC, TJMT Holdings LLC (f/k/a Virtu Holdings LLC), Virtu Financial Holdings LLC and the Other Class A Members named therein (incorporated herein by reference to Exhibit 2.1 to the Company’s Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
2.2	Merger Agreement, dated April 15, 2015, by and among Virtu Financial, Inc., Virtu Financial Merger Sub LLC, Virtu Financial Intermediate Holdings LLC, SLP III EW Feeder Corp., SLP III EW Feeder I, L.P. and Havelock Fund Investments Pte Ltd (incorporated herein by reference to Exhibit 2.2 to the Company’s quarterly report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
2.3	Merger Agreement, dated April 15, 2015, by and among Virtu Financial, Inc., Virtu Financial Merger Sub II LLC, Virtu Financial Intermediate Holdings II LLC and Wilbur Investments LLC (incorporated herein by reference to Exhibit 2.3 to the Company’s Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
2.4	Agreement and Plan of Merger, dated April 20, 2017, by and among Virtu Financial, Inc., Orchestra Merger Sub, Inc. and KCG Holdings, Inc. (incorporated herein by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K (File No. 001-37352) filed on April 21, 2017).
2.5	Temasek Investment Agreement, dated April 20, 2017, by and between Virtu Financial, Inc. and Aranda Investments Pte. Ltd. (incorporated herein by reference to Exhibit 2.2 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2017).
2.6	Agreement and Plan of Merger, dated November 6, 2018, by and among Virtu Financial, Inc., Impala Merger Sub, Inc. and Investment Technology Group, Inc. (incorporated herein by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 001-37352) filed on November 8, 2018).
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated herein by reference to Exhibit 3.1 to the Company’s Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
3.2	Amended and Restated By-laws of the Registrant (incorporated herein by reference to Exhibit 3.2 to the Company’s Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015).
4.1	Indenture, dated as of June 16, 2017, by and among Orchestra Borrower LLC, Orchestra Co-Issuer , Inc. and U.S. Bank National Association (incorporated herein by reference to Exhibit 4.1 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
4.2	Escrow End Date Supplemental Indenture, dated as July 20, 2017, by and among VFH Parent LLC, Orchestra Borrower LLC, Orchestra Co-Issuer, Inc. Virtu Financial LLC, the other parties that are signatories thereto as Guarantors and U.S. Bank National Association (incorporated herein by reference to Exhibit 4.2 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352)

	filed on August 9, 2017).
4.3†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan (incorporated herein by reference to Exhibit 4.3 to the Company's Registration Statement on Form S-8 (File No. 333-219110) filed on June 30, 2017).
4.4†	Form of Restricted Stock Unit and Common Stock Award Agreement (incorporated herein by reference to Exhibit 4.4 to the Company's Registration Statement on Form S-8 (File No. 333-219110) filed on June 30, 2017).
10.1†	Form of Indemnification Agreement (incorporated herein by reference to Exhibit 10.2 to the Company's Amendment No. 2 to Form S-1 Registration Statement (File No. 333-194473) filed on February 20, 2015).
10.2†	Employment Agreement, dated as of August 7, 2013, by and between Virtu Financial, Inc. and Mr. Joseph Molluso (incorporated herein by reference to Exhibit 10.23 to the Company's Amendment No. 1 to Form S-1 Registration Statement (File No. 333-194473) filed on March 26, 2014)
10.3†*	Amended and Restated Employment Agreement, dated as of November 15, 2017, by and between Virtu Financial, Inc. and Mr. Douglas A. Cifu.

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10.4†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of December 31, 2015, by and between Virtu Financial, Inc. and Joseph Molluso (incorporated herein by reference to Exhibit 10.12 to the Company's Quarterly Report on Form 10-Q, (File No. 001-37352) filed on August 9, 2017).
10.5†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of December 31, 2016, by and between Virtu Financial, Inc. and Joseph Molluso (incorporated herein by reference to Exhibit 10.13 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.6†*	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2018, by and between Virtu Financial, Inc. and Joseph Molluso.
10.7†*	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2018, by and between Virtu Financial, Inc. and Douglas A. Cifu.
10.8†*	Virtu Financial, Inc. 2015 Amended and Restated Management Incentive Plan Employee Restricted Stock Award Agreement, dated as of February 2, 2018, by and between Virtu Financial, Inc. and Douglas A. Cifu.
10.9	Fourth Amended and Restated Credit Agreement, dated June 30, 2017, by and between Virtu Financial LLC, VFH Parent LLC, the lenders party thereto and JPMorgan Chase Bank, N.A. (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.10	Escrow Credit Agreement, dated as of June 30, 2017, by and between Orchestra Borrower LLC, the lenders party thereto and JPMorgan Chase Bank, N.A. as Administrative Agent (incorporated herein by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.11	Stockholders Agreement, dated as of April 15, 2015, by and among Virtu Financial, Inc. and the stockholders named therein (incorporated herein by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.12	Exchange Agreement, dated as of April 15, 2015, by and among Virtu Financial LLC, Virtu Financial, Inc. and the holders of Common Units and shares of Class C Common Stock or Class D Common Stock (as each defined therein) (incorporated herein by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.13	Tax Receivable Agreement, dated as of April 15, 2015, by and among Virtu Financial, Inc., TJMT Holdings LLC, Virtu Employee Holdco, the Management Members and other pre-IPO investors (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.14	Tax Receivable Agreement, dated as of April 15, 2015, by and between Virtu Financial, Inc. and the Investor Post-IPO Stockholders (incorporated herein by reference to Exhibit 10.6 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.15	Tax Receivable Agreement, dated as of April 15, 2015, by and among Virtu Financial, Inc. and the Silver Lake Post-IPO Members (incorporated herein by reference to Exhibit 10.7 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.16	Third Amended and Restated Limited Liability Company Agreement of Virtu Financial LLC, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.17	Amended and Restated Limited Liability Company Agreement of Virtu Employee Holdco LLC, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352), filed on May 29, 2015)
10.18	Class C Common Stock Subscription Agreement, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.10 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on May 29, 2015).
10.19	Class D Common Stock Subscription Agreement, dated as of April 15, 2015 (incorporated herein by reference to Exhibit 10.11 to the Company's Quarterly Report on Form 10-Q, as amended (File No. 001-37352) filed on

	May 29, 2015).
10.20	Voting Agreement, dated April 20, 2017, by and among Virtu Financial, Inc., Orchestra Merger Sub, Inc. and Jefferies LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, (File No. 001-37352) filed on April 21, 2017).
10.21	Stockholders Agreement, dated April 20, 2017, by and among Virtu Financial, Inc., TJMT Holdings LLC, Aranda Investments Pte. Ltd., Havelock Fund Investments Pte Ltd. and North Island Holdings I, LP (incorporated herein by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, (File No. 001-37352) filed on May 10, 2017).

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10.22	Amended and Restated Registration Rights Agreement, dated April 20, 2017, by and among Virtu Financial, Inc., TJMT Holdings LLC, Aranda Investments Pte. Ltd., Havelock Fund Investments Pte Ltd., North Island Holdings I, LP and the additional holders named therein (incorporated herein by reference to Exhibit 10.3 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2017).
10.23	Second Amendment, dated as of June 2, 2017, to the Third Amended and Restated Limited Liability Company Agreement of Virtu Financial LLC, by and among Virtu Financial LLC, Virtu Financial, Inc. and TJMT Holdings LLC (incorporated herein by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K (File No. 001-37352) filed on June 2, 2017).
10.24	Amended and Restated Investment Agreement, dated as of June 23, 2017, by and between Virtu Financial, Inc. and North Island Holdings I, LP (incorporated herein by reference to Exhibit 10.8 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352) filed on August 9, 2017).
10.25	Amendment No. 1, dated as of January 2, 2018, to the Fourth Amended and Restated Credit Agreement, dated June 30, 2017, by and between Virtu Financial LLC, VFH Parent LLC, the lenders party thereto and JPMorgan Chase Bank, N.A.
10.26	Third Amendment, dated as of January 5, 2018, to the Third Amended and Restated Limited Liability Company Agreement of Virtu Financial LLC, dated as of April 15, 2015.
10.27†	Employment Agreement, dated as of June 24, 2015, by and between Stephen Cavoli and Virtu Financial Operating LLC (incorporated by reference to Exhibit 10.7 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.28†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit Award Agreement, dated as of August 24, 2015, by and between Virtu Financial, Inc. and Stephen Cavoli (incorporated by reference to Exhibit 10.8 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.29†	Virtu Financial, Inc. 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of December 31, 2016, by and between Virtu Financial, Inc. and Stephen Cavoli (incorporated by reference to Exhibit 10.9 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.30†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit Agreement, dated as of March 21, 2018, by and between Virtu Financial, Inc. and Joseph Molluso (incorporated by reference to Exhibit 10.10 to the Company’s Quarterly Report on Form 10-Q (File No. 001-37352), filed on May 7, 2018).
10.31	Underwriting Agreement, dated May 10, 2018, by and among Virtu Financial, Inc., Virtu Financial LLC, the selling stockholders and the Underwriters party thereto (incorporated herein by reference to Exhibit 1.1 to the Company’s Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
10.32	Amendment No. 1 to the Amended and Restated Registration Rights Agreement, dated May 10, 2018, by and among Virtu Financial, Inc., TJMT Holdings LLC, North Island Holdings I, LP, Havelock Fund Investments Pte Ltd and Aranda Investments Pte. Ltd (incorporated herein by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
10.33	Amendment No. 1 to Amended and Restated Lock-up Waivers Agreement, dated May 10, 2018, by and among Virtu Financial, Inc., TJMT Holdings LLC, Mr. Vincent Viola, Havelock Fund Investments Pte Ltd, Aranda Investments Pte. Ltd., North Island Holdings I, LP and the stockholders named therein (incorporated herein by reference to Exhibit 99.8 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.34	Purchase Agreement, dated May 10, 2018, by and among Virtu Financial, Inc. and TJMT Holdings LLC (incorporated herein by reference to Exhibit 10.2 to the Company’s Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
10.35	Lock-up Agreement, dated May 10, 2018, entered into by Vincent Viola (incorporated herein by reference to Exhibit 99.2 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.36	

	Lock-up Agreement, dated May 10, 2018, entered into by Michael T. Viola (incorporated herein by reference to Exhibit 99.3 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.37	Lock-up Agreement, dated May 10, 2018, entered into by TJMT Holdings LLC (incorporated herein by reference to Exhibit 99.4 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).
10.38	Lock-up Agreement, dated May 10, 2018, entered into by Virtu Employee Holdco LLC (incorporated herein by reference to Exhibit 99.5 to the Report on Schedule 13D of Vincent Viola (File No. 005-89306), filed on May 15, 2018).

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10.39	Amendment No. 2, dated as of September 19, 2018, to the Fourth Amended and Restated Credit Agreement, dated June 30, 2017, by and between Virtu Financial LLC, VFH Parent LLC, the lenders party thereto and JPMorgan Chase Bank, N.A. (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2018).
12.1	Statement of Calculation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends (incorporated herein by reference to Exhibit 12.1 to the Company's Current Report on Form 8-K (File No. 001-37352), filed on May 15, 2018).
21.1*	Subsidiaries of Virtu Financial, Inc.
23.1*	Consent of Deloitte & Touche LLP.
23.2*	Consent of PricewaterhouseCoopers LLP.
31.1*	Certification of Chief Executive Officer required by Rule 13a-14(a)/15d-14(a) under the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Chief Financial Officer required by Rule 13a-14(a)/15d-14(a) under the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith).
32.2*	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith).
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase
101.LAB*	XBRL Taxonomy Extension Label Linkbase
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase
101.DEF*	XBRL Taxonomy Extension Definition Document

* Filed herewith.
†Management contract or compensatory plan or arrangement.

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SIGNATURES

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Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

			Virtu Financial, Inc.
DATE:	March 1, 2019	By:	/s/ Douglas A. Cifu
			Douglas A. Cifu
			Chief Executive Officer
DATE:	March 1, 2019	By:	/s/ Joseph Molluso
			Joseph Molluso
			Chief Financial Officer

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Douglas A. Cifu and Joseph Molluso, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and re-substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and other documents in connection therewith the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully and to all intents and purposes as he or she might or could do in person hereby ratifying and confirming all that said attorneys-in-fact and agents, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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Pursuant to the requirements of the Securities and Exchange Act of 1934, as amended, the report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated on March 1, 2019.

Signature	Title
/s/ Douglas A. Cifu Douglas A. Cifu	Chief Executive Officer (Principal Executive Officer) and Director
/s/ Joseph Molluso Joseph Molluso	Chief Financial Officer (Principal Financial and Accounting Officer)
/s/ Robert Greifeld Robert Greifeld	Chairman of the Board of Directors
/s/ Vincent Viola Vincent Viola	Chairman Emeritus and Director
/s/ William F. Cruger, Jr. William F. Cruger, Jr.	Director
/s/ John D. Nixon	Director

John
D.
Nixon

/s/
Christopher
Quick Director
Christopher
Quick

/s/
John
F.
Sandner Director
John
F.
Sandner

/s/
Joseph
J.
Grano,
Jr. Director
Joseph
J.
Grano,
Jr.

/s/
Glenn
Hutchins Director
Glenn
Hutchins

/s/
Michael
T.
Viola Director
Michael
T.
Viola

/s/
David
Urban Director
David
Urban