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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

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.)
One Liberty Plaza **165 Broadway** **New York, New York**	**10006**
(Address of principal executive offices)	(Zip Code)

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

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

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Class A common stock, par value $0.00001 per share	VIRT	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 ☒ 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 ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

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

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

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

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

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

Class of Stock	Shares Outstanding as of February 28, 2020
Class A common stock, par value $0.00001 per share	119,921,738
Class C common stock, par value $0.00001 per share	12,162,851
Class D common stock, par value $0.00001 per share	60,091,740

The aggregate market value of voting and non-voting common stock held by non-affiliates of the registrant as of June 30, 2019 was approximately $1,677.1 million, based on the closing price of $21.78 per share as reported by NASDAQ on such date.

Portions of Part III of this Form 10-K are incorporated by reference from the Registrant's definitive proxy statement (the "2020 Proxy Statement") for its 2020 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.

VIRTU FINANCIAL, INC. AND SUBSIDIARIES
INDEX TO FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2019

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.

PART I

CAUTIONARY NOTE REGARDING 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,” “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 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 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 Acquisition, and the integration of ITG (as defined below) 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;
- 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), political conditions (such as military actions and terrorist activities), and other global events such as fires, natural disasters, pandemics, or extreme weather;
- 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.

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. Leveraging our global market structure expertise and scaled, multi-asset infrastructure, we provide our clients a robust product suite including offerings in execution, liquidity sourcing, analytics and broker-neutral, multi-dealer platforms in workflow technology. Our product offerings allow our clients to trade on hundreds of venues across over 50 countries and in multiple asset classes, including global equities, ETFs, foreign exchange, futures, fixed income and myriad other commodities. Our integrated, multi-asset analytics platform provides a range of pre and post-trade services, data products and compliance tools that our clients rely upon to invest, trade and manage risk across global markets. We believe that our broad diversification, in combination with our proprietary technology platform and low-cost structure, gives us the scale necessary to grow our business around the globe as we service clients and facilitate risk transfer between global capital markets participants by providing liquidity, 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 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, liquidity centers, and our clients. 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 ensuring that market participants have an efficient means to transfer risk and analyze the quality of execution. We believe that market participants benefit from the increased liquidity, lower overall trading costs and execution transparency that Virtu provides.

Our execution services and client solutions products are designed to be transparent, because we believe transparency makes markets more efficient and helps investors make better, more informed decisions. We use the latest technology to create and 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.

On July 20, 2017 (the “KCG 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.

On March 1, 2019 (the “ITG Closing Date”), we completed our acquisition of Investment Technology Group, Inc. (“ITG”) for approximately $1.0 billion (the “ITG Acquisition”). As described in “Acquisition of Investment Technology Group, Inc.” below, ITG was a global financial technology company that offered a suite of trading and financial technology products to help leading brokers and asset managers improve returns for investors around the world. ITG empowered traders and investors to reduce the end-to-end cost of implementing investment decisions via liquidity, execution, analytics and workflow technology solutions.

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 SEC registered broker-dealers. We are registered with the Central Bank of Ireland and the Financial Conduct Authority in the UK for our European trading, the Investment Industry Regulatory Organization of Canada and the Ontario Securities Commission for our Canadian trading, and the Monetary Authority of Singapore, Securities and Futures Commission of Hong Kong, and Australian Securities and Investments Commission for our Asia-Pacific (“APAC”) 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.

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 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. The scale and diversity of our market making activities provide added liquidity and transparency to the financial markets, which we believe are necessary and valuable components to the efficient functioning of markets 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 the financial 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 while 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 temporarily widen as market participants are more willing to transact immediately and as a result market makers’ capture rate per notional amount transacted increases.

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 across our offices in North America, Asia Pacific, and Europe. This function provides coverage for our full technology platform, including our market data, order routing, transaction processing, and risk management technology modules.

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 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.

Global 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 and other market centers around the world, 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.

Our strategy in the Americas and the rest of world is to utilize high speed, efficient connections to all of the registered exchanges and market centers, including the London Stock Exchange, Cboe Europe Equities, 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.

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, 2019, we are the Lead Market Maker or Designated Liquidity Provider in over 600 ETPs listed in the Americas.

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, 2019, we are the registered Market Maker in over 500 ETPs listed abroad. We also hold a minority stake in SBI Japannext Co., Ltd. (“SBI”), a leading Proprietary Trading System in Japan.

Global Fixed Income, Currencies and Commodities (“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, 2019, 2018 and 2017, 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.

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 on the U.S. futures exchanges.

Execution Services

We offer agency execution services and trading venues that provide transparent trading in global equities, ETFs, fixed income, currencies, and commodities to institutions, banks and broker dealers. We generally earn commissions when transacting as an agent for our clients. Within the Execution Services segment, we offer the following categories of products and services:

- Agency-based, execution-only trading, done through a variety of access points including:
  - algorithmic trading and order routing;
  - institutional sales traders who offer portfolio trading and single stock sales trading providing execution expertise for program, block and riskless principal trades in global equities and ETFs; and
  - matching of client conditional orders in POSIT Alert and in our ATSs, including Virtu MatchIt, POSIT and MATCHNow.

- Workflow Technology, and our integrated, broker-neutral trading tools delivered across the globe including order and execution management systems and order management software applications and network connectivity; and

- Trading Analytics, including
  - tools enabling portfolio managers and traders to improve pre-trade and real-time execution performance and post-trade analysis;
  - portfolio construction and optimization decisions; and
  - securities valuation.

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 2019 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 ATSs. Our ATSs provide 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. Certain broker-dealer affiliates also engage in foreign exchange trading to facilitate equity trades by clients in different currencies as well as other client foreign exchange trades unrelated to equity trades. 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.

Agency-based, Execution-only Trading

Our 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 EMS as well as internal crossing through our registered ATSs. Our algorithms and order routers help portfolio managers and traders to trade orders quickly, comprehensively and cost-efficiently from our EMS or our Order Management System (“OMS”) and most third-party trading platforms. Our institutional sales traders offer portfolio trading and single stock sales trading which provides execution expertise for program, block and riskless principal trades in global equities and ETFs.

We provide matching of client orders in our ATSs, including Virtu MatchIt, POSIT ATS, POSIT MTF, and MATCHNow. MatchIt provides two crossing sessions, a Main Session and a Conditional Session. The Main Session provides continuous crossing with price/time priority and is available to our subsidiaries and external subscribers. The Conditional Session accepts conditional orders with price/size priority, and is only available to our subsidiaries. POSIT provides continuous crossing of non-displayed (or dark) equity orders and price improvement opportunities within the published best bid and offer price. POSIT Alert is a block crossing mechanism within POSIT. POSIT Alert unites liquidity sourced directly from trader OMSs with conditional orders from electronic participants for matching using a conditional order process. In addition, POSIT MTF Auction provides frequent batch auctions which display indicative size/price prior to trade execution. MATCHNow is an ATS for Canadian-listed equities, operated by our wholly-owned subsidiary, TriAct Canada Marketplace LP (“TriAct”). MATCHNow is a dark pool ATS in Canada, offering a call auction marketplace with a non-displayed book with trades executed at or within the Canadian National Best Bid and Offer.

Workflow Technology

Our workflow technology tools are designed to meet the needs of a broad range of trading styles. As an example, Triton Valor, the most recent release of our multi-asset and broker-neutral Triton EMS, helps to bring integrated execution and analytical tools to the user’s desktop, including the Algo Wheel, an algorithmic way for a portfolio manager to intelligently allocate volume between different providers. Triton supports global list-based and single-stock trading, as well as futures and options capabilities and includes a fully integrated and supported financial services communications network (ITG Net). Triton also provides traders with access to scalable, low-latency, multi-asset trading opportunities. Our OMS combines portfolio management, compliance functionality, and a fully integrated and supported financial services communications network (ITG Net) with a consolidated, outsourced service for global trade matching and settlement that provides connectivity to the industry’s post-trade utilities, as well as support for multiple, flexible settlement communication methods and a real-time process monitor.

ITG Net is our global financial communications network that provides reliable and fully-supported connectivity between buy-side and sell-side firms for multi-asset order routing and indication-of-interest messages with Virtu and third-party trading platforms. ITG Net supports approximately 9,000 global billable connections to more than 600 unique execution destinations worldwide. ITG Net also integrates the trading products of third-party brokers and ATSs into our OMS and EMS platforms.

RFQ-hub, a multi-asset platform for global listed and over-the-counter (“OTC”) financial instruments, connects buy-side trading desks and portfolio managers with a large network of sell-side market makers in Europe, North America and the Asia Pacific region, allowing these trading desks to place requests-for-quotes (“RFQ”) in negotiated equities, futures, options, swaps, convertible bonds, structured products and commodities. RFQ-hub is available as a stand-alone platform and is also integrated with Triton.

We offer administration and consolidation of client commission arrangements across a wide range of our clients’ preferred brokerage and research providers through Commission Manager, a robust, multi-asset, web-based commission management portal, and Budget Tracker, which enables asset managers to set research allocations and create and track budgets for their end clients. We also offer a comprehensive research payment account solution, enabling clients to unbundle research and execution payments to comply with the European Markets in Financial Instruments Directive (“MiFID”) II regulations.

Analytics

Our trading analytics suite helps enable portfolio managers and traders to analyze execution performance before the trade happens (pre-trade) and during trading (real-time) by providing trading analytics and risk models that help them perform predictive analysis, manage risk, change strategy and reduce trading costs. Trading costs are affected by multiple factors, such as execution strategies, time horizon, volatility, spread, volume and order size. Our trading analytics suite is designed to gauge the effects of these factors and aid in the understanding of the trade-off between market impact and opportunity cost. For example, our transaction cost analysis ("TCA") offers measurement and reporting capabilities to analyze costs and performance across the trading continuum. TCA assesses trading performance and implicit costs under various market conditions so users can adjust strategies and potentially reduce costs and boost investment performance. TCA is also available for foreign exchange transactions (FX TCA) and for corporate and sovereign bond trading (FI TCA).

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 operating segments.

Risk Management

We are acutely focused on risk management. Our market making activities involve taking on risk positions and our execution services business involves providing trading, clearing and related services on behalf of customers and clients. These activities expose us to market, counterparty, operational, and regulatory risk. We aim to mitigate these risks through prudent risk management practices.

We have appointed a Chief Risk Officer ("CRO") who reports independently into the Board Risk Committee. We have created a Risk Advisory Committee, which includes key personnel from each of our regions globally and is comprised of our CRO and our Chief Compliance Officer ("CCO"), members of our senior management team, senior technologists and traders, and certain senior officers. Our Risk Advisory Committee provides advice to our CRO and our senior management team in connection with our key risk management policies, procedures and risk limits. 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.

Our approach to managing risk includes the following practices:

- *Pre-Trade Risk Controls*. Messages that leave our trading environment must first pass through a series of preset risk controls, which are intended to minimize the likelihood of unintended activities by our algorithms. Certain risk controls, when triggered, result in a strategy lockdown, which requires a manual reset in order to restart the strategy.

- *Model Restrictions*. Trading models have limits in place which restrict individual position sizes, sector exposures and imbalanced portfolios with significant directional risks. Trading strategies are designed to automatically reduce exposures when limits are reached. The models are monitored continuously by the trading team and the risk managers.

- *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 ("VaR"), and Equity Betas
    - Stress and Scenario analysis
    - Concentration measures
    - Profit and Loss analysis
    - Trading performance reports

- Our trading 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 automated controls over our business. Key automated controls include:

- ◦ 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.

Our approach to risk mitigation can in some cases limit our overall opportunities, including by adding a degree of latency to our trading infrastructure which can, for example, prevent us from earning outsized returns in times of extreme market volatility. We believe that these trade-offs are necessary to properly limit risk.

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 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.

Competition

The financial services industry generally, and the institutional securities brokerage business in which we operate, are extremely competitive, and we expect them to remain so for the foreseeable future. Our full suite of products does not directly compete with any particular firm; however, individual products compete with various firms and consortia:

Within the market making segment, 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.

In the execution services segment, our algorithmic and smart routing products, as well as our high-touch agency execution and portfolio trading internalizers services, compete with agency-only and other sell-side firms. Our trading and portfolio analytics compete with offerings from several sell-side-affiliated and independent companies. POSIT and MATCHNow compete with various national and regional securities exchanges, ATSs, Electronic Communication Networks, MTFs and systematic internalizers for trade execution services. Our EMS, OMS, connectivity and RFQ services compete with offerings from independent vendors, agency-only firms and other sell-side firms.

Some of our competitors in market making and execution services 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, patents, 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 21, 2020, we had approximately 1,012 employees, all of whom were employed on a full-time basis and in good standing. 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 SEC-registered broker-dealers: Virtu Americas LLC, Virtu ITG LLC, Virtu Financial BD LLC, Virtu Financial Capital Markets LLC, and Virtu AlterNet Securities LLC. Both Virtu Americas LLC and Virtu ITG LLC are broker-dealers regulated by the SEC and their designated examining authority is the Financial Industry Regulatory Authority, Inc. (“FINRA”). Virtu Americas LLC is also registered as a floor trader firm with the Commodity Futures Trading Commission (“CFTC”), while Virtu ITG LLC is registered as an introducing broker with the CFTC and is a member of the National Futures Association (“NFA”). Virtu Financial BD LLC is regulated by the SEC and its designated examining authority is the Chicago Stock Exchange. Virtu AlterNet Securities LLC and Virtu Financial Capital Markets LLC are also regulated by the SEC and are members of FINRA. Over the course of 2019, in furtherance of our integration efforts, we worked to consolidate U.S. brokerage activity into Virtu Americas LLC and, to that effect, submitted applications to withdraw the SEC registrations of Virtu Financial BD LLC and Virtu Financial Capital Markets LLC. We expect to continue this consolidation in 2020.

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 Depository Trust & Clearing Corporation (“DTCC”). We use the services of prime brokers, primarily in other asset classes, who provide us direct market access to markets and often cross-margining and margin financing in return for execution and clearing fees. 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 activities from Dublin and through our 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 EMEA execution services trading activity from Dublin, London, and Paris through our subsidiary Virtu ITG Europe Limited. Virtu ITG Europe Limited is authorized and regulated by the Central Bank of Ireland as an “Investment Firm” and maintains branch offices in London and Paris. Virtu ITG Europe Limited’s London branch is registered with the UK Financial Conduct Authority (“FCA”) and its Paris branch is registered with the Banque de France. Virtu ITG Europe Limited also operates a multi-lateral trading facility (“MTF”) in Ireland and Virtu ITG UK Limited, a U.K. investment firm, operates a MTF in the U.K. Virtu ITG UK Limited is an investment firm which is authorized and regulated with the FCA.

We conduct our Asia-Pacific (“APAC”) market making 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 (“MAS”) for an investment incentive arrangement. We conduct our APAC execution services trading activity from Singapore, Hong Kong, and Australia through our subsidiaries Virtu ITG Singapore Pte. Limited, Virtu ITG Hong Kong Limited, and Virtu ITG Australia Limited. Virtu ITG Singapore Pte. Limited is a holder of a Capital Markets Services License from the MAS, with the MAS acting as its principal regulator. Virtu ITG Hong Kong Limited is a participating organization of the Hong Kong Stock Exchange and a holder of a securities dealer’s license issued by the Securities and Futures Commission of Hong Kong (“SFC”), with the SFC acting as its principal regulator. Virtu ITG Australia Limited is a market participant of the Australian Securities Exchange (“ASX”) and Chi X Australia Limited, and is also a holder of an Australian Financial Services

License issued by the Australian Securities and Investments Commission ("ASIC"). Virtu ITG Australia Limited's principal regulators are the ASX and ASIC.

Our Canadian market making activities are conducted through our subsidiary Virtu Financial Canada ULC. Virtu Financial Canada ULC is a Canadian broker-dealer registered as an investment dealer with the Investment Industry Regulatory Organization of Canada ("IIROC"). Our Canadian execution services trading activities are conducted through our subsidiary Virtu ITG Canada Corp. Virtu ITG Canada Corp. is a Canadian broker-dealer registered as an investment dealer with IIROC, Ontario Securities Commission ("OSC"), the Autorité Des Marchés Financiers in Quebec, Alberta Securities Commission ("ASC"), British Columbia Securities Commission, Manitoba Securities Commission, New Brunswick Securities Commission, Nova Scotia Securities Commission and Saskatchewan Financial Services Commission. Virtu ITG Canada Corp. is also registered as a Futures Commission Merchant in Ontario and Manitoba and Derivatives Dealer in Quebec.

Most aspects of our business are subject to 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, FINRA, CFTC, NFA, U.S. state securities regulators, the European Securities and Markets Authority ("ESMA") in the European Union, the Central Bank of Ireland, FCA in the UK, Banque de France in France, MAS in Singapore, SFC in Hong Kong, ASX and ASIC in Australia, IIROC and OSC in Canada, 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, 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, customer protection, reporting, record retention, market access and the conduct of officers, employees and other associated persons.

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. It 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 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, profit-sharing relationships, and exchange fee and rebate structures.

The SEC and other SROs 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, as well as 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 commencing in 2020. 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 implementation date has been stayed pursuant to the SEC's Partial Stay Order of March 28, 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 and execution services 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 represented 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 introduced 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 requires European firms to conduct all trading on European Trading Venues including Regulated Markets, MTFs, Organized Trading Facilities, Systematic Internalisers or equivalent third country venues, requires market makers, such as Virtu Financial Ireland Limited, to post firm quotes at competitive prices and supplemented requirements with regards to investment firms' pre-trade risk controls related to the safe operation of electronic systems. MiFID II also imposed 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. The MiFID II regime is currently under review, with European Union authorities considering making further changes to the regime. Various consultation papers have been published on different aspects of the MiFID II regime, including, on February 4, 2020, an ESMA Consultation Paper entitled "MiFID II/MiFIR Review Report on the Transparency Regime for Equity and Equity-like Instruments, the Double Volume Cap Mechanism and the Trading Obligations for Shares" and, on February 17, 2020, a European Commission public consultation on the review of the MiFIDII/MiFIR regulatory framework.

Each of these legislative and regulatory 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 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").

On March 1, 2019, the Company completed the acquisition of Investment Technology Group, Inc. and its subsidiaries ("ITG") in an all-cash transaction valued at $30.30 per ITG share, for a total of approximately $1.0 billion (the "ITG Acquisition").

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 62.2% interest in Virtu Financial at December 31, 2019. 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 equity holders 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 82.1% of the combined voting power of our outstanding common stock as of December 31, 2019. 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 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, 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., One Liberty Plaza, 165 Broadway, New York, NY, 10006, 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, emergencies and pandemics, 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.

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 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 may be more accurate or complete than the information we have, and 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 and are subject to other competitive dynamics which could 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. Across our businesses, our relationships with clients, customers and other counterparties could be adversely impacted by competitive dynamics across the industry, including but not limited to consolidation in the retail brokerage industry or asset management industry.

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 2019 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.

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, 2019, we had an aggregate of $1,957.2 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 an uncommitted facility (the "Uncommitted Facility"), subject to a maximum borrowing limit of $200 million, which was subsequently increased to $300 million in January 2020, under which we had $30.0 million of borrowings outstanding as of December 31, 2019. We are also a party to a $600.0 million broker-dealer revolving credit facility (the "Committed Facility") under which we had no borrowings outstanding as of December 31, 2019. 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 $586.0 million under which we had $134.3 million in borrowings outstanding at December 31, 2019.

The credit agreement entered into on March 1, 2019 by and among Virtu Financial, VFH Parent LLC, a Delaware limited liability company and a subsidiary of Virtu Financial ("VFH"), Impala Borrower LLC (the "Acquisition Borrower"), a subsidiary of the Company, the lenders party thereto and Jeffries Finance LLC, as administrative agent (as amended on October 9, 2019 and as further amended from time to time, the "Credit Agreement") contains, 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 addition, the revolving credit facility under the Credit Agreement is subject to a springing financial covenant which, if in effect, 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 covenants contained in the 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 Credit Agreement 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 Credit Agreement, among other things:

- will not be required to lend any additional amounts to us; or
- 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;

any of which could result in 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 Credit Agreement. If we were unable to repay such indebtedness, the lenders under the Credit Agreement could proceed to exercise remedies against the collateral granted to them to secure that indebtedness. If any of our outstanding indebtedness under the Credit Agreement 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 Credit Agreement, the Uncommitted Facility and the Committed 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 have entered into, and may enter into additional, 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's Rule 613 in respect of consolidated audit trail 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 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. 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. MiFID II requires certain types of firms, including Virtu Financial Ireland Limited, to post firm quotes at competitive prices and supplements previous requirements with regard to investment firms’ risk controls related to the safe operation of electronic systems. MiFID II also imposes 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. The MiFID II regime is currently under review, with European Union authorities considering making further changes to the regime. Various consultation papers have been published on different aspects of the MiFID II regime, including, on February 4, 2020, an ESMA Consultation Paper entitled “MiFID II/MiFIR Review Report on the Transparency Regime for Equity and Equity-like Instruments, the Double Volume Cap Mechanism and the Trading Obligations for Shares” and, on February 17, 2020, a European Commission public consultation on the review of the MiFIDII/MiFIR regulatory framework. 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 have been 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 the European Union, the European Securities and Markets Authority (“ESMA”); 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 deliver required annual filings in all jurisdictions in a timely manner, 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, Regulation SCI, 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. For example, 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 2017, the fine was reduced to €3.3 million (approximately $3.9 million) and in 2018 was reduced to €3.0 million (approximately $3.4 million). 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.

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. In 2016, Estonia, one of the original members, withdrew its support for the proposal. As of December 31, 2019 such tax has not yet been implemented within the European Union although draft legislative proposals are currently under consideration. 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 2019 U.S. legislators, including U.S. Senators Kirsten Gillibrand and Brian Schatz, as well as potential Democratic candidates for the 2020 U.S. Presidential election, 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.

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 or result in other negative circumstances, 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.

A failure in our computer systems and software, operations, capacity constraints, malfunctions and delays, as well as human error or malfeasance, 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, economic or political developments, pandemics, weather events, power loss, utility or internet outages, computer viruses, intentional acts of vandalism, war, 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.

These disruptions may occur as a result of events that affect only our buildings or systems or those of such third parties, or as a result of events with a broader impact globally, regionally or in the cities where those buildings or systems are located, including, but not limited to, natural disasters, economic or political developments, pandemics, weather events, war, terrorism and other similar events.

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. Our ability to conduct business may be adversely impacted by a disruption in the infrastructure that supports our businesses and the communities in which we are located. This may include a disruption involving electrical, satellite, undersea cable or other communications, internet, transportation or other services facilities used by us, our employees or third parties with which we conduct business. If we are prevented from using any of our 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 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. Following extensions to that period, a Withdrawal Agreement and Political Declaration were reached between the U.K. and the E.U. On January 23, 2020, the European Union (Withdrawal Agreement) Act 2020 received Royal Assent in the U.K., and on January 31, 2020 the U.K. left the E.U. Pursuant to the terms of the Withdrawal Agreement. The U.K. and E.U. are in a transition period which is currently set to end as of December 31, 2020. During the transition period, the current rules on trade, travel, and business for the U.K. and E.U. continue to apply, with new U.K. regimes set to take effect on January 1, 2021. We presently access the E.U. markets primarily through our Irish regulated subsidiaries and have a U.K. subsidiary, which is an authorized and regulated investment firm with permission to operate a U.K. MTF, and we therefore 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 the end of the U.K.'s transition period with 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. Poor future relations between the U.K. and E.U. 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 the future relationship between the E.U. and the U.K., the U.K. could also lose access to the single E.U. market and to the global trade deals negotiated by the E.U. on behalf of its members. Disruptions and uncertainty caused by these events may also cause our clients to closely monitor their costs and reduce their spending budget on our services. Any of these effects of the U.K.'s departure from the E.U., 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 incur material losses on foreign exchange transactions entered into on behalf of clients and be exposed to material liquidity risk due to counterparty defaults or errors.

We enable clients to settle cross-border equity transactions in their local currency through the use of foreign exchange contracts. These arrangements typically involve the delivery of securities or cash to a counterparty that is not processed through a central clearing facility in exchange for a simultaneous receipt of cash or securities. We may operate as either a principal or agent in these transactions. As a result, a default by one of our counterparties prior to the settlement of their obligation could materially impact our liquidity and have a material adverse effect on our financial condition and results of operations.

In addition, we are exposed to operational risk. Employee and technological errors in executing, recording or reporting foreign exchange transactions may result in material losses due to the large size of such transactions and the underlying market risk in correcting such errors.

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,Virtu ITG Europe Limited and Virtu ITG UK Limited, our regulated subsidiaries in the Ireland and the U.K., are subject to change in control regulations promulgated by the Central Bank of Ireland and/or the FCA, 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, including Douglas Cifu, our Chief Executive Officer and Alexander Ioffe, 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 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. 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.

We may incur losses as a result of unforeseen or catastrophic events, including the emergence of a pandemic, terrorist attacks, extreme weather events or other natural disasters.

The occurrence of unforeseen or catastrophic events, including the emergence of a pandemic, such as the Ebola or Zika viruses, the 2019 novel coronavirus (COVID-19), or other widespread health emergency (or concerns over the possibility of such an emergency), terrorist attacks, extreme terrestrial or solar weather events or other natural disasters, could create economic and financial disruptions, and could lead to operational difficulties (including travel limitations) that could impair our ability to manage our businesses.

Risks Related to Our Organization and Structure

We are a holding company and our principal asset is our 62.2% 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 62.2% of the Virtu Financial Units as of December 31, 2019. 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 Credit Agreement governing our First Lien Term Loan Facility (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:

- 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 Credit Agreement, 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 82.1% 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 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 covenants contained in our Credit Agreement and our obligation to comply with these covenants may adversely affect our ability to operate our business.

The covenants in our Credit Agreement may negatively impact our ability to finance future operations or capital needs or to engage in other business activities. Our Credit Agreement restricts 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 Credit Agreement 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 Credit Agreement 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.

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 may elect not to or may 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"), the Founder Post-IPO Member, 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 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 affiliate 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 affiliate 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 subsequent offering (including, without limitation, the Secondary Offerings), (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, the purchases and exchanges completed in connection with our subsequent public offerings, the Secondary Offerings, and exchanges by employees and other Virtu Post-IPO Members will range from approximately $3.3 million to $20.7 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 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 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, 2019, we had 118,257,141 shares of Class A Common Stock outstanding, excluding 3,689,991 shares of Class A Common Stock issuable pursuant to the Amended and Restated 2015 Management Incentive Plan (as defined below) and 72,978,918 shares of Class A Common Stock issuable upon potential exchanges and/or conversions. Of these shares, the 61,312,535 shares sold in the IPO and the Secondary Offerings are freely tradable without further restriction under the Securities Act. The remaining 132,917,013 shares of Class A Common Stock outstanding as of December 31, 2019 (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 132,917,013 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, 3,689,991 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 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 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 Credit Agreement 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 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 Acquisition

Significant costs and significant indebtedness were incurred in connection with the consummation of the ITG Acquisition and significant costs have been and will be incurred in connection with 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.

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 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 incurred $1.5 billion of new indebtedness in connection with the ITG Acquisition, the proceeds of which were used to refinance existing indebtedness in the amount of approximately $400 million, and the remainder of which funded the ITG Acquisition and related fees and expenses. The incremental debt we incurred in connection with the ITG Acquisition 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 Acquisition involves the integration of two companies that have previously operated independently. The success of the ITG Acquisition and its 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 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 Acquisition 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 Acquisition, 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. For example, ITG is currently the subject of various regulatory reviews and investigations by federal, state and foreign regulators and SROs, including the SEC and FINRA. In some instances, these matters may ultimately result in 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.

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 are 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 One Liberty Plaza, 165 Broadway, New York, NY 10006. We also lease space for our offices in the U.S., Canada, Europe, Asia and Australia. We consider the current arrangements to be sufficient for our present needs, and we are in the process of terminating or subleasing office space that we no longer need, subsequent to the consolidations in staff and technology following the Acquisition of KCG and ITG Acquisition.

ITEM 3. LEGAL PROCEEDINGS

The information required by this item is set forth in the "Legal Proceedings" section in Note 15 "Commitments, Contingencies and Guarantees" to the Company's Consolidated financial statements included in Item 8 "Financial Statements and Supplementary Data", which is incorporated by reference herein.

ITEM 4. MINE SAFETY DISCLOSURES

None.

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 B Common Stock, Class C Common Stock or Class D Common Stock.

Holders

Based on information made available to us by the transfer agent, as of February 28, 2020, there are forty-three 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

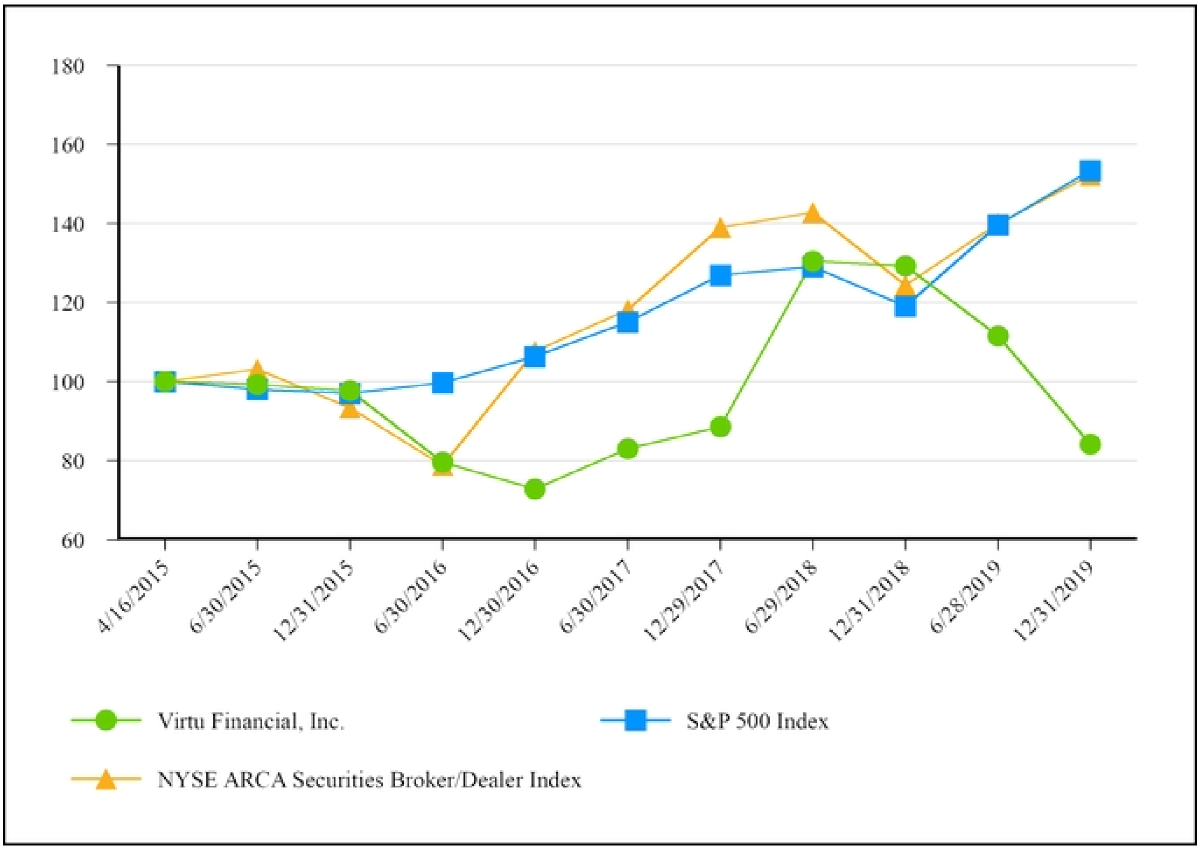
Our board of directors has adopted a policy of returning excess cash to our stockholders. Subject to the sole discretion of our board of directors and the considerations discussed below, we intend to pay dividends that will annually equal, in the aggregate, at least 70% of our net income.

The board of directors declared and we paid quarterly cash dividends of $0.24 during the years ended December 31, 2019, 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 Credit Agreement, regulatory restrictions, business prospects and other factors that the Company's board of directors considers relevant. The terms of the Credit Agreement 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 Operations - 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.

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, 2019, 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.



Index	4/16/2015	6/30/2015	12/31/2015	6/30/2016	12/30/2016	6/30/2017	12/29/2017	6/29/2018	12/31/2018	06/28/2019	12/31/2019
Virtu Financial Inc.	100.00	99.14	97.67	79.61	72.85	82.96	88.52	130.48	129.21	111.47	84.16
S&P 500	100.00	97.53	97.02	99.63	106.28	115.04	126.91	129.04	119.00	139.64	153.36
NYSE Arca Securities Broker/Dealer	100.00	103.10	93.33	78.83	107.58	118.13	139.00	142.77	124.38	140.01	152.17

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.

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. 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. The share repurchase program entitled the Company to repurchase shares from time to time in open market transactions, privately negotiated transactions or by other means. Repurchases were also permitted to be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions were determined by the Company's management based on its evaluation of market conditions, share price, legal requirements and other factors. The program expired on September 30, 2019. From the inception of the program in February 2018, the Company repurchased approximately 2.6 million shares of Class A Common Stock and Virtu Financial Units for approximately $65.9 million.

The following table contains information about the Company's purchases of its Class A Common Stock and Class C Common Stock during the three months ended December 31, 2019:

Period	Total Number of Shares Purchased (1)	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
October 1, 2019 - October 31, 2019				
Class A Common Stock / Virtu Financial Units repurchases	10,949	$ 15.76	—	
November 1, 2019 - November 30, 2019				
Class A Common Stock / Virtu Financial Units repurchases	36,931	16.53	—	
December 1, 2019 - December 31, 2019				
Class A Common Stock / Virtu Financial Units repurchases	198,506	16.32	—	
Class C Common Stock/ Virtu Financial Units repurchases	5,957	16.75	—	
Total Common Stock / Virtu Financial Unit repurchases	252,343	$ 16.34	—	$ —

(1) Includes the repurchase of 246,386 shares from employees in order to satisfy statutory tax withholding requirements upon the net settlement of equity awards for the three months ended December 31, 2019

During the year ended December 31, 2019, 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.

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, 2019:

	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	3,077,650	19.00	3,689,991
Equity compensation plans not approved by security holders	None	—	—	—
Total		3,077,650	$ 19.00	3,689,991

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, 2015. 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 the KCG Closing Date 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 the year ended December 31, 2017 comprise our results for the entire applicable period and the results of KCG from the KCG Closing Date through December 31, 2017. All periods prior to the KCG Closing Date comprise solely our results.

On March 1, 2019 we acquired ITG, which is accounted for under the acquisition method of accounting. Under the acquisition method of accounting, the assets and liabilities of ITG as of the ITG Closing Date 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 ITG Acquisition reflect ITG's and our balances, and reflect the impact of purchase accounting adjustments. The financial results for the year ended December 31, 2019 comprise our results for the entire applicable period and the results of ITG from the ITG Closing Date through December 31, 2019. All periods prior to the ITG Closing Date comprise our results without the results of ITG (and, as discussed above, with the results of KCG for the relevant periods).

The Consolidated Statements of Comprehensive Income data for the years ended December 31, 2019, 2018 and 2017 and the Consolidated Statements of Financial Condition data as of December 31, 2019 and 2018 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.

(In thousands, except share and per share data)	Year Ended December 31, 2019	2018	2017	2016	2015
Consolidated Statements of Comprehensive Income Data:					
Revenues:					
Trading income, net	$ 912,316	$ 1,266,682	$ 766,027	$ 665,465	$ 757,455
Interest and dividends income	108,778	87,508	50,407	26,419	28,136
Commissions, net and technology services(1)	498,544	184,339	116,503	10,352	10,622
Other, net(2)	10,444	340,189	95,045	36	—
Total revenues	1,530,082	1,878,718	1,027,982	702,272	796,213
Operating Expenses:					
Brokerage, exchange and clearance fees, net	284,768	301,779	256,926	221,214	232,469
Communication and data processing	209,393	176,120	131,506	71,001	68,647
Employee compensation and payroll taxes	383,713	215,556	177,489	85,295	88,026
Payments for order flow(3)	102,120	74,645	27,727	—	—
Interest and dividends expense	158,039	141,814	91,993	56,557	52,423
Operations and administrative	116,232	66,769	62,123	23,358	23,262
Depreciation and amortization	65,644	61,154	47,327	29,703	33,629
Amortization of purchased intangibles and acquired capitalized software	70,595	26,123	15,447	211	211
Termination of office leases	66,452	23,357	3,671	(319)	2,729
Debt issue cost related to debt refinancing(4)	41,132	11,727	10,460	5,579	—
Transaction advisory fees and expenses(5)	26,117	11,487	25,270	—	—
Reserve for legal matters(6)	—	—	—	—	5,440
Charges related to share based compensation at IPO(7)	—	24	772	1,755	44,194
Financing interest expense on long-term borrowings	121,859	71,800	64,107	28,327	29,254
Total operating expenses	1,646,064	1,182,355	914,818	522,681	580,284
Income (loss) before income taxes	(115,982)	696,363	113,164	179,591	215,929
Provision for (benefit from) income taxes(8)	(12,277)	76,171	94,266	21,251	18,439
Net income (loss)	(103,705)	620,192	18,898	158,340	197,490
Noncontrolling interest	45,110	(330,751)	(15,959)	(125,360)	(176,603)
Net income (loss) available for common stockholders	$ (58,595)	$ 289,441	$ 2,939	$ 32,980	$ 20,887

Earnings (loss) per share	Year Ended December 31, 2019	2018	2017	2016	2015
Basic	(0.53)	2.82	0.03	0.83	0.60
Diluted	(0.53)	2.78	0.03	0.83	0.59
Weighted average common shares outstanding					
Basic	113,918,103	100,875,793	62,579,147	38,539,091	34,964,312
Diluted	113,918,103	102,089,139	62,579,147	38,539,091	35,339,585
Cash dividends declared per share	0.96	0.96	0.96	0.96	0.72

Consolidated Statements of Financial Condition Data (in thousands):	As of December 31,				
	2019	2018	2017	2016	2015
Cash and cash equivalents	$ 732,164	$ 729,547	$ 532,887	$ 181,415	$ 163,235
Total assets	9,609,370	7,380,978	7,320,006	3,692,390	3,391,930
Senior secured credit facility	1,917,866	907,037	1,388,548	564,957	493,589
Total liabilities	8,380,434	5,886,279	6,168,428	3,157,978	2,834,060
Total Virtu Financial Inc. stockholders' equity	931,374	1,051,896	830,569	145,673	130,708
Noncontrolling interest	297,562	442,803	321,009	388,739	427,162
Total equity	$ 1,228,936	$ 1,494,699	$ 1,151,578	$ 534,412	$ 557,870

(1) In connection with the Acquisition of KCG and ITG Acquisition, we recognized a significant revenue increase in commissions, net and technology services for the years ended December 31, 2017, 2018 and 2019. 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 our 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 KCG 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, dated as of June 30, 2017 (as amended on January 2, 2018 and September 19, 2018, the “Fourth Amended and Restated Credit Agreement”), which provided for a $1,150.0 million first lien secured term loan facility, and VFH, along with Orchestra Co-Issuer Inc., an indirect subsidiary of the Company, issued senior secured second lien notes in an aggregate principal amount of $500.0 million. As discussed below in “Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations”, Virtu Financial terminated the Fourth Amended and Restated Credit Agreement in connection with the ITG Acquisition. During the refinancing and termination of the Fourth Amended and Restated Credit Agreement, a portion of certain financing costs that were scheduled to be amortized over the life of the term loan thereunder, including original issue discount and underwriting and legal fees, were accelerated and recognized at the closing of the ITG Acquisition. For the years ended December 31, 2018 and 2017, Virtu Financial made principal payments equal to $500.0 million and $250.0 million, respectively, on the term loan facility under the Fourth Amended and Restated Credit Agreement, which resulted in accelerations in the recognition of a portion of certain financing costs that were scheduled to be amortized over the life of the term loan.

On March 1, 2019, in connection with the ITG Acquisition, Virtu Financial entered into the Credit Agreement. The Credit Agreement provided for (i) a senior secured first lien term loan in an aggregate principal amount of $1,500 million, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million borrowed by VFH to repay all amounts outstanding under the Fourth Amended and Restated Credit Agreement and the remaining approximately $1,095 million borrowed by the Acquisition Borrower to finance the consideration and fees and expenses 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.

On October 9, 2019 (the “Amendment Closing Date”), VFH entered into Amendment No. 1 to the Credit Agreement to, among other things, provide for $525.0 million in aggregate principal amount of incremental term loans, and amend the related collateral agreement. On the Amendment Closing Date, VFH borrowed the incremental term loans and used the proceeds together with available cash to redeem all of the $500.0 million aggregate principal amount of the outstanding 6.750% Senior Secured Second Lien Notes (as defined below) due 2022 issued by VFH and Orchestra Co Issuer, Inc., a Delaware corporation and indirect subsidiary of the Company, and pay related fees and expenses.

See Note 10 “Borrowings” in Item 8 “Financial Statements and Supplement Data” of this Annual Report on Form 10-K.

(5) 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, (ii) the Acquisition of KCG, which was consummated on July 20, 2017, (iii) the sale of BondPoint, which was consummated on January 2, 2018, and (iv) the ITG Acquisition, which was consummated on March 1, 2019.

(6) 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). The incremental charge was subsequently annulled in 2019.

(7) Represents non-cash compensation expenses in respect of the outstanding time vested Class B interests of Virtu Financial (the “Virtu Financial 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.

(8) 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.

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, 2019, 2018 and 2017 and should be read in conjunction with the audited consolidated financial statements of Virtu Financial, Inc. (the “Company”). 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,” “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 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 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 Acquisition, and the integration of ITG (as defined below) 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;
- 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), political conditions (such as military actions and terrorist activities), and other global events such as fires, natural disasters, pandemics or extreme weather;
- 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, 2019 and 2018 reflect our operations and those of our consolidated subsidiaries. As discussed in Note 1 “Organization and Basis of Presentation” and in Note 3 “ITG Acquisition” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K, we have accounted for the ITG Acquisition under the acquisition method of accounting. Under the acquisition method of accounting, the assets and liabilities of ITG, as of the ITG Closing Date (as defined below), 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 ITG Closing Date reflect ITG's and our balances, and reflect the impact of purchase accounting adjustments, including revised amortization and depreciation expense for acquired assets. The financial results for the year ended December 31, 2019 comprise our results for the entire applicable period and the results of ITG from the ITG Closing Date through December 31, 2019. All periods prior to the ITG Closing Date comprise our results without the results of ITG.

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. Leveraging our global market structure expertise and scaled, multi-asset technology infrastructure, we provide our clients with a robust product suite including offerings in execution, liquidity sourcing, analytics and broker-neutral, multi-dealer platforms in workflow technology. Our product offerings allow our clients to trade on hundreds of venues across over 50 countries and in multiple asset classes, including global equities, ETFs, foreign exchange, futures, fixed income and other commodities. Our integrated, multi-asset analytics platform provides a range of pre and post-trade services, data products and compliance tools that our clients rely upon to invest, trade and manage risk across global markets. We believe that our broad diversification, in combination with our proprietary technology platform and low-cost structure gives us the scale necessary to grow our business around the globe as we service clients and facilitate risk transfer between global capital markets participants by providing liquidity, 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, liquidity centers, and our clients. 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 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 enhancing the overall health and efficiency of the global capital markets by ensuring that market participants have an efficient means to invest, transfer risk and analyze the quality of executions. We believe that market participants benefit from the increased liquidity, lower overall trading costs and execution transparency that Virtu provides.

Our execution services and client solutions products are transparent, because we believe transparency makes markets more efficient and helps investors make better, more informed decisions. We use the latest technology to create and 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.

On July 20, 2017, the KCG Closing Date, the Company completed the all-cash Acquisition of 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.

As described below, we completed the ITG Acquisition on the ITG Closing Date. ITG was a global financial technology company that offered a suite of trading and financial technology products to help leading brokers and asset managers improve returns for investors around the world. ITG empowered traders and investors to reduce the end-to-end cost of implementing investments via liquidity, execution, analytics and workflow technology solutions.

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.

Market Making

We leverage cutting edge technology to provide competitive and deep liquidity that helps to create more efficient markets around the world. As a market maker and liquidity provider, we stand ready, at any time, to buy or sell a broad range of securities, and we generate profits by buying and selling large volumes of securities and other financial instruments and earning small bid/ask spreads. Our market structure expertise, broad diversification, and scalable execution technology enable 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 latest technology to create and deliver liquidity to the global markets and automate our market making, risk controls, and post-trade processes. As a market maker, we interact directly with hundreds of retail brokers, Registered Investment Advisors, private client networks, sell-side brokers, and buy-side institutions.

We believe the overall level of volumes and realized volatility in the various markets we serve have the greatest impact on our market making 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 increases.

Execution Services

We offer agency execution services and trading venues that provide transparent trading in global equities, ETFs, fixed income, currencies, and commodities to institutions, banks and broker-dealers. We generally earn commissions when transacting as an agent for our clients. Agency-based, execution-only trading within this segment is done 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 conditional orders in POSIT Alert and in our ATSs, including Virtu MatchIt, POSIT and MATCHNow. We also earn revenues (a) by providing our proprietary technology and infrastructure to select third parties for a service fee, (b) through workflow technology and our integrated, broker-neutral trading tools delivered across the globe, including order and execution management systems and order management software applications and network connectivity and (c) through trading analytics, including (1) tools enabling portfolio managers and traders to improve pre-trade, real-time and post-trade execution performance, (2) portfolio construction and optimization decisions and (3) securities valuation.

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 Investment Technology Group, Inc.

On March 1, 2019, the ITG Closing Date, we announced the completion of the ITG Acquisition, a cash transaction valued at $30.30 per ITG share, or a total of approximately $1.0 billion. In connection with the ITG Acquisition, Virtu Financial, VFH, and the Acquisition Borrower entered into the 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 Credit Agreement provided (i) the First Lien Term Loan Facility (as defined below) in an aggregate principal amount of $1.5 billion, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million borrowed by VFH to repay all amounts outstanding under its existing term loan facility and the remaining approximately $1,095.0 million borrowed by the Acquisition Borrower to finance the consideration and fees and expenses to be paid in connection with the ITG Acquisition, and (ii) the First Lien Revolving Facility, 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 the ITG Acquisition, VFH assumed the obligations of the Acquisition Borrower in respect of the acquisition term loans. Additionally, on the ITG Closing Date, the Company's fourth amended and restated credit agreement, dated as of June 30, 2017 (as amended on January 2, 2018 and September 19, 2018, the "Fourth Amended and Restated Credit Agreement") was terminated.

As described below, the Credit Agreement was amended on October 9, 2019, on which date VFH borrowed and additional $525.0 million of incremental first lien term loans, the proceeds of which were used together with cash on hand to redeem the Notes (as defined below). The Indenture (as defined below) was fully terminated following such redemption.

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 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”). 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, 2019, options to purchase 1,613,750 shares in the aggregate were forfeited and 4,521,600 options were exercised. The fair value of the stock option grants was determined through the application of the Black-Scholes-Merton model and was 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 is recognized on a straight-line basis over the vesting period.

Amended and Restated Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan

On the ITG Closing Date, the Company assumed the Amended and Restated ITG 2007 Omnibus Equity Compensation Plan, dated as of June 8, 2017 (the “Amended and Restated ITG 2007 Equity Plan”) and certain stock option awards, restricted stock unit awards, deferred stock unit awards and performance stock unit awards granted under the Amended and Restated ITG 2007 Equity Plan (the “Assumed Awards”). The Assumed Awards are subject to the same terms and conditions that were applicable to them under the Amended and Restated ITG 2007 Equity Plan, except that (i) the Assumed Awards relate to shares of the Company’s Class A Common Stock, (ii) the number of shares of Class A Common Stock subject to the Assumed Awards was the result of an adjustment based upon an Exchange Ratio (as defined in the Agreement and Plan of Merger by and between the Company, Impala Merger Sub, Inc., a Delaware corporation and an indirect wholly owned subsidiary of the Company, and ITG, dated as of November 6, 2018, the “ITG Merger Agreement”) and (iii) the performance share unit awards were converted into service-based vesting restricted stock unit awards that were no longer subject to any performance based vesting conditions. As of the ITG Closing Date, the aggregate number of shares of Class A Common Stock subject to such Assumed Awards was 2,497,028 and the aggregate number of shares of Class A Common Stock that remained issuable pursuant to the Amended and Restated ITG 2007 Equity Plan was 1,230,406. The Company filed a Registration Statement on Form S-8 on the ITG Closing Date to register such shares of Class A Common Stock.

Components of Our Results of Operations

The following table shows our i) Total revenue, ii) Total operating expenses, and iii) Income before income taxes and noncontrolling interest by segment for the years ended December 31, 2019, 2018 and 2017:

(in thousands)	Years Ended December 31,		
Market Making	**2019**	**2018**	**2017**
Total revenue	$ 1,032,072	$ 1,384,475	$ 836,707
Total operating expenses	922,883	961,827	762,074
Income before income taxes and noncontrolling interest	109,189	422,648	74,633
Execution Services			
Total revenue	493,908	496,333	99,135
Total operating expenses	620,838	171,290	111,654
Income (loss) before income taxes and noncontrolling interest	(126,930)	325,043	(12,519)
Corporate			
Total revenue	4,102	(2,090)	92,140
Total operating expenses	102,343	49,238	41,090
Income (loss) before income taxes and noncontrolling interest	(98,241)	(51,328)	51,050
Consolidated			
Total revenue	1,530,082	1,878,718	1,027,982
Total operating expenses	1,646,064	1,182,355	914,818
Income (loss) before income taxes and noncontrolling interest	$ (115,982)	$ 696,363	$ 113,164

The following table shows our results of operations for the years ended December 31, 2019, 2018 and 2017:

	Years Ended December 31,		
(in thousands)	**2019**	**2018**	**2017**
Revenues:			
Trading income, net	$ 912,316	$ 1,266,682	$ 766,027
Interest and dividends income	108,778	87,508	50,407
Commissions, net and technology services	498,544	184,339	116,503
Other, net	10,444	340,189	95,045
Total revenue	1,530,082	1,878,718	1,027,982
Operating Expenses:			
Brokerage, exchange and clearance fees, net	284,768	301,779	256,926
Communication and data processing	209,393	176,120	131,506
Employee compensation and payroll taxes	383,713	215,556	177,489
Payments for order flow	102,120	74,645	27,727
Interest and dividends expense	158,039	141,814	91,993
Operations and administrative	116,232	66,769	62,123
Depreciation and amortization	65,644	61,154	47,327
Amortization of purchased intangibles and acquired capitalized software	70,595	26,123	15,447
Termination of office leases	66,452	23,357	3,671
Debt issue cost related to debt refinancing and prepayment	41,132	11,727	10,460
Transaction advisory fees and expenses	26,117	11,487	25,270
Charges related to share based compensation at IPO	—	24	772
Financing interest expense on long-term borrowings	121,859	71,800	64,107
Total operating expenses	1,646,064	1,182,355	914,818
Income (loss) before income taxes and noncontrolling interest	(115,982)	696,363	113,164
Provision for (benefit from) income taxes	(12,277)	76,171	94,266
Net income (loss)	$ (103,705)	$ 620,192	$ 18,898

Total Revenues

Revenues are generated through market marking activities, commissions and fees on execution services activities, which include recurring subscriptions on workflow technology and analytic products. The majority of our revenues are generated through market making activities, which are recorded as Trading income, net and Interest and dividends income. Commissions and fees are derived from commissions charged for trade executions in agency execution services. We earn commissions and commission equivalents, 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 our control.

Recurring revenues are primarily derived from workflow technology connectivity fees generated for matching client orders, and analytics services to select third parties. Revenues from connectivity fees are recognized and billed to clients on a monthly basis. Revenues from commissions attributable to analytic products under bundled arrangements are recognized over the course of the year as the performance obligations for those analytics products are satisfied.

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 and bid/ask spreads. 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 two categories: Global Equities and Global FICC, Options and Other. Our trading income, net, results from gains and losses associated with trading strategies, which are designed to capture small bid-ask spreads, while hedging risks. Trading income, net, accounted for 60% and 67% of our total revenues for the years ended December 31, 2019 and 2018, respectively.

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 also 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. We earn 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 vary based 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 and other financial institutions. 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 being executed. In addition, we offer workflow technology and analytics services to select third parties. Revenues are derived from fees generated by matching sell-side and buy-side clients orders, and from analytic products delivered to the clients.

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 strategic investments and telecommunications joint ventures (“JVs”). 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. As a result of the Acquisition of KCG and the ITG Acquisition and consequent streamlining of operations, we have subleased certain office space that is not needed for Virtu operations. Sublease income is recorded on a straight-line basis over the life of the sublease. In addition, we record gains or losses on certain one-time transactions, including the sale of our BondPoint business (“BondPoint”) to Intercontinental Exchange (“ICE”) 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).

We have a minority investment (the “SBI Investment”) in SBI, 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 our trading activity. 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 we interact with and the mix of market and limit customer orders.

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 and stock options and restricted stock units granted pursuant to the Amended and Restated ITG 2007 Equity Plan.

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 3 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 acquisition of certain assets from Nyenburgh Holding B.V., Teza Technologies, the Acquisition of KCG, and the ITG Acquisition. 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 write-off expense related to certain office space we ceased use of as part of the effort to integrate and consolidate office space in connection with the Acquisition of KCG and the ITG Acquisition. The aggregate write-off amount includes the impairment of operating lease right-of-use assets, leasehold improvements and fixed assets, and dilapidation charges.

Debt issue costs related to debt refinancing and prepayment. 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 the term loan that would otherwise be amortized or accreted over the life of the term loan. Premium paid in connection with retiring outstanding bonds is also included in this category.

Transaction advisory fees and expenses. Transaction advisory fees and expenses primarily reflect professional fees incurred by us in connection with the ITG Acquisition in 2019 and with the sale of BondPoint in 2018.

Charges related to share based compensation at IPO. At the consummation of the IPO and through the years ended December 31, 2019, we recognized non-cash compensation expenses in respect of the vesting of outstanding Virtu Financial 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 19 “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 (benefit from) income taxes

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 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.

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, less direct costs associated with those revenues, including Brokerage, exchange and clearance fees, net, Payments for order flow, and Interest and dividends expense. 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, and charges related to share based compensation.
- “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 an effective tax rate, which was between approximately 23% and 24% beginning January 1, 2018.

- Operating Margins, which are calculated by dividing net income, EBITDA, and Adjusted EBITDA by Adjusted Net Trading Income.

Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, Normalized Adjusted Net Income, Normalized Adjusted Net Income before income taxes, Normalized provision for income taxes, Normalized Adjusted EPS, and Operating Margins (collectively, the “Company's Non-GAAP Measures”) 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 the Company's Non-GAAP Measures provides 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. The Company's Non-GAAP Measures 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 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, Normalized Adjusted EPS, and Operating Margins differently, and as a result the Company's Non-GAAP Measures 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.

The Company's Non-GAAP Measures 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 the Company's Non-GAAP Measures should not be construed as an indication that our future results will be unaffected by unusual or nonrecurring items. The Company's Non-GAAP 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, the Company's Non-GAAP Measures 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 the Company's Non-GAAP Measures 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 of the Company's Non-GAAP Measures to the most directly comparable U.S. GAAP measure.

The following table reconciles the Consolidated Statements of Comprehensive Income to arrive at Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, and Operating Margins for the years ended December 31, 2019, 2018 and 2017.

(in thousands)	For the Years Ended December 31, 2019	2018	2017
Reconciliation of Trading income, net to Adjusted Net Trading Income			
Trading income, net	$ 912,316	$ 1,266,682	$ 766,027
Interest and dividends income	108,778	87,508	50,407
Commissions, net and technology services	498,544	184,339	116,503
Brokerage, exchange and clearance fees, net	(284,768)	(301,779)	(256,926)
Payments for order flow	(102,120)	(74,645)	(27,727)
Interest and dividends expense	(158,039)	(141,814)	(91,993)
Adjusted Net Trading Income	$ 974,711	$ 1,020,291	$ 556,291
Reconciliation of Net Income to EBITDA and Adjusted EBITDA			
Net income (loss)	$ (103,705)	$ 620,192	$ 18,898
Financing interest expense on long-term borrowings	121,859	71,800	64,107
Debt issue cost related to debt refinancing and prepayment	41,132	11,727	10,460
Depreciation and amortization	65,644	61,154	47,327
Amortization of purchased intangibles and acquired capitalized software	70,595	26,123	15,447
Provision for (benefit from) income taxes	(12,277)	76,171	94,266
EBITDA	$ 183,248	$ 867,167	$ 250,505
Severance	102,768	10,974	14,911
Reserve for legal matters	504	2,020	657
Transaction advisory fees and expenses	26,117	11,487	25,270
Termination of office leases	66,452	23,357	3,671
Acquisition related retention bonus	—	—	23,050
Connectivity early termination	—	7,062	—
Trading related settlement income	—	—	(628)
Gain on sale of business	—	(335,210)	—
Other, net	2,147	(4,979)	(95,045)
Write-down of assets	—	3,239	1,216
Share based compensation	50,627	29,065	21,825
Charges related to share based compensation at IPO, Amended and Restated 2015 Management Incentive Plan	—	5,781	5,225
Charges related to share based compensation awards at IPO	—	24	740
Adjusted EBITDA	$ 431,863	$ 619,987	$ 251,397
Selected Operating Margins			
Net Income Margin (1)	(10.6)%	60.8%	3.4%
EBITDA Margin (2)	18.8 %	85.0%	45.0%
Adjusted EBITDA Margin (3)	44.3 %	60.8%	45.2%

(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.

The following table reconciles 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, 2019, 2018 and 2017:

	For the Years Ended December 31,		
(in thousands, except share and per share data)	**2019**	**2018**	**2017**
Reconciliation of Net Income to Normalized Adjusted Net Income			
Net income (loss)	$ (103,705)	$ 620,192	$ 18,898
Provision for (benefit from) income taxes	(12,277)	76,171	94,266
Income (loss) before income taxes	(115,982)	696,363	113,164
Amortization of purchased intangibles and acquired capitalized software	70,595	26,123	15,447
Financing interest expense related to KCG transaction	—	—	4,626
Debt issue cost related to debt refinancing	41,132	11,727	10,460
Reserve for legal matters	504	2,020	657
Severance	102,768	10,974	14,911
Transaction advisory fees and expenses	26,117	11,487	25,270
Termination of office leases	66,452	23,357	3,671
Connectivity early termination	—	7,062	—
Gain on sale of business	—	(335,210)	—
Write-down of assets	—	3,239	2,849
Acquisition related retention bonus	—	—	23,050
Trading related settlement income	—	—	(628)
Other, net	2,147	(4,979)	(95,045)
Share based compensation	50,627	29,065	21,825
Charges related to share based compensation at IPO, 2015 Management Incentive Plan	—	5,781	5,225
Charges related to share based compensation awards at IPO	—	24	740
Normalized Adjusted Net Income before income taxes	244,360	487,033	146,222
Normalized provision for income taxes (1)	58,646	112,018	54,102
Normalized Adjusted Net Income	$ 185,714	$ 375,015	$ 92,120
Weighted Average Adjusted shares outstanding (2)	193,153,745	190,886,342	161,464,923
Normalized Adjusted EPS	$ 0.96	$ 1.96	$ 0.57

(1) Reflects U.S. federal, state, and local income tax rate applicable to corporations of approximately 24% for 2019 and 23% for 2018.
(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 and the Amended and Restated ITG 2007 Equity Plan during the years ended December 31, 2018 and 2017.

The following tables reconcile Trading income, net to Adjusted Net Trading Income by segment for the years ended December 31, 2019, 2018 and 2017:

	Year Ended December 31, 2019			
	Market Making	Execution Services	Corporate	Total
Trading income, net	$ 908,328	$ 3,988	$ —	$ 912,316
Commissions, net and technology services	23,526	475,018	—	498,544
Interest and dividends income	96,197	12,581	—	108,778
Brokerage, exchange and clearance fees, net	(175,633)	(109,135)	—	(284,768)
Payments for order flow	(102,035)	(85)	—	(102,120)
Interest and dividends expense	(145,782)	(12,257)	—	(158,039)
Adjusted Net Trading Income	$ 604,601	$ 370,110	$ —	$ 974,711

	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

The following tables reconcile our Market Making segment Trading income, net to Adjusted Net Trading Income by category for the years ended December 31, 2019, 2018 and 2017:

	Year Ended December 31, 2019			
	Global Equities	Global FICC, Options and Other	Unallocated	Total Market Making
Trading income, net	$ 730,215	$ 178,639	$ (526)	$ 908,328
Commissions, net and technology services	23,554	(28)	—	23,526
Brokerage, exchange and clearance fees, net	(136,555)	(39,648)	570	(175,633)
Payments for order flow	(102,035)	—	—	(102,035)
Interest and dividends, net	(39,335)	(10,090)	(160)	(49,585)
Adjusted Net Trading Income	$ 475,844	$ 128,873	$ (116)	$ 604,601

	Year Ended December 31, 2018			
	Global Equities	Global FICC, Options and Other	Unallocated	Total Market Making
Trading income, net	$ 1,013,728	$ 250,521	$ 1,617	$ 1,265,866
Commissions, net and technology services	28,583	230	—	28,813
Brokerage, exchange and clearance fees, net	(182,543)	(56,633)	(3,671)	(242,847)
Payments for order flow	(74,518)	—	—	(74,518)
Interest and dividends, net	(40,548)	(11,326)	(1,505)	(53,379)
Adjusted Net Trading Income	$ 744,702	$ 182,792	$ (3,559)	$ 923,935

	Year Ended December 31, 2017			
	Global Equities	Global FICC, Options and Other	Unallocated	Total Market Making
Trading income, net	$ 579,953	$ 192,563	$ (2,960)	$ 769,556
Commissions, net and technology services	12,526	(79)	1,242	13,689
Brokerage, exchange and clearance fees, net	(168,012)	(55,910)	(784)	(224,706)
Payments for order flow	(27,600)	—	(438)	(28,038)
Interest and dividends, net	(28,921)	(8,825)	(3,303)	(41,049)
Adjusted Net Trading Income	$ 367,946	$ 127,749	$ (6,243)	$ 489,452

The following table shows our Adjusted Net Trading Income, average daily Adjusted Net Trading Income and percentage of Adjusted Net Trading Income by asset class for the years ended December 31, 2019, 2018 and 2017:

(in thousands, except %)	2019			2018			2017		
Adjusted Net Trading Income by Category:	**Total**	**Average Daily**	**%**	**Total**	**Average Daily**	**%**	**Total**	**Average Daily**	**%**
Market Making:									
Global Equities	$ 475,844	$ 1,881	48.8%	$ 744,702	$ 2,967	73.0 %	$ 367,946	$ 1,465	66.2 %
Global FICC, Options and Other	128,873	509	13.2%	182,792	728	17.9 %	127,749	$ 509	23.0 %
Unallocated(1)	(116)	—	—%	(3,559)	(14)	(0.3)%	(6,243)	$ (25)	(1.2)%
Total Market Making	$ 604,601	$ 2,390	62.0%	$ 923,935	$ 3,681	90.6 %	$ 489,452	$ 1,949	88.0 %
Execution Services	370,110	1,463	38.0%	96,294	384	9.4 %	67,345	268	12.1 %
Corporate	—	—	—%	62	—	— %	(506)	(2)	(0.1)%
Adjusted Net Trading Income	$ 974,711	$ 3,853	100.0%	$ 1,020,291	$ 4,065	100.0 %	$ 556,291	$ 2,215	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, 2019 Compared to Year Ended December 31, 2018

Total Revenues

Our total revenues decreased $348.6 million, or 18.6%, to $1,530.1 million for the year ended December 31, 2019, compared to $1,878.7 million for the year ended December 31, 2018. This decrease was primarily attributable to a decrease in Trading income, net, of $354.4 million, which was primarily attributable to the lower volatility and lower trading volumes during 2019 compared to 2018. A decrease in Other, net, of $329.7 million was primarily due to gain on the sale of BondPoint to ICE of $337.6 million recognized in January 2018. These decreases were partially offset by an increase in Commissions, net and technology services of $314.2 million which was primarily attributable to the results of ITG from the ITG Closing Date through December 31, 2019.

The following table shows the total revenues by segment for the years ended December 31, 2019 and 2018.

(in thousands, except for percentage)	Years Ended December 31, 2019	2018	% Change
Market Making			
Trading income, net	$ 908,328	$ 1,265,866	(28.2)%
Interest and dividends income	96,196	86,741	10.9%
Commissions, net and technology services	23,526	28,813	(18.3)%
Other, net	4,022	3,055	31.7%
Total revenues from Market Making	1,032,072	1,384,475	(25.5)%
Execution Services			
Trading income, net	3,988	816	388.7%
Interest and dividends income	12,582	705	NM
Commissions, net and technology services	475,018	155,526	205.4%
Other, net	2,320	339,286	(99)%
Total revenues from Execution Services	493,908	496,333	(0.5)%
Corporate			
Trading income, net	—	—	NM
Interest and dividends income	—	62	NM
Commissions, net and technology services	—	—	NM
Other, net	4,102	(2,152)	NM
Total revenues from Corporate	4,102	(2,090)	NM
Consolidated			
Trading income, net	912,316	1,266,682	(28.0)%
Interest and dividends income	108,778	87,508	24.3%
Commissions, net and technology services	498,544	184,339	170.4%
Other, net	10,444	340,189	(96.9)%
Total revenues	$ 1,530,082	$ 1,878,718	(18.6)%

Trading income, net. Trading income, net was primarily earned by our Market Making segment. Trading income, net, decreased $354.4 million, or 28.0%, to $912.3 million for the year ended December 31, 2019, compared to $1,266.7 million for the year ended December 31, 2018. The decrease was primarily driven by the lower of volatility and lower trading volume across major asset categories during the year ended December 31, 2019 compared to the prior period. Average daily realized volatility and average daily implied volatility of the S&P 500 Index the decreased 21.5% and 7.4%, respectively, compared to the prior period, while average daily U.S. OTC equity volumes decreased 30.0%. Rather than analyzing trading income, net, in isolation, we evaluate it in the broader context of our Adjusted Net Trading Income, together with Interest and dividends income, Interest and dividends expense, Commissions, net and technology services, Payments for order flow, 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 $21.3 million, or 24.3%, to $108.8 million for the year ended December 31, 2019, compared to $87.5 million for the year ended December 31, 2018. This increase was primarily attributable to the higher interest income earned on cash collateral posted as part of securities loaned transactions. As indicated above, rather than analyzing interest and dividends income in isolation, we 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 $314.2 million, or 170.4%, to $498.5 million for the year ended December 31, 2019, compared to $184.3 million for the year ended December 31, 2018. The increase was primarily attributable to the ITG Acquisition, as ITG's entire business is included in our Execution Services segment. The ITG Acquisition brought recurring connectivity revenues generated from workflow technology and subscription revenues from analytics services to Commissions, net and technology services during the period from the ITG Closing Date through December 31, 2019.

Other, net. Other, net decreased $329.7 million, or 96.9%, to $10.4 million for the year ended December 31, 2019, compared to $340.2 million for the year ended December 31, 2018. The decrease was primarily due to the one-time transaction gain of $337.6 million on the sale of BondPoint to ICE in January 2018.

Adjusted Net Trading Income

Adjusted Net Trading Income decreased $45.6 million, or 4.5%, to $974.7 million for the year ended December 31, 2019, compared to $1,020.3 million for the year ended December 31, 2018. This decrease was primarily attributable to lower Trading income, net, driven by the lower volatility and lower trading volumes across major asset categories during the year ended December 31, 2019 compared to the prior period. Average daily realized volatility and average daily implied volatility of the S&P 500 Index the decreased 21.5% and 7.4%, respectively, compared to the prior period, while average daily U.S. OTC equity volumes decreased 30.0%. The decrease in Trading income, net was partially offset by an increase in Commissions, net and technology services as a result of the ITG Acquisition. There were decreases in Trading income, net in Global Equities of $268.9 million, and in Global FICC, Options and Other of $53.9 million, from the Market Making segment. These decreases were partially offset by an increase of $273.8 million, or 284.4%, in the Execution Services segment. Adjusted Net Trading Income per day decreased $0.3 million, or 7.0%, to $3.8 million for the year ended December 31, 2019, compared to $4.1 million for the year ended December 31, 2018. The number of trading days was 253 and 251 for the years ended December 31, 2019 and 2018, 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 $463.7 million, or 39.2%, to $1,646.1 million for the year ended December 31, 2019, compared to $1,182.4 million for the year ended December 31, 2018. The increase in operating expenses was primarily due to the ITG Acquisition, which caused an overall increase in expenses in multiple expense categories as described in more detail below.

Brokerage, exchange and clearance fees, net. Brokerage exchange and clearance fees, net, decreased $17.0 million, or 5.6%, to $284.8 million for the year ended December 31, 2019, compared to $301.8 million for the year ended December 31, 2018. This decrease was primarily attributable to a decrease in volume we traded in Global Equities instruments and other asset categories, partially offset by increases due to the ITG Acquisition. As indicated above, rather than analyzing brokerage, exchange and clearance fees, net, in isolation, we evaluate it in the broader context of our Adjusted Net Trading Income.

Communication and data processing. Communication and data processing expense increased $33.3 million, or 18.9%, to $209.4 million for the year ended December 31, 2019, compared to $176.1 million for the year ended December 31, 2018. This increase was primarily due to the additional connectivity and market data service subscriptions acquired as part of the ITG Acquisition. The increase was partially offset by reductions in connectivity connections 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 $168.2 million, or 78.0%, to $383.7 million for the year ended December 31, 2019, compared to $215.6 million for the year ended December 31, 2018. The increase in compensation levels was primarily attributable to the increases in headcount subsequent to the ITG Acquisition as well as an increase in severance expense of $91.8 million, primarily attributable to the ITG Acquisition. Incentive compensation is recorded at management's discretion and is generally accrued in connection with the overall level of profitability. We have capitalized and therefore excluded employee compensation and benefits related to software development of $32.5 million and $24.4 million for the years ended December 31, 2019 and 2018, respectively.

Payments for order flow. Payments for order flow increased $27.5 million, or 36.8%, to $102.1 million for the year ended December 31, 2019, compared to $74.6 million for the year ended December 31, 2018. The increase was primarily attributable to the increase in volumes from our broker-dealer clients eligible for payments for order flow, including new counterparties onboarded during 2019. 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 evaluate it in the broader context of our Adjusted Net Trading Income.

Interest and dividends expense. Interest and dividends expense increased $16.2 million, or 11.4%, to $158.0 million for the year ended December 31, 2019, compared to $141.8 million for the year ended December 31, 2018. This increase was primarily attributable to higher interest expense incurred on cash collateral received as part of securities lending transactions, as well as increased interest expense resulting from the ITG Acquisition. 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 $49.5 million, or 74.1%, to $116.2 million for the year ended December 31, 2019, compared to $66.8 million for the year ended December 31, 2018. The increase was primarily attributable to the additional occupancy, professional and consulting expenses resulting from the ITG Acquisition, offset by on-going efforts to consolidate office premises and professional services.

Depreciation and amortization. Depreciation and amortization increased $4.5 million, or 7.3%, to $65.6 million for the year ended December 31, 2019, compared to $61.2 million for the year ended December 31, 2018. This increase was primarily attributable to depreciation and amortization of additional assets resulting from the ITG Acquisition. The overall increase was partially offset by the decrease in depreciation and amortization as a result of assets being written-off as part of the cessation of use of certain leased office space (see “Termination of office leases” below).

Amortization of purchased intangibles and acquired capitalized software. Amortization of purchased intangibles and acquired capitalized software increased $44.5 million, or 170.2%, to $70.6 million for the year ended December 31, 2019, compared to $26.1 million for the year ended December 31, 2018. This increase was due to the amortization of intangible assets acquired in connection with the ITG Acquisition.

Termination of office leases. Termination of office leases increased $43.1 million, or 184.5%, to $66.5 million for the year ended December 31, 2019, compared to $23.4 million year ended December 31, 2018. The increase in termination of office leases was due to the impairment of operating lease right-of-use assets and write-off of leasehold improvements and fixed assets for certain abandoned office space as part of the effort to integrate and consolidate office space in connection with the ITG Acquisition.

Debt issue costs related to debt refinancing and prepayment. Expense from debt issue costs related to debt refinancing and prepayment increased $29.4 million, or 250.7%, to $41.1 million for the year ended December 31, 2019, compared to $11.7 million for the year ended December 31, 2018. The amount for the year ended December 31, 2019 mainly reflects costs incurred related to the termination of the Existing Term Loan Facility (as defined below) in the first quarter of 2019, and costs incurred related to Amendment No. 1 to the Credit Agreement (as defined below) in the fourth quarter that provided for $525.0 million of incremental term loans. The amount for the year ended December 31, 2018 reflects the accelerated amortization of debt issuance costs due to prepayments of $384.8 million on long term borrowings in the year ended December 31, 2018.

Transaction advisory fees and expenses. Transaction advisory fees and expenses increased $14.6 million, or 127.4%, to $26.1 million for the year ended December 31, 2019, compared to $11.5 million for the year ended December 31, 2018. The increase was primarily attributable to the ITG Acquisition, for which we incurred significantly higher transaction advisory fees than those incurred in connection with the sale of BondPoint in January 2018.

Financing interest expense on long term borrowings. Financing interest expense on long-term borrowings increased $50.1 million, or 69.7%, to $121.9 million for the year ended December 31, 2019, compared to $71.8 million for the year ended December 31, 2018. This increase was primarily attributable to the increase in outstanding principal as a result of the First Lien Term Loan Facility and the Incremental Term Loans as discussed in Note 10 “Borrowings” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Provision for (benefit from) income taxes

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 benefit from income taxes was $12.3 million for the year ended December 31, 2019, compared to a provision for income taxes of $76.2 million for the year ended December 31, 2018. The change was primarily due to a loss before income taxes and noncontrolling interest for the year ended December 31, 2019.

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

For discussion around our results of operations for the year ended December 31, 2017 and for a comparison of our results of operations for the year ended December 31, 2018 and year ended December 31, 2017, see Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations, of our Annual Report on Form 10-K for fiscal year ended December 31, 2018, filed with the SEC on March 1, 2019.

Liquidity and Capital Resources

General

As of December 31, 2019, we had $732.2 million in Cash and cash equivalents. This balance is 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, 2019, we had borrowings under our short-term credit facilities of approximately $134.3 million, borrowing under broker dealer facilities of $30.0 million, short-term bank overdrafts of $45.6 million, and long-term debt outstanding in an aggregate principal amount of approximately $1,957.2 million. As of December 31, 2019, our regulatory capital requirements for domestic U.S. broker-dealer subsidiaries were $5.7 million, in aggregate.

The majority of our trading assets consist 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 brokers. For purposes of providing additional liquidity, we maintain a committed credit facility and an uncommitted credit facility for 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.

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 plan to 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 equity holders of Virtu Financial that are generally equal to 85% of the applicable cash tax savings, if any, that we realize as a result of favorable tax attributes that are 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 equity holders 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 $3.3 million to $20.7 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 equity holders 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 Credit Agreement 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 operating subsidiaries are subject to separate regulation and capital requirements in the United States and other jurisdictions. Virtu Americas LLC, Virtu Financial BD LLC, Virtu Financial Capital Markets LLC, Virtu ITG LLC, and Virtu Alternet Securities LLC, the latter two of which became our subsidiaries following the ITG Acquisition, are registered U.S. broker-dealers, and their primary regulators include the SEC, the Chicago Stock Exchange and FINRA.

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.

Our Canadian subsidiaries, Virtu ITG Canada Corp, TriAct Canada Marketplace LP, and Virtu Financial Canada ULC, are subject to regulatory capital requirements and periodic requirements to report their regulatory capital and submit other regulatory reports set forth by the Investment Industry Regulatory Organization of Canada. Virtu Financial Ireland Limited and Virtu ITG Europe Limited are regulated by the Central Bank of Ireland as Investment Firms and in accordance with European Union law are required to maintain a minimum amount of regulatory capital based upon their positions, financial conditions, and other factors. In addition to periodic requirements to report their regulatory capital and submit other regulatory reports, Virtu Financial Ireland Limited and Virtu ITG Europe Limited are required to obtain consent prior to receiving capital contributions or making capital distributions from their regulatory capital. Failure to comply with their regulatory capital requirements could result in regulatory sanction or revocation of their regulatory license. Virtu ITG UK Limited is regulated by the Financial Conduct Authority in the United Kingdom and is subject to similar prudential capital requirements. Virtu ITG Australia Limited, Virtu ITG Hong Kong Limited, and Virtu ITG Singapore Pte Limited are also subject to local regulatory capital requirements and are regulated by the Australian Securities Exchange, the Securities and Futures Commission, and the Monetary Authority of Singapore, respectively.

See Note 21 “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.

Short-Term 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 our various credit facilities. As of December 31, 2019, the outstanding principal balance on our broker-dealer facilities was $30.0 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 $134.3 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.

Credit Agreement

In connection with the ITG Acquisition, Virtu Financial, VFH and the Acquisition Borrower entered into the 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 Credit Agreement provided (i) a senior secured first lien term loan (the “First Lien Term Loan Facility”) in an aggregate principal amount of $1,500 million, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million borrowed by VFH to repay all amounts outstanding under the Existing Term Loan Facility (as defined below) and the remaining approximately $1,095 million borrowed by the Acquisition Borrower to finance the consideration and fees and expenses paid in connection with the ITG Acquisition, and (ii) a $50.0 million senior secured first lien revolving facility to VFH (the “First Lien Revolving Facility”), with a $5.0 million letter of credit subfacility and a $5.0 million swingline subfacility. After the ITG Closing Date, VFH assumed the obligations of the Acquisition Borrower in respect of the acquisition term loans.

On October 9, 2019 (the “Amendment Closing Date”), VFH entered into Amendment No. 1 (“Amendment No. 1”), which amended the Credit Agreement dated as of March 1, 2019, by and among VFH, Virtu Financial, the lenders party thereto, and Jefferies Finance, LLC, as administrative agent and collateral agent, to, among other things, provide for $525.0 million in aggregate principal amount of incremental term loans (the “Incremental Term Loans”), and amend the related collateral agreement. On the Amendment Closing Date, VFH borrowed the Incremental Term Loans and used the proceeds together with available cash to redeem all of the $500.0 million aggregate principal amount of the outstanding 6.750% Senior Secured Second Lien Notes (as defined below) due 2022 issued by VFH and Orchestra Co Issuer, Inc., a Delaware corporation and indirect subsidiary of the Company (together with VFH, the “Issuers”), and pay related fees and expenses. The terms, conditions and covenants applicable to the Incremental Term Loans are the same as the terms, conditions and covenants applicable to the existing term loans under the Credit Agreement, including a maturity date of March 1, 2026. The Company also previously entered into a five-year $525 million floating to fixed interest rate swap agreement that effectively fixes interest payment obligations on $525.0 million of principal under the First Lien Term Loan Facility at 4.8% through September 2024. During the year ended December 31, 2019, $100.0 million was repaid under the First Lien Term Loan Facility. As of December 31, 2019, $1,925 million was outstanding under the First Lien Term Loan Facility. On January 29, 2020, the Company entered into a five-year $1,000 million floating to fixed interest rate swap agreement that effectively fixes interest payment obligations on $1,000 million of principal under the First Lien Term Loan Facility at 4.9% through January 2025.

The term loan borrowings and revolver borrowings under the Credit Agreement bear interest at a per annum rate equal to, at our election, either (i) the greatest of (a) the prime rate in effect, (b) the greater of (i) the federal funds effective rate and (ii) the overnight bank funding rate, in each case plus 0.5%, (c) an adjusted LIBOR rate for a Eurodollar borrowing with an interest period of one month plus 1% and (d) 1.00%, plus, in each case, 2.50%, with a stepdown to 2.25% based on VFH's first lien leverage ratio, or (ii) the greater of (x) an adjusted LIBOR rate for the interest period in effect and (y) 0%, plus, in each case, 3.50%, with a stepdown to 3.25% based on VFH’s first lien leverage ratio. In addition, a commitment fee accrues at a rate of 0.50% per annum on the average daily unused amount of the First Lien Revolving Facility, with stepdowns to 0.375% and 0.25% per annum based on VFH’s first lien leverage ratio, and is payable quarterly in arrears.

The First Lien Revolving Facility under the Credit Agreement is subject to a springing net first lien leverage ratio which may spring into effect as of the last day of a fiscal quarter if usage of the aggregate revolving commitments exceeds a specified level as of such date. VFH is also subject to contingent principal prepayments based on excess cash flow and certain other triggering events. Borrowings under the Credit Agreement are guaranteed by Virtu Financial and VFH’s material non-regulated domestic restricted subsidiaries and secured by substantially all of the assets of VFH and the guarantors, in each case, subject to certain exceptions.

Under the Credit Agreement, term loans will mature on March 1, 2026. The term loans amortize in annual installments equal to 1.0% of the original aggregate principal amount of the term loans. The revolving commitments will terminate on March 1, 2022.

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

To finance the Acquisition of KCG, on June 30, 2017, Virtu Financial and VFH previously entered into the Fourth Amended and Restated Credit Agreement which, upon the closing of the Acquisition of KCG, provided for an aggregate $1.15 billion of first lien secured term loans (the “Existing Term Loan Facility”). As described above, the Existing Term Loan Facility was fully terminated following its repayment in full with the proceeds of the First Lien Term Loan Facility.

We were in compliance with all applicable covenants under the Credit Agreement as of December 31, 2019.

Senior Secured Second Lien Notes

To finance the Acquisition of KCG, on June 16, 2017, Orchestra Borrower LLC (the “Escrow Issuer”), a wholly owned subsidiary of Virtu Financial, 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 gross proceeds from the Notes were deposited into a segregated escrow account with an escrow agent. The proceeds were released from escrow as of the KCG Closing Date and were used to finance, in part, the Acquisition of KCG, and to repay certain indebtedness of the Company and KCG.

As described above, the Credit Agreement was amended on October 9, 2019, on which date VFH borrowed an additional $525.0 million of incremental first lien term loans, the proceeds of which were used together with cash on hand to redeem the Notes. The Indenture was fully terminated following such redemption.

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, 2019, 2018 and 2017.

	Years Ended December 31,		
Net cash provided by (used in):	**2019**	**2018**	**2017**
Operating activities	$ 168,771	$ 714,595	$ 290,574
Investing activities	(899,643)	329,174	(838,016)
Financing activities	769,580	(835,482)	889,797
Effect of exchange rate changes on cash and cash equivalents	(1,475)	(5,127)	9,117
Net increase (decrease) in cash and cash equivalents	$ 37,233	$ 203,160	$ 351,472

Operating Activities

Net cash provided by operating activities was $168.8 million for the year ended December 31, 2019, compared to net cash provided by operating activities of $714.6 million for the year ended December 31, 2018. The decrease in net cash provided by operating activities was primarily attributable to a net loss for the year ended December 31, 2019 compared to net income during the prior period.

Investing Activities

Net cash used in investing activities was $899.6 million for the year ended December 31, 2019, compared to net cash provided by investing activities of $329.2 million for the year ended December 31, 2018. The cash used in investing activities for the year ended December 31, 2019 was primarily attributable to the $835.6 million cash used for the ITG Acquisition on the ITG Closing Date, while the cash provided by investing activities for the year ended December 31, 2018 was primarily due to the $400.2 million proceeds received from the sale of BondPoint in January 2018. See Note 3 “ITG Acquisition” and Note 4 “Sale of BondPoint” of Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Financing Activities

Net cash provided by financing activities was $769.6 million for the year ended December 31, 2019, while net cash used in financing activities was $835.5 million for the year ended December 31, 2018. The cash provided by financing activities for the year ended December 31, 2019 was primarily attributable to $1,500.0 million of proceeds from long term borrowings and $39.9 million provided by short term borrowings primarily attributable to the increase in short-term bank loans in the form of overdrafts. These inflows were partially offset by $400.0 million of repayments on the First Lien Term Loan Facility, $100.0 million of prepayments on the First Lien Term Loan Facility, dividends of $112.4 million, and distributions from Virtu Financial to non-controlling interests of $99.2 million. The cash used in financing activities for the year ended December 31, 2018 was primarily attributable to repayments of long term borrowings of $500.0 million, dividends of $100.3 million, distributions from Virtu Financial to non-controlling interests of $206.9 million, and purchases of treasury stock of $66.2 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. Since the inception of the program, the Company repurchased approximately 2.6 million shares of Class A Common Stock and Virtu Financial Units for approximately $65.9 million. The share repurchase program expired on September 30, 2019.

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

In May 2019, the Company completed a public offering (the "May 2019 Secondary Offering") of 9,000,000 shares of Class A Common Stock at a purchase price per share paid by the underwriters of $22.00, 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 14, 2019 by and between the Company and TJMT Holdings LLC.

Contractual Obligations

The following table reflects our contractual obligations as of December 31, 2019. 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)	1,957,225	15,000	30,000	62,225	1,850,000
Capital leases	14,799	10,929	3,870	—	—
Operating leases	453,221	76,118	139,912	95,820	141,371
Total contractual obligations	$ 2,425,245	$ 102,047	$ 173,782	$ 158,045	$ 1,991,371

(1) Balances Consist of principal payments under the Notes, First Lien 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, 2019, a total of $269.3 million has been recorded in amount due pursuant to tax receivable agreements 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, 2019, 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, 2019, and December 31, 2018, or on our results of operations and cash flows for the years ended December 31, 2019 and 2018.

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 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, net 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.

Workflow technology revenues consist of order and trade execution management and order routing services we provide through our front-end workflow solutions and network capabilities.

We provide trade order routing from our execution management system (“EMS”) to our execution services offerings, with each trade order routed through the EMS representing a separate performance obligation that is satisfied at a point in time. A portion of the commissions earned on the trade is then allocated to Workflow Technology based on the stand-alone selling price paid by third-party brokers for order routing. The remaining commission is allocated to commissions, net using a residual allocation approach. Commissions earned are fixed and revenue is recognized on the trade date.

We participate in commission share arrangements, where trade orders are routed to third-party brokers from our EMS and our order management system (“OMS”). Commission share revenues from third-party brokers are generally fixed and revenue is recognized at a point in time on the trade date.

We also provide OMS and related software products and connectivity services to customers and recognize license fee revenues and monthly connectivity fees. License fee revenues, generated for the use of our OMS and other software products, are fixed and recognized at the point in time at which the customer is able to use and benefit from the license. Connectivity revenue is variable in nature, based on the number of live connections, and is recognized over time on a monthly basis using a time-based measure of progress.

Analytics revenues are earned from providing customers with analytics products and services, including trading and portfolio analytics tools. We provide analytics products and services to customers and recognize subscription fees, which are fixed for the contract term, based on when the products and services are delivered. Analytics services can be delivered either over time (when customers are provided with distinct ongoing access to analytics data) or at a point in time (when reports are only delivered to the customer on a periodic basis). Over time performance obligations are recognized using a time-based measure of progress on a monthly basis, since the analytics products and services are continually provided to the client. Point in time performance obligations are recognized when the analytics reports are delivered to the client.

Analytics products and services can also be paid for through variable bundled arrangements with trade execution services. Customers agree to pay for analytics products and services with commissions generated from trade execution services, and commissions are allocated to the analytics performance obligation(s) using:

(i) the commission value for each customer for the products and services it receives, which is priced using the value for similar stand-alone subscription arrangements; and
(ii) a calculated ratio of the commission value for the products and services relative to the total amount of commissions generated from the customer.

For these bundled commission arrangements, the allocated commissions to each analytics performance obligation are then recognized as revenue when the analytics product is delivered, either over time or at a point in time. These allocated commissions may be deferred if the allocated amount exceeds the amount recognizable based on delivery.

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.

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, and pursuant to the Amended and Restated ITG 2007 Equity 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

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 an initial qualitative 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;
- 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 no further goodwill impairment testing is necessary.

If further testing is necessary, the fair value of the reporting unit is compared to its carrying value; if the fair value of the reporting unit is less than its carrying value, a goodwill impairment loss is recorded, equal to the excess of the reporting unit’s carrying amount over its fair value (not to exceed the total goodwill allocated to that reporting unit).

We assess goodwill for impairment on an annual basis as of July 1st and on an interim basis when certain events or circumstances exist. In the impairment assessment as of July 1, 2019, we performed a qualitative assessment 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 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.

Our customer market making activities 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 Company's Chief Risk Officer, 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 broker-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, 2019 and December 31, 2018 was $2.8 billion and $2.6 billion, respectively, in long positions and $2.5 billion and $2.5 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

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 and execution services 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, the 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.

Approximately 25.1% and 12.5% of our total revenues for the years ended December 31, 2019 and 2018, respectively, were denominated in non-U.S. Dollar currencies. We estimate that a hypothetical 10% adverse change in the value of the U.S. dollar relative to our foreign denominated earnings would have resulted in decreases in revenues of $38.4 million and $23.4 million for the years ended December 31, 2019 and 2018, respectively.

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 Consolidated Statements of Changes in Equity. Our primary currency translation exposures historically relate to net investments in subsidiaries having functional currencies denominated in the Euro, Pound Sterling, and Canadian dollar.

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, swaps, 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 Consolidated 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.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY SCHEDULES

Index to Consolidated Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial condition of Virtu Financial, Inc. and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of comprehensive income (loss), changes in equity, and cash flows for each of the two years in the period ended December 31, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in 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 audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

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

As described in Management's Report on Internal Control over Financial Reporting, management has excluded ITG, Inc. from its assessment of internal control over financial reporting as of December 31, 2019 because it was acquired by the Company in a purchase business combination during 2019. We have also excluded ITG, Inc. from our audit of internal control over financial reporting. ITG, Inc. is a wholly-owned subsidiary whose total assets and total net loss excluded from management's assessment and our audit of internal control over financial reporting represent $769.1 million and a loss of $61.8 million, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2019.

Definition and Limitations of Internal Control over Financial Reporting

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

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Purchase Price Accounting for the ITG Acquisition - Valuation of Intangible Assets

As described in Notes 1 and 3 to the consolidated financial statements, on March 1, 2019, the Company completed the acquisition of ITG Inc. for net consideration of $1.0 billion, which resulted in $517.2 million of intangible assets being recorded, primarily allocated to customer relationships and technology. Management estimated the fair value of these intangible assets, which involved the use of significant estimates and assumptions with respect to the timing and amounts of revenue growth rates, customer attrition rates, future tax rates, royalty rates, contributory asset charges, discount rate and the resulting cash flows.

The principal considerations for our determination that performing procedures relating to the valuation of the intangible assets from the acquisition of ITG Inc. is a critical audit matter are (i) there was significant judgment by management when estimating the fair value of the customer relationships and technology intangible assets. This in turn led to a high degree of auditor judgment and subjectivity in applying procedures relating to the fair value measurement of intangible assets acquired, including revenue growth rates, customer attrition rates, future tax rates, royalty rates, contributory asset charges, discount rate and the resulting cash flows; (ii) significant audit effort was necessary in evaluating significant assumptions relating to the estimate, such as the revenue growth rates, the customer attrition rates, future tax rates, royalty rates, contributory asset charges, discount rate and the resulting cash flows; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge to assist in evaluating the appropriateness of the methodology and the reasonableness of the assumptions used in determining the valuation of the intangible assets.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the valuation of intangible assets resulting from the acquisition of ITG Inc., controls over development of the assumptions related to the valuation of intangible assets., including revenue growth rates, customer attrition rates, future tax rate, royalty rates, contributory asset charges, the discount rate and the resulting cash flows. These procedures also included, among others, (i) reading the purchase agreement; (ii) testing management's process for estimating the fair value of intangible assets; and (iii) testing management's cash flow projections used to estimate the fair value of the intangible assets, using professionals with specialized skill and knowledge to assist in doing so, where applicable. Testing management's process included assessing the reasonableness forecasted financial information used in the estimate for completeness and accuracy, evaluating the appropriateness of the valuation methods and the reasonableness of significant assumptions, including the revenue growth rates, customer attrition rates, future tax rates, royalty rates, contributory asset charges and the discount rate for the intangible assets. Evaluating the reasonableness of the revenue growth rates and customer attrition rates involved considering the past performance of the acquired businesses, as well as economic and industry forecasts. The future tax rate was evaluated by considering the prior effective tax rates of the jurisdictions in which ITG operates. The royalty rates and contributory asset charges were evaluated by considering rates used by comparable businesses and other industry factors. The discount rate was evaluated by considering the cost of capital comparable businesses and other industry factors.

Income Taxes - Tax Receivable Agreement Obligations Arising from Membership Interest Exchanges During the Period

As described in Notes 2, 6 and 14 to the consolidated financial statements, in connection with the IPO and Reorganization Transactions, as defined in Note 1, the Company entered into tax receivable agreements ("TRA") to make payments to certain pre-IPO equity holders ("Virtu Members"). These payments are generally equal to 85% of the applicable cash tax savings, if any, that the Company 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, and payments made under the tax receivable agreements. An exchange of membership interests by the Virtu Members for Class A common stock or Class B common stock (an "Exchange") during the year will give rise to favorable tax attributes that may generate cash tax savings specific to the Exchange, to be realized over a specific period of time (generally 15 years). At each Exchange, management estimates the Company's cumulative TRA obligations to be reported on the consolidated financial statements, which was $269.3 million as of December 31, 2019. The tax attributes are computed as the difference between the Company's basis in the partnership interest ("outside basis") as compared to the Company's share of the adjusted tax basis of partnership property ("inside basis"), at the time of each Exchange. The computation of inside basis requires management to make judgments in estimating the components included in the inside basis as of the date of the Exchange (such as, cash received by the Company on hypothetical sale of assets, allocation of gain/loss to the Company at the time of the Exchange taking into account complex partnership tax rules). In addition, management estimates the period of time that may generate cash tax savings of such tax attributes and the realizability of the tax attributes.

The principal considerations for our determination that performing procedures relating to the tax receivable agreement obligation is a critical audit matter are (i) management applied significant judgment to compute the inside basis and assess the likelihood of the Company having sufficient future taxable income to utilize the deferred tax asset and the tax rate ("realizability of cash tax savings") for each Exchange, which in turn led to a high degree of auditor judgment and subjectivity in performing procedures to evaluate the initial computation and realizability of cash tax savings for each Exchange; (ii) significant audit effort was necessary in evaluating the outside and inside basis components and the realizability of cash tax savings; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge to assist in evaluating the reasonableness of the inside basis and payment obligation generated as part of the Exchange.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls related to income taxes, including controls relating to the estimation of the TRA obligation and estimated cash tax savings reported on the consolidated financial statements. These procedures also included, among others, (i) evaluating the reasonableness of the computation of the inside basis and outside basis and realizability of cash tax savings from the Exchange in 2019, (ii) testing the completeness and accuracy of the data provided by management used in the computation of the inside basis, outside basis and realizability of cash tax savings; and (iii) testing the impact of the Exchange in 2019 of limited partnership units on the deferred tax asset and amounts payable under tax receivable agreements. Professionals with specialized skill and knowledge were involved to assist with testing management's computation of the inside and outside basis, assessing the appropriateness of the applicable tax laws, and testing the calculation of the payment obligation.

/s/ PricewaterhouseCoopers LLP
New York, New York
February 28, 2020

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

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 comprehensive income, changes in equity, and cash flows of Virtu Financial, Inc. and Subsidiaries (the ‘‘Company’’) for the year 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 results of its operations and its cash flows for the year 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.

Virtu Financial, Inc. and Subsidiaries
Consolidated Statements of Financial Condition

(in thousands, except share data)	December 31, 2019	December 31, 2018
Assets		
Cash and cash equivalents	$ 732,164	$ 729,547
Cash restricted or segregated under regulations and other	41,116	6,500
Securities borrowed	1,928,763	1,399,684
Securities purchased under agreements to resell	143,032	15,475
Receivables from broker-dealers and clearing organizations	1,318,584	1,101,449
Trading assets, at fair value:		
Financial instruments owned	2,068,734	1,848,806
Financial instruments owned and pledged	696,956	791,115
Receivables from customers	103,531	10,567
Property, equipment and capitalized software (net of accumulated depreciation of $457,229 and $323,718 as of December 31, 2019 and December 31, 2018, respectively)	116,089	113,322
Operating lease right-of-use assets	314,526	—
Goodwill	1,148,926	836,583
Intangibles (net of accumulated amortization of $219,239 and $148,644 as of December 31, 2019 and December 31, 2018, respectively)	529,638	83,989
Deferred tax assets	214,671	200,359
Other assets ($48,966 and $48,273, at fair value, as of December 31, 2019 and December 31, 2018, respectively)	252,640	243,582
Total assets	$ 9,609,370	$ 7,380,978
Liabilities and equity		
Liabilities		
Short-term borrowings	$ 73,486	$ 15,128
Securities loaned	1,600,099	1,130,039
Securities sold under agreements to repurchase	340,742	281,861
Payables to broker-dealers and clearing organizations	826,750	567,441
Payables to customers	89,719	10,860
Trading liabilities, at fair value:		
Financial instruments sold, not yet purchased	2,497,958	2,475,395
Tax receivable agreement obligations	269,282	214,403
Accounts payable, accrued expenses and other liabilities	399,168	284,115
Operating lease liabilities	365,364	—
Long-term borrowings	1,917,866	907,037
Total liabilities	8,380,434	5,886,279
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 — 120,435,912 and 108,955,048 shares, Outstanding — 118,257,141 and 106,776,277 shares at December 31, 2019 and December 31, 2018, 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, 2019 and December 31, 2018, respectively	—	—
Class C common stock (par value $0.00001), Authorized — 90,000,000 and 90,000,000 shares, Issued and Outstanding — 12,887,178 and 13,749,886 shares at December 31, 2019 and December 31, 2018, respectively	—	—
Class D common stock (par value $0.00001), Authorized — 175,000,000 and 175,000,000 shares, Issued and Outstanding — 60,091,740 and 69,091,740 shares at December 31, 2019 and December 31, 2018, respectively	1	1
Treasury stock, at cost, 2,178,771 and 2,178,771 shares at December 31, 2019 and December 31, 2018, respectively	(55,005)	(55,005)
Additional paid-in capital	1,077,398	1,010,468
Retained earnings (accumulated deficit)	(90,374)	96,513
Accumulated other comprehensive income (loss)	(647)	(82)
Total Virtu Financial Inc. stockholders' equity	931,374	1,051,896
Noncontrolling interest	297,562	442,803

Virtu Financial, Inc. and Subsidiaries
Consolidated Statements of Financial Condition

(in thousands, except share data)	December 31, 2019	December 31, 2018
Total equity	1,228,936	1,494,699
Total liabilities and equity	$ 9,609,370	$ 7,380,978

See accompanying notes to the consolidated financial statements.

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

	For the Year Ended December 31,		
(in thousands, except share and per share data)	**2019**	**2018**	**2017**
Revenues:			
Trading income, net	$ 912,316	$ 1,266,682	$ 766,027
Interest and dividends income	108,778	87,508	50,407
Commissions, net and technology services	498,544	184,339	116,503
Other, net	10,444	340,189	95,045
Total revenue	1,530,082	1,878,718	1,027,982
Operating Expenses:			
Brokerage, exchange and clearance fees, net	284,768	301,779	256,926
Communication and data processing	209,393	176,120	131,506
Employee compensation and payroll taxes	383,713	215,556	177,489
Payments for order flow	102,120	74,645	27,727
Interest and dividends expense	158,039	141,814	91,993
Operations and administrative	116,232	66,769	62,123
Depreciation and amortization	65,644	61,154	47,327
Amortization of purchased intangibles and acquired capitalized software	70,595	26,123	15,447
Termination of office leases	66,452	23,357	3,671
Debt issue cost related to debt refinancing and prepayment	41,132	11,727	10,460
Transaction advisory fees and expenses	26,117	11,487	25,270
Charges related to share based compensation at IPO	—	24	772
Financing interest expense on long-term borrowings	121,859	71,800	64,107
Total operating expenses	1,646,064	1,182,355	914,818
Income (loss) before income taxes and noncontrolling interest	(115,982)	696,363	113,164
Provision for (benefit from) income taxes	(12,277)	76,171	94,266
Net income (loss)	(103,705)	620,192	18,898
Noncontrolling interest	45,110	(330,751)	(15,959)
Net income (loss) available for common stockholders	$ (58,595)	$ 289,441	$ 2,939
Earnings (loss) per share			
Basic	$ (0.53)	$ 2.82	$ 0.03
Diluted	$ (0.53)	$ 2.78	$ 0.03
Weighted average common shares outstanding			
Basic	113,918,103	100,875,793	62,579,147
Diluted	113,918,103	102,089,139	62,579,147
Net income (loss)	$ (103,705)	$ 620,192	$ 18,898
Other comprehensive income (loss)			
Foreign exchange translation adjustment, net of taxes	(1,475)	(5,127)	9,117
Comprehensive income (loss)	(105,180)	615,065	28,015
Less: Comprehensive income (loss) attributable to noncontrolling interest	45,668	(328,697)	(21,833)
Comprehensive income (loss) attributable to common stockholders	$ (59,512)	$ 286,368	$ 6,182

See accompanying notes to the consolidated financial statements.

Table of Contents

Virtu Financial, Inc. and Subsidiaries
Consolidated Statements of Changes in Equity
Years Ended December 31, 2019, 2018 and 2017

(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)	Accumulated Other Comprehensive Income (Loss)	Total Virtu Financial Inc. Stockholders' Equity	Non-Controlling Interest	Total Equity
	Shares	Amounts	Shares	Amounts	Shares	Amounts	Shares	Amounts	Amounts					
Balance at December 31, 2016	40,436,580	$ —	19,810,707	$ —	79,610,490	$ 1	(453,066)	$ (8,358)	$ 155,536	$ (1,254)	$ (252)	$ 145,673	$ 388,739	$ 534,412
Share based compensation	546,265	—	(34,019)	—	—	—	—	—	16,846	—	—	16,846	—	16,846
Repurchase of Class C common stock	—	—	(540,686)	—	—	—	—	—	(9,143)	—	—	(9,143)	—	(9,143)
Treasury stock purchases	—	—	—	—	—	—	(163,857)	(2,683)	—	—	—	(2,683)	—	(2,683)
Net income	—	—	—	—	—	—	—	—	—	2,939	—	2,939	15,959	18,898
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	3,243	3,243	5,874	9,117
Distribution from Virtu Financial to non-controlling interest	—	—	—	—	—	—	—	—	—	—	—	—	(89,563)	(89,563)
Dividends	—	—	—	—	—	—	—	—	—	(63,814)	—	(63,814)	—	(63,814)
Issuance of Class A common stock	48,076,924	1	—	—	—	—	—	—	735,973	—	—	735,974	—	735,974
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	—	—	1,534	—	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)	$ 2,991	$ 830,569	$ 321,009	$ 1,151,578
Share based compensation	1,027,861	—	—	—	—	—	—	—	34,909	—	—	34,909	—	34,909
Repurchase of Class C common stock	—	—	(210,891)	—	—	—	—	—	—	(8,216)	—	(8,216)	—	(8,216)
Treasury stock purchases	(1,007,230)	—	—	—	—	—	(1,561,848)	(43,964)	—	(22,254)	—	(66,218)	—	(66,218)
Stock option exercised	4,080,673	—	—	—	—	—	—	—	76,754	—	—	76,754	—	76,754
Net income	—	—	—	—	—	—	—	—	—	289,441	—	289,441	330,751	620,192
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	(3,073)	(3,073)	(2,054)	(5,127)
Distribution from Virtu Financial to non-controlling interest	—	—	—	—	—	—	—	—	—	—	—	—	(206,903)	(206,903)
Dividends	—	—	—	—	—	—	—	—	—	(100,329)	—	(100,329)	—	(100,329)
Issuance of Class A common stock	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	(950)	—	(950)
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)	—	—	(991)	—	(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)	$ 1,051,896	$ 442,803	$ 1,494,699
Share based compensation	2,226,676	—	—	—	—	—	—	—	72,381	—	—	72,381	—	72,381
Repurchase of Class C common stock	—	—	(9,541)	—	—	—	—	—	(196)	—	—	(196)	—	(196)
Treasury stock purchases	(720,323)	—	—	—	—	—	—	—	—	(15,878)	—	(15,878)	—	(15,878)
Stock option exercised	121,344	—	—	—	—	—	—	—	931	—	—	931	—	931
Net income	—	—	—	—	—	—	—	—	—	(58,595)	—	(58,595)	(45,110)	(103,705)
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	(565)	(565)	(910)	(1,475)
Distribution from Virtu Financial to non-controlling interest	—	—	—	—	—	—	—	—	—	—	—	—	(99,221)	(99,221)

(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)	Accumulated Other Comprehensive Income (Loss)	Total Virtu Financial Inc. Stockholders' Equity	Non-Controlling Interest	Total Equity
	Shares	Amounts	Shares	Amounts	Shares	Amounts	Shares	Amounts	Amounts					
Dividends	—	—	—	—	—	—	—	—	—	(112,414)	—	(112,414)	—	(112,414)
Issuance of Class A common stock	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Issuance of common stock in connection with employee exchanges	853,167	—	—	—	—	—	—	—	—	—	—	—	—	—
Issuance of Common Stock in connection with secondary offering, net of offering costs	9,000,000	—	—	—	(9,000,000)	—	—	—	(375)	—	—	(375)	—	(375)
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with employee exchanges	—	—	(853,167)	—	—	—	—	—	—	—	—	—	—	—
Issuance of tax receivable agreements in connection with employee exchange	—	—	—	—	—	—	—	—	(5,811)	—	—	(5,811)	—	(5,811)
Balance at December 31, 2019	120,435,912	$ 1	12,887,178	$ —	60,091,740	$ 1	(2,178,771)	$ (55,005)	$ 1,077,398	$ (90,374)	$ (647)	$ 931,374	$ 297,562	$ 1,228,936

See accompanying notes to the consolidated financial statements.

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

	For the Year Ended December 31,		
(in thousands)	2019	2018	2017
Cash flows from operating activities			
Net income (loss)	$ (103,705)	$ 620,192	$ 18,898
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	65,644	61,154	47,327
Amortization of purchased intangibles and acquired capitalized software	70,595	26,123	15,447
Debt issue cost related to debt refinancing and prepayment	41,134	10,645	10,460
Amortization of debt issuance costs and deferred financing fees	11,720	10,419	5,822
Termination of office leases	66,452	23,357	3,671
Share based compensation	71,728	31,934	26,259
Reserve for legal matters	—	2,020	657
Write-down of assets	—	3,239	1,216
Connectivity early termination	—	2,000	—
Tax receivable agreement obligation reduction	—	—	(86,599)
Deferred taxes	(18,691)	4,131	102,973
Gain on sale of businesses	—	(335,211)	—
Other	880	418	(4,577)
Changes in operating assets and liabilities (1):			
Securities borrowed	(515,897)	71,488	155,277
Securities purchased under agreements to resell	(127,557)	(15,475)	16,894
Receivables from broker-dealers and clearing organizations	110,977	(111,344)	26,145
Trading assets, at fair value	(125,246)	72,701	1,210,599
Receivables from customers	29,733	(18,087)	—
Other assets	25,133	125,272	44,494
Securities loaned	452,397	375,352	366,295
Securities sold under agreements to repurchase	58,881	(108,781)	(450,964)
Payables to broker-dealers and clearing organizations	107,266	(148,764)	(516,376)
Payables to customers	(37,560)	(28,875)	—
Trading liabilities, at fair value	22,552	90,797	(721,204)
Accounts payable, accrued expenses and other liabilities	(37,665)	(50,110)	17,860
Net cash provided by (used in) operating activities	168,771	714,595	290,574
Cash flows from investing activities			
Development of capitalized software	(48,492)	(21,482)	(14,158)
Acquisition of property and equipment	(9,320)	(26,467)	(18,932)
Proceeds from sale of telecommunication assets	—	600	—
Proceeds from sale of BondPoint	—	400,192	—
ITG Acquisition, net of cash acquired, described in Note 3	(835,581)	—	
Investment in joint ventures	(6,250)	(23,669)	—
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	(899,643)	329,174	(838,016)
Cash flows from financing activities			
Distribution from Virtu Financial to non-controlling interest	(99,221)	(206,903)	(89,563)
Dividends	(112,414)	(100,329)	(63,814)
Repurchase of Class A-2 interests	—	—	(11,143)
Repurchase of Class C common stock	(196)	(8,216)	—
Purchase of treasury stock	(15,878)	(66,218)	(2,683)
Stock options exercised	931	76,754	—
Short-term borrowings, net	39,935	(15,000)	7,000
Proceeds from long-term borrowings	1,492,500	—	1,115,036
Repayment of long term borrowings	(500,000)	(500,000)	(256,473)
Repayment of KCG Notes	—	—	(480,987)

(in thousands)	For the Year Ended December 31, 2019	2018	2017
Tax receivable agreement obligations	—	(12,359)	(7,045)
Debt issuance costs	(35,702)	(2,261)	(56,505)
Issuance of common stock, net of offering costs	—	—	735,974
Issuance of common stock in connection with secondary offering, net of offering costs	(375)	(950)	—
Net cash provided by (used in) financing activities	769,580	(835,482)	889,797
Effect of exchange rate changes on cash and cash equivalents	(1,475)	(5,127)	9,117
Net increase (decrease) in cash and cash equivalents	37,233	203,160	351,472
Cash, cash equivalents, and restricted or segregated cash, beginning of period	736,047	532,887	181,415
Cash, cash equivalents, and restricted or segregated cash, end of period	$ 773,280	$ 736,047	$ 532,887
Supplementary disclosure of cash flow information			
Cash paid for interest	$ 205,433	$ 139,412	$ 112,982
Cash paid for taxes	12,273	93,991	5,976
Non-cash investing activities			
Share based compensation to developers relating to capitalized software	2,135	2,936	1,605
Non-cash financing activities			
Tax receivable agreement described in Note 6	—	(991)	1,534
Discount on issuance of senior secured credit facility	—	—	1,438

(1) Net of ITG Acquisition; see Note 3

See accompanying notes to the consolidated financial statements.

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, "Virtu" or the "Company"). VFI is a Delaware corporation whose primary asset is its ownership interest in Virtu Financial LLC ("Virtu Financial"). As of December 31, 2019, VFI owned approximately 62.2% 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 its subsidiaries (the "Group").

The Company is a leading financial firm that leverages cutting edge technology to deliver liquidity to the global markets and innovative, transparent trading solutions to its clients. The Company provides deep liquidity in over 25,000 financial instruments, at over 235 venues, in 36 countries worldwide to help create more efficient markets. Leveraging its global market structure expertise and scaled, multi-asset infrastructure, the Company provides its clients a robust product suite including offerings in execution, liquidity sourcing, analytics and broker-neutral, multi-dealer platforms in workflow technology. The Company's product offerings allow its clients to trade on hundreds of venues across over 50 countries and in multiple asset classes, including global equities, ETFs, foreign exchange, futures, fixed income and myriad other commodities. The Company's integrated, multi-asset analytics platform provides a range of pre and post-trade services, data products and compliance tools that its clients rely upon to invest, trade and manage risk across global markets.

On July 20, 2017 (the "KCG Closing Date"), the Company completed the all-cash acquisition of KCG Holdings, Inc. ("KCG") (the "Acquisition of KCG").

On March 1, 2019 (the "ITG Closing Date"), the Company completed the acquisition of Investment Technology Group, Inc. and its subsidiaries ("ITG") in an all-cash transaction valued at $30.30 per ITG share, for a total of approximately $1.0 billion (the "ITG Acquisition"). See Note 3 "ITG Acquisition" for further details. ITG was a global financial technology company that will contribute to the Company's Execution Services segment.

Virtu Financial's principal U.S. subsidiaries include Virtu Americas LLC ("VAL"), Virtu ITG LLC ("VITG"), Virtu Alternet Securities LLC ("VALT"), Virtu Financial BD LLC ("VFBD"), and Virtu Financial Capital Markets LLC ("VFCM", collectively with VFBD, VAL, VITG, and VALT, the "broker-dealers"), which are self-clearing U.S. broker-dealers. Over the course of 2019, in furtherance of our integration efforts, we have been in the process of consolidating our U.S. broker-dealers. We submitted applications to withdraw the SEC registrations for VFBD and VFCM in 2020 and have consolidated their broker-dealer activities within VAL as of December 31, 2019. Other principal U.S. subsidiaries include Virtu Financial Global Markets LLC, a U.S. trading entity focused on futures and currencies; Virtu ITG Analytics LLC, a provider of pre and post-trade analysis, fair value, and trade optimization services; and Virtu ITG Platforms LLC, a provider of workflow technology solutions and network connectivity services. Principal foreign subsidiaries include Virtu Financial Ireland Limited and Virtu ITG Europe Limited, each formed in Ireland; Virtu ITG Canada Corp. and Virtu Financial Canada ULC, each formed in Canada; Virtu Financial Asia Pty Ltd. and Virtu ITG Australia Limited, each formed in Australia; Virtu ITG Hong Kong Limited, formed in Hong Kong; and Virtu Financial Singapore Pte. Ltd. and Virtu ITG Singapore Pte. Ltd., each formed in Singapore, all of which are trading entities focused on asset classes in their respective geographic regions.

The Company has two operating segments: (i) Market Making and (ii) Execution Services; and one non-operating segment: Corporate. See Note 22 "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-Q 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 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 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.

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 KCG Closing Date 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. The financial results for 2017 comprise our results for the entire applicable period and the results of KCG from the KCG Closing Date through December 31, 2017. All periods prior to the KCG Closing Date comprise solely our results.

As discussed in Note 3 "ITG Acquisition", the Company has accounted for the ITG Acquisition under the acquisition method of accounting. Under the acquisition method of accounting, the assets and liabilities of ITG, as of the ITG 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 ITG Acquisition reflect ITG's and the Company's balances, and reflect the impact of purchase accounting adjustments. The financial results for the year ended December 31, 2019 comprise the Company's results for the entire applicable period and the results of ITG from the ITG Closing Date through December 31, 2019. All periods prior to the ITG Closing Date comprise solely the Company's results.

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, tax receivable agreements, leases, litigation accruals, 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"), certain of 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.

Cash restricted or segregated under regulations and other represents (i) special reserve bank accounts for the exclusive benefit of customers (“Special Reserve Bank Account”) maintained by VAL and VITG in accordance with Rule 15c3-3 of the Securities Exchange Act of 1934, as amended (“Customer Protection Rule”), or proprietary accounts of broker-dealers, (ii) funds on deposit for Canadian and European trade clearing and settlement activity, (iii) segregated balances under a collateral account control agreement for the benefit of certain customers in Hong Kong, and (iv) funds relating to the securitization of bank guarantees supporting certain of the Company’s foreign leases.

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

Receivables from and payables to broker-dealers and clearing organizations primarily represent 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 broker 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, Financial instruments owned and pledged, 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.

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.

Client Commission Arrangements

Institutional customers are permitted to allocate a portion of their gross commissions to pay for research products and other services provided by third parties and the Company’s subsidiaries. The amounts allocated for those purposes are commonly referred to as client commission arrangements. The cost of independent research and directed brokerage arrangements is accounted for on an accrual basis. Commission revenue is recorded when earned on a trade date basis. Payments relating to client commission arrangements are netted against the commission revenues. Research receivable, including prepaid research on behalf of customers and balance transfers due from other broker-dealers, net of an allowance is included in Receivables from customers and Receivables from broker-dealers and clearing organizations, while accrued research payable is included in Accounts payable, accrued expenses, and other liabilities in the Consolidated Statements of Financial Condition.

Property and Equipment

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.

Capitalized Software

The Company capitalizes costs of materials, consultants, and payroll and payroll related costs for employees incurred in developing internal-use software and software to be sold, leased, or marketed. 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 3 years, which represents the estimated useful lives of the underlying software.

Leases

The Company determines if an arrangement is a lease at the inception of the arrangement. Operating leases are included in Operating lease right-of use assets and Operating lease liabilities on the Consolidated Statements of Financial Condition. Operating lease right-of-use (“ROU”) assets are assets that represent the lessee’s right to use, or control the use of, a specified asset for the lease term. Finance leases consist primarily of leases for technology and equipment and are included in Property, equipment, and capitalized software and Accounts payable, accrued expenses and other liabilities on the Consolidated Statements of Financial Condition. ROU assets and lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The Company uses its incremental borrowing rate based on the information available at the commencement date in determining the present value of future payments. The ROU assets are reduced by lease incentives and initial direct costs incurred. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for operating leases and amortization of the finance lease ROU asset is recognized on a straight-line basis over the lease term. Certain of the Company's lease agreements contain fixed lease payments that contain lease and non-lease components; for such leases, the Company accounts for the lease and non-lease components as a single lease component.

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 occur or certain circumstances exist. In the impairment assessment as of July 1, 2019, 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. No impairment was identified.

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 and the ITG Acquisition were recorded at their fair values on the dates 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.

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.

The Company provides order management software ("OMS") and related software products and connectivity services to customers and recognizes license fee revenues and monthly connectivity fees. License fee revenues, generated for the use of the Company's OMS and other software products, is fixed and recognized at the point in time at which the customer is able to use and benefit from the license. Connectivity revenue is variable in nature, based on the number of live connections, and is recognized over time on a monthly basis using a time-based measure of progress.

The Company also provides analytics products and services to customers and recognizes subscription fees, which are fixed for the contract term, based on when the products and services are delivered. Analytics products and services may be bundled with trade execution services, in which case commissions are allocated to the analytics performance obligations using an allocation methodology.

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

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.

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 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 and Pound Sterling as the functional currency, and subsidiaries domiciled in Canada, which utilize the Canadian dollar 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 Other, net on the consolidated statements of operations.

Share-Based Compensation

Share-based awards issued for compensation in connection with or subsequent to the Company's initial public offering in April 2015 (the “IPO”) and certain reorganization transactions consummated in connection with the IPO (the “Reorganization Transactions”) pursuant to the Virtu Financial, Inc. 2015 Management Incentive Plan (as amended, the “Amended and Restated 2015 Management Incentive Plan”) and pursuant to the Amended and Restated Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan, dated as of June 8, 2017 (the “Amended and Restated ITG 2007 Equity Plan”), were in the form of stock options, Class A common stock, par value $0.00001 per share (the “Class A Common Stock”) and RSUs, as applicable. 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.

In October 2016, the Company invested in a joint venture (“JV”) with nine other parties. One of the parties was KCG. Upon the Acquisition of KCG, KCG was required to relinquish its ownership in the JV. As of December 31, 2019, each of the parties owns approximately 10% of the voting shares and 10% of the equity of this JV.

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 Company has an interest in a JV that offers derivatives trading technology and execution services to broker-dealers, professional traders and select hedge funds. As of December 31, 2019, the Company held approximately a 10% indirect minority stake in this JV.

The Company has an interest in a JV that is developing a member-owned equities exchange with the goal of increasing competition and transparency, while reducing fixed costs and simplifying execution of equity trading in the US. As of December 31, 2019, the Company held approximately a 21.4% stake in this JV.

The Company's four 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 Accounts payable, 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, 2019:

(in thousands)	Carrying Amount Asset	Carrying Amount Liability	Maximum Exposure to Loss	VIEs' assets
Equity investment	$ 28,579	$ —	$ 28,579	$ 119,051

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

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

Accounting Pronouncements, Recently Adopted

Revenue Recognition - In May 2014, the FASB issued Accounting Standard Update ("ASU") 2014-09, *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. For a discussion of the impact of the standard on the Company's revenues as well as the additional disclosures required by the new standard, see Note 13 "Revenues from Contracts with Customers".

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

The Company adopted this ASU on January 1, 2019 using the modified retrospective method of implementation. 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 elected not to recognize lease assets and lease liabilities for leases with a determined lease term of twelve months or less that are not expected to be renewed. The Company elected several practical expedients upon transition, including the expedient not to re-assess the lease population as long as contracts were properly scoped as a lease under previous guidance, not to re-assess existing lease classification for existing leases, not to adjust existing costs that were capitalized, and not to separate lease and non-lease components of fixed lease payments.

The standard had a material impact on the Company's Consolidated Statements of Financial Condition due to the recognition of ROU assets and lease liabilities for operating leases, while the Company's accounting for finance leases remained substantially unchanged. The standard had an immaterial impact on the Consolidated Statements of Comprehensive Income. The additional disclosures required by the new standard have been included in Note 16 "Leases".

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 are required to measure non-employee awards at the fair value of the instruments issued at the grant date. Entities can also consider the probability of the recipient satisfying any performance conditions. The Company adopted this standard on January 1, 2019. The Company has not granted share-based awards to non-employees, and the adoption of this ASU did not have a material impact on its consolidated financial statements.

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. The Company early adopted this standard as of January 1, 2019, and the adoption of this ASU did not have a material impact on its consolidated financial statements.

Accounting Pronouncements, Not Yet Adopted as of December 31, 2019

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 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 will be generally recognized earlier than under current U.S. GAAP. In June 2019, the FASB issued ASU 2019-05, *Financial Instruments-Credit Losses* (Topic 326): *Targeted Transition Relief*, which provides entities with an option to irrevocably elect the fair value option on an instrument-by-instrument basis for certain instruments upon adoption of the new Credit Losses standard. The ASUs are effective for periods beginning after December 15, 2019, including interim periods within that fiscal year.

The Company has undertaken a 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 2019, 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 customers, broker-dealers and clearing organizations. The Company has performed a qualitative and quantitative analysis of these financial instruments, including historical loss rates and time to maturity, and as a result of its analysis, has determined that there will not be a material impact to its financial condition, results of operations and cash flows.

Income Taxes - In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which simplifies the accounting for income taxes by removing certain exceptions to the general principles for income tax accounting, and introducing other changes that touch on a variety of topics within income tax accounting. The ASUs are effective for periods beginning after December 15, 2020, 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.

3. ITG Acquisition

Background

On the ITG Closing Date, the Company completed the ITG Acquisition. In connection with the ITG Acquisition, Virtu Financial, VFH Parent LLC, a Delaware limited liability company and a subsidiary of Virtu Financial (“VFH”) and Impala Borrower LLC (the “Acquisition Borrower”), a subsidiary of the Company, entered into a Credit Agreement dated as of March 1, 2019 (as amended from time to time, the “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 Credit Agreement provided (i) a senior secured first lien term loan in an aggregate principal amount of $1,500.0 million, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million borrowed by VFH to repay all amounts outstanding under its existing term loan facility and the remaining approximately $1,095.0 million borrowed by the Acquisition Borrower to finance the consideration and fees and expenses 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 the ITG Acquisition, VFH assumed the obligations of the Acquisition Borrower in respect of the acquisition term loans. Additionally, on the ITG Closing Date, the Company’s 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, was terminated.

As described in Note 10 “Borrowings”, the Credit Agreement was amended on October 9, 2019, on which date VFH borrowed and additional $525.0 million of incremental first lien term loans, the proceeds of which were used together with cash on hand to redeem the Notes (as defined below). The Indenture (as defined below) was fully terminated following such redemption.

Accounting treatment of the ITG Acquisition

The ITG Acquisition has been accounted for as a business combination pursuant to ASC 805, *Business Combinations* by the Company using the acquisition method of accounting. Under the acquisition method, the assets and liabilities of ITG, as of the ITG 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 and results of operations of the Company for the periods following the ITG Closing Date reflect ITG's and the Company's balances and reflect the impact of purchase accounting adjustments. As the Company is the accounting acquirer, the financial results for the year ended December 31, 2019 comprise the results of the Company for the entire applicable period and the results of ITG from the ITG Closing Date through December 31, 2019. All periods prior to the ITG Closing Date comprise solely the results of the Company.

Certain former ITG management employees were terminated upon the ITG Acquisition, and as a result were paid an aggregate of $17.6 million pursuant to their existing employment contracts and arrangements. This amount has been recognized as an expense by the Company and is included in Employee compensation and payroll taxes in the Consolidated Statements of Comprehensive Income for the year ended December 31, 2019.

Purchase price and goodwill

The aggregate cash purchase price of $1.0 billion was determined as the sum of the fair value, at $30.30 per share, of ITG shares outstanding held by former ITG stockholders at closing and the fair value of certain ITG employee stock-based awards that were outstanding, and which vested at the ITG Closing Date.

The purchase price has been allocated to the assets acquired and liabilities assumed using their estimated fair values at the ITG Closing Date. As of December 31, 2019, the Company has completed its analysis to finalize the allocation of the purchase price to the ITG acquired assets and liabilities. The Company engaged third party specialists for the purchase price allocation.

The amounts in the table below represent the allocation of the purchase price and are subject to revision during the remainder of the measurement period, a period not to exceed twelve months from the ITG Closing Date. Adjustments to the provisional fair values of Intangible assets, Deferred tax assets, Operating lease right-of-use assets, Other assets, Accounts Payable and accrued expenses and other liabilities, Operating lease liabilities, and Deferred tax liabilities were recorded during the period from the ITG Closing Date through December 31, 2019. The following table summarizes the estimated fair values of the assets acquired and liabilities assumed at the ITG Closing Date:

(in thousands)	**March 1, 2019**	**Measurement Period**	**December 31, 2019**
Cash and equivalents	$ 197,072	$ —	$ 197,072
Cash and securities segregated under federal regulations	14,232	—	14,232
Securities borrowed	13,182	—	13,182
Receivables from broker dealers and clearing organizations	328,112	—	328,112
Financial instruments owned, at fair value	523	—	523
Receivables from customers	122,697	—	122,697
Property, equipment and capitalized software (net)	46,408	—	46,408
Intangibles	479,600	37,600	517,200
Deferred tax assets	17,221	384	17,605
Operating lease right-of-use assets	87,236	13,049	100,285
Other assets	31,653	(1)	31,652
Total Assets	1,337,936	51,032	1,388,968
Short-term borrowings	18,651	—	18,651
Securities loaned	17,663	—	17,663
Payables to broker dealers and clearing organizations	152,043	—	152,043
Payables to customers	116,419	—	116,419
Financial instruments sold, not yet purchased, at fair value	11	—	11
Accounts payable and accrued expenses and other liabilities	172,727	6,166	178,893
Operating lease liabilities	104,983	(5,290)	99,693
Deferred tax liabilities	65,888	5,165	71,053
Total Liabilities	648,385	6,041	654,426
Total identified assets acquired, net of assumed liabilities	689,551	44,991	734,542
Goodwill	357,334	(44,991)	312,343
Total Purchase Price	$ 1,046,885	$ —	$ 1,046,885

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

(in thousands)	Amount	Amortization Years
Technology	$ 76,000	5
Customer relationships	437,600	10
Trade names	3,600	3
Intangible assets	517,200	
Goodwill	312,343	
Total	$ 829,543	

The Company estimated the fair value of the intangible assets, which involved the use of significant estimates and assumptions with respect to the timing and amounts of revenue growth rates, customer attrition rates, future tax rates, royalty rates, contributory asset charges, discount rate and the resulting cash flows. The total Goodwill of $312.3 million has been assigned to the Execution Services segment. Such goodwill is attributable to the expansion of product offerings and expected synergies of the combined workforce, products and technologies of the Company and ITG.

Assumption of Equity Compensation Plan

On the ITG Closing Date, the Company assumed the Amended and Restated ITG 2007 Equity Plan and certain stock option awards, restricted stock unit awards, deferred stock unit awards and performance stock unit awards granted under the Amended and Restated ITG 2007 Equity Plan (the “Assumed Awards”). The Assumed Awards are subject to the same terms and conditions that were applicable to them under the Amended and Restated ITG 2007 Equity Plan, except that (i) the Assumed Awards relate to shares of the Company’s Class A Common Stock, (ii) the number of shares of Class A Common Stock subject to the Assumed Awards was the result of an adjustment based upon an Exchange Ratio (as defined in the Agreement and Plan of Merger by and between the Company, Impala Merger Sub, Inc., a Delaware corporation and an indirect wholly owned subsidiary of the Company, and ITG, dated as of November 6, 2018, the “ITG Merger Agreement”) and (iii) the performance share unit awards were converted into service-based vesting restricted stock unit awards that were no longer subject to any performance-based vesting conditions. As of the ITG Closing Date, the aggregate number of shares of Class A Common Stock subject to such Assumed Awards was 2,497,028 and the aggregate number of shares of Class A Common Stock that remained issuable pursuant to the Amended and Restated ITG 2007 Equity Plan was 1,230,406. The Company filed with the SEC a Registration Statement on Form S-8 on the ITG Closing Date to register such shares of Class A Common Stock.

Tax treatment of the ITG Acquisition

The ITG Acquisition will be treated as a tax-free transaction as described in Section 351 of the Internal Revenue Code. ITG’s tax basis in its assets and liabilities therefore generally carried over to the Company following the ITG Acquisition. None of the goodwill is expected to be deductible for tax purposes.

The Company recorded deferred tax assets of $17.6 million and deferred tax liabilities of $71.1 million with respect to recording ITG’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 ITG Acquisition, as described in Note 14 “Income Taxes”.

Pro forma results

Included in the Company’s results for the year ended December 31, 2019 are results from the business acquired as a result of the ITG Acquisition, from the ITG Closing Date through December 31, 2019 as follows:

(in thousands)	
Revenues	$ 347,859
Income (loss) before income taxes	(64,917)

The financial information in the table below summarizes the combined pro forma results of operations of the Company and ITG, based on adding the pre-tax historical results of ITG and the Company, and adjusting primarily for amortization of intangibles created in the ITG Acquisition, debt raised in conjunction with the ITG Acquisition and nonrecurring costs associated with the ITG Acquisition, which comprise advisory and other professional fees incurred by the Company and ITG of $15.1 million and $18.2 million, respectively. The pro forma data assumes all of ITG's issued and outstanding shares of common stock, par value $0.01 per share, were cancelled and extinguished and converted into the right to receive $30.30 in cash, without interest, less any applicable withholding taxes on January 1, 2018 and does not include adjustments to reflect the Company's operating costs or expected differences in the way funds generated by the Company are invested.

This pro forma financial information is based on estimates and assumptions that have been made solely for purposes of developing such pro forma information, including, without limitation, preliminary purchase accounting adjustments. The pro forma financial information does not reflect any synergies or operating cost reductions that may be achieved from the combined operations. The pro forma financial information combines the historical results for the Company and ITG for the years ended December 31, 2019 and 2018:

	For the Year Ended December 31,	
(in thousands)	2019	2018
Revenue	$ 1,605,340	$ 2,388,194
Net income (loss)	(94,233)	514,821
Net income (loss) available for common stockholders	(53,243)	240,265

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.

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:

(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

Table of Contents

5. Earnings per Share

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

	Years Ended December 31,		
(in thousands)	**2019**	**2018**	**2017**
Income (loss) before income taxes and noncontrolling interest	$ (115,982)	$ 696,363	$ 113,164
Provision for (benefit from) income taxes	(12,277)	76,171	94,266
Net income (loss)	(103,705)	620,192	18,898
Noncontrolling interest	45,110	(330,751)	(15,959)
Net income (loss) available for common stockholders	$ (58,595)	$ 289,441	$ 2,939

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)	**2019**	**2018**	**2017**
Basic earnings (loss) per share:			
Net income (loss) available for common stockholders	$ (58,595)	$ 289,441	$ 2,939
Less: Dividends and undistributed earnings allocated to participating securities	(1,926)	(5,418)	(1,326)
Net income (loss) available for common stockholders, net of dividends and undistributed earnings allocated to participating securities	(60,521)	284,023	1,613
Weighted average shares of common stock outstanding:			
Class A	113,918,103	100,875,793	62,579,147
Basic earnings (loss) per share	$ (0.53)	$ 2.82	$ 0.03

	Years Ended December 31,		
(in thousands, except for share or per share data)	**2019**	**2018**	**2017**
Diluted earnings (loss) per share:			
Net income (loss) available for common stockholders, net of dividends and undistributed earnings allocated to participating securities	$ (60,521)	$ 284,023	$ 1,613
Weighted average shares of common stock outstanding:			
Class A			
Issued and outstanding	113,918,103	100,875,793	62,579,147
Issuable pursuant to Amended and Restated 2015 Management Incentive Plan (1)	—	1,213,346	—
	113,918,103	102,089,139	62,579,147
Diluted earnings (loss) per share	$ (0.53)	$ 2.78	$ 0.03

(1) The dilutive impact excludes from the computation of earnings (loss) per share 377,677 unexercised stock options and 440,335 restricted stock units issuable pursuant to Amended and Restated Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan for the year ended December 31, 2019, and 1,740,630 options for the year ended December 31, 2017, because the inclusion of these instruments 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 equity holders ("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"), (an "Exchange"), and payments made under the tax receivable agreements. An Exchange during the year will give rise to favorable tax attributes that may generate cash tax savings specific to the Exchange to be realized over a specific period of time (generally 15 years). At each Exchange, management estimates the Company's cumulative TRA obligations to be reported on the consolidated financial statements, which amounted to $269.3 million as of December 31, 2019. The tax attributes are computed as the difference between the Company's basis in the partnership interest ("outside basis") as compared to the Company's share of the adjusted tax basis of partnership property ("inside basis") at the time of each Exchange. The computation of inside basis requires management to make judgments in estimating the components included in the inside basis as of the date of the Exchange (i.e., cash received by the Company on hypothetical sale of assets, allocation of gain/loss to the Company at the time of the Exchange taking into account complex partnership tax rules). In addition, management estimates the period of time that may generate cash tax savings of such tax attributes and the realizability of the tax attributes. 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, (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 (the "November 2015 Secondary Offering") and September 2016 (the "September 2016 Secondary Offering"), and (iv) the purchase of Virtu Financial Units (along with corresponding shares of the Company's Class D common stock, par value $0.00001 per share (the "Class D Common Stock") in connection with the May 2018 Secondary Offering (defined below) and the May 2019 Secondary Offering (defined below, and, together with the November 2015 Secondary Offering, the September 2016 Secondary Offering, and the May 2018 Secondary Offering, the "Secondary Offerings"), payments to certain Virtu Members in respect of the purchases are expected to range from approximately $3.3 million to $20.7 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 the other selling stockholders, both as described in Note 18 "Capital Structure", the Company recorded an additional deferred tax asset of $78.7 million and a 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.

In connection with the employee exchanges and May 2019 Secondary Offering between the Company and TJMT Holdings LLC and the other selling stockholders, both as described in Note 18 "Capital Structure", the Company recorded an additional deferred tax asset of $49.1 million and payment liability pursuant to the tax receivable agreements of $54.9 million, with the $5.8 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 further described in Note 14 "Income Taxes", the aforementioned deferred tax asset and related payment liability were subsequently reduced, and the Company recorded a reduction of its tax receivable agreement obligation of $86.6 million due to the change in the corporate income tax rate.

At December 31, 2019 and December 31, 2018, the Company's remaining deferred tax assets that relate to the matters described above were approximately $197.6 million and $167.1 million, respectively, and the Company's liabilities over the next 15 years pursuant to the tax receivable agreements were approximately $269.3 million and $214.4 million, respectively. The amounts recorded as of December 31, 2019 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.

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

The Company has two operating segments: (i) Market Making; (ii) Execution Services; and one non-operating segment: Corporate. As of December 31, 2019 and December 31, 2018, the Company's total amount of goodwill recorded was $1,148.9 million and $836.6 million, respectively. The Company recognized $312.3 million of goodwill in connection with the ITG Acquisition, which was recorded in the Execution Services segment. No goodwill impairment was recognized during the years ended December 31, 2019, 2018, and 2017.

The following table presents the details of goodwill by segment:

(in thousands)	Market Making	Execution Services	Corporate	Total
Balance as of December 31, 2018	$ 755,292	$ 81,291	$ —	$ 836,583
Goodwill recognized in ITG Acquisition	—	312,343	—	312,343
Balance as of December 31, 2019	$ 755,292	$ 393,634	$ —	$ 1,148,926

As of December 31, 2019 and December 31, 2018, the Company's total amount of intangible assets recorded was $529.6 million and $84.0 million, respectively. The Company acquired $517.2 million of intangible assets in connection with the ITG Acquisition. Acquired intangible assets consisted of the following as of December 31, 2019 and December 31, 2018:

	As of December 31, 2019			
(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	770	180	9
ETF buyer relationships	950	770	180	9
Technology	136,000	58,203	77,797	1 to 6
Customer relationships	486,600	46,456	440,144	10 to 12
Trade name	3,600	1,000	2,600	3
Favorable occupancy leases	5,895	2,040	3,855	3 to 15
Exchange memberships	4,882	—	4,882	Indefinite
	$ 748,877	$ 219,239	$ 529,638	

	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	

Amortization expense relating to finite-lived intangible assets was approximately $70.6 million, $26.1 million, and $15.4 million for the years ended December 31, 2019, 2018, and 2017, respectively. This is included in Amortization of purchased intangibles and acquired capitalized software in the accompanying Consolidated Statements of Comprehensive Income.

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, 2019 and December 31, 2018:

(in thousands)	December 31, 2019	December 31, 2018
Assets		
Due from prime brokers	$ 418,059	$ 302,152
Deposits with clearing organizations	231,977	84,509
Net equity with futures commission merchants	267,748	294,884
Unsettled trades with clearing organization	214,618	193,544
Securities failed to deliver	178,324	218,663
Commissions and fees	7,858	7,697
Total receivables from broker-dealers and clearing organizations	$ 1,318,584	$ 1,101,449
Liabilities		
Due to prime brokers	$ 511,524	$ 354,300
Net equity with futures commission merchants	50,950	47,998
Unsettled trades with clearing organization	118,286	90,021
Securities failed to receive	144,494	73,547
Commissions and fees	1,496	1,575
Total payables to broker-dealers and clearing organizations	$ 826,750	$ 567,441

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 $134.3 million and $184.6 million as of December 31, 2019 and December 31, 2018, 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.

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, 2019 and December 31, 2018, substantially all of the securities received as collateral have been repledged. The fair value of the collateralized transactions at December 31, 2019 and December 31, 2018 are summarized as follows:

(in thousands)	December 31, 2019	December 31, 2018
Securities received as collateral:		
Securities borrowed	$ 1,881,005	$ 1,361,635
Securities purchased under agreements to resell	142,922	15,475
	$ 2,023,927	$ 1,377,110

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, 2019 and December 31, 2018 consisted of the following:

(in thousands)	December 31, 2019	December 31, 2018
Equities	$ 654,366	$ 748,846
Exchange traded notes	42,590	42,269
	$ 696,956	$ 791,115

Table of Contents

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 with an aggregate borrowing limit of $200 million, which was subsequently increased to $300 million in January 2020, and is collateralized by the trading and deposit account of one of the Company's broker-dealer subsidiaries maintained at the financial institution.

On November 3, 2017, the Company entered into the second credit facility (the "Committed Facility") with the same financial institution for an aggregate borrowing limit of $500 million. The Committed Facility was subsequently amended and restated March 1, 2019 to increase the borrowing limit to $600 million and to enable a broker-dealer subsidiary of ITG as a borrower thereunder, and amended again on September 23, 2019 to adjust certain sublimits and required minimum total regulatory capital. The Committed Facility consists of 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 National Securities Clearing Corporation. Each of the broker-dealers has a sublimit under Borrowing Base A Loan, from $300 million to $600 million, which bears interest at the adjusted LIBOR or base rate plus 1.25% per annum. Each of the broker-dealers has a sublimit under Borrowing Base B Loan, from $100 million to $150 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. These balances are included within Short-term borrowings on the Consolidated Statement of Financial Condition.

	At December 31, 2019				
(in thousands)	**Interest Rate**	**Financing Available**	**Borrowing Outstanding**	**Deferred Debt Issuance Cost**	**Outstanding Borrowings, net**
Broker-dealer credit facilities:					
Uncommitted facility	2.55%	$ 200,000	$ 30,000	$ (2,100)	$ 27,900
Committed facility	3.01%	600,000	—	—	—
		$ 800,000	$ 30,000	$ (2,100)	$ 27,900

	At December 31, 2018				
(in thousands)	**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
Committed facility	3.75%	500,000	7,000	(1,040)	5,960
		$ 700,000	$ 17,000	$ (1,872)	$ 15,128

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)	**2019**	**2018**	**2017**
Broker-dealer credit facilities:			
Uncommitted facility	$ 1,591	$ 1,794	$ 1,667
Committed facility	454	306	52
	$ 2,045	$ 2,100	$ 1,719

Short-Term Bank Loans

The Company's international securities clearance and settlement activities are funded with operating cash or with short-term bank loans in the form of overdraft facilities. At December 31, 2019, there was $45.6 million outstanding under these facilities at a weighted average interest rate of approximately 4.5% associated with international settlement activities. These short-term bank loan balances are included within Short-term borrowings on the Consolidated Statement of Financial Condition.

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, 2019		
	Weighted Average Interest Rate	**Financing Available**	**Borrowing Outstanding**
Short-Term Credit Facilities:			
Short-term credit facilities (1)	4.22%	$ 586,000	$ 134,331
		$ 586,000	$ 134,331

	At December 31, 2018		
	Weighted Average Interest Rate	**Financing Available**	**Borrowing Outstanding**
Short-Term Credit Facilities:			
Short-term credit facilities (1)	5.03%	$ 566,000	$ 184,608
		$ 566,000	$ 184,608

(1) 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 $6.6 million, $7.1 million, and $6.6 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Long-Term Borrowings

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

		At December 31, 2019				
(in thousands)	**Maturity Date**	**Interest Rate**	**Outstanding Principal**	**Discount**	**Deferred Debt Issuance Cost**	**Outstanding Borrowings, net**
Long-term borrowings:						
First Lien Term Loan Facility	March 2026	5.20%	$ 1,925,000	$ (6,795)	$ (32,513)	$ 1,885,692
SBI bonds	January 2023	5.00%	32,225	—	(51)	32,174
			$ 1,957,225	$ (6,795)	$ (32,564)	$ 1,917,866

		At December 31, 2018				
(in thousands)	**Maturity Date**	**Interest Rate**	**Outstanding Principal**	**Discount**	**Deferred Debt Issuance Cost**	**Outstanding Borrowings, net**
Long-term borrowings:						
Fourth Amended and Restated Credit Facility	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

Credit Agreement

As described in Note 3 "ITG Acquisition", in connection with the ITG Acquisition, Virtu Financial, VFH and the Acquisition Borrower entered into the 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 Credit Agreement provided (i) a senior secured first lien term loan (together with the Incremental Term Loans, as defined below; the "First Lien Term Loan Facility") in an aggregate principal amount of $1,500 million, drawn in its entirety on the ITG Closing Date, with approximately $404.5 million borrowed by VFH to repay all amounts outstanding under the Existing Term Loan Facility (as defined below) and the remaining approximately $1,095 million borrowed by the Acquisition Borrower to finance the consideration and fees and expenses paid in connection with the ITG Acquisition, and (ii) a $50.0 million senior secured first lien revolving facility to VFH (the "First Lien Revolving Facility"), with a $5.0 million letter of credit subfacility and a $5.0 million swingline subfacility. After the ITG Closing Date, VFH assumed the obligations of the Acquisition Borrower in respect of the acquisition term loans.

On October 9, 2019 (the "Amendment Closing Date"), VFH entered into Amendment No. 1 ("Amendment No. 1"), which amended the Credit Agreement dated as of March 1, 2019 (as amended by Amendment No. 1, the "Amended Credit Agreement") by and among VFH, Virtu Financial, the lenders party thereto, and Jefferies Finance, LLC, as administrative agent and collateral agent, to, among other things, provide for $525.0 million in aggregate principal amount of incremental term loans (the "Incremental Term Loans"), and amend the related collateral agreement. On the Amendment Closing Date, VFH borrowed the Incremental Term Loans and used the proceeds together with available cash to redeem all of the $500.0 million aggregate principal amount of the outstanding 6.750% Senior Secured Second Lien Notes (as defined below) due 2022 issued by VFH and Orchestra Co Issuer, Inc., a Delaware corporation and indirect subsidiary of the Company (together with VFH, the "Issuers"), and pay related fees and expenses. The terms, conditions and covenants applicable to the Incremental Term Loans are the same as the terms, conditions and covenants applicable to the existing term loans under the Credit Agreement, including a maturity date of March 1, 2026. The Company also previously entered into a five-year $525 million floating to fixed interest rate swap agreement that effectively fixes interest payment obligations on $525.0 million of principal under the First Lien Term Loan Facility at 4.8% through September 2024. During the year ended December 31, 2019, $100.0 million was repaid under the First Lien Term Loan Facility. As of December 31, 2019, $1,925 million was outstanding under the First Lien Term Loan Facility. On January 29, 2020 the Company entered into a five-year $1,000 million floating to fixed interest rate swap agreement that effectively fixes interest payment obligations on $1,000 million of principal under the First Lien Term Loan Facility at 4.9% through January 2025.

The term loan borrowings and revolver borrowings under the Credit Agreement bear interest at a per annum rate equal to, at the Company's election, either (i) the greatest of (a) the prime rate in effect, (b) the greater of (1) the federal funds effective rate and (2) the overnight bank funding rate, in each case plus 0.5%, (c) an adjusted LIBOR rate for a Eurodollar borrowing with an interest period of one month plus 1% and (d) 1.00%, plus, in each case, 2.50%, with a stepdown to 2.25% based on VFH's first lien leverage ratio, or (ii) the greater of (x) an adjusted LIBOR rate for the interest period in effect and (y) 0%, plus, in each case, 3.50%, with a stepdown to 3.25% based on VFH's first lien leverage ratio. In addition, a commitment fee accrues at a rate of 0.50% per annum on the average daily unused amount of the First Lien Revolving Facility, with stepdowns to 0.375% and 0.25% per annum based on VFH's first lien leverage ratio, and is payable quarterly in arrears.

The First Lien Revolving Facility under the Credit Agreement is subject to a springing net first lien leverage ratio test which may spring into effect as of the last day of a fiscal quarter if usage of the aggregate revolving commitments exceeds a specified level as of such date. VFH is also subject to contingent principal prepayments based on excess cash flow and certain other triggering events. Borrowings under the Credit Agreement are guaranteed by Virtu Financial and VFH's material non-regulated domestic restricted subsidiaries and secured by substantially all of the assets of VFH and the guarantors, in each case, subject to certain exceptions.

Under the Credit Agreement, term loans will mature on March 1, 2026. The term loans amortize in annual installments equal to 1.0% of the original aggregate principal amount of the term loans. The revolving commitments will terminate on March 1, 2022.

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

To finance the Acquisition of KCG, on June 30, 2017, Virtu Financial and VFH previously entered into the Fourth Amended and Restated Credit Agreement which, upon the closing of the Acquisition of KCG, provided for an aggregate $1.15 billion of first lien secured term loans (the “Existing Term Loan Facility”). As described above, the Existing Term Loan Facility was fully terminated following its repayment in full with the proceeds of the First Lien Term Loan Facility.

Senior Secured Second Lien Notes

To finance the Acquisition of KCG, on June 16, 2017, Orchestra Borrower LLC (the “Escrow Issuer”), a wholly owned subsidiary of Virtu Financial, 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 gross proceeds from the Notes were deposited into a segregated escrow account with an escrow agent. The proceeds were released from escrow as of the KCG Closing Date and were used to finance, in part, the Acquisition of KCG, and to repay certain indebtedness of the Company and KCG.

As described above, the Credit Agreement was amended on October 9, 2019, on which date VFH borrowed an additional $525.0 million of incremental first lien term loans, the proceeds of which were used together with cash on hand to redeem the Notes in full. The Indenture was fully terminated following such redemption.

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. In December 2019, the maturity date of the SBI Bonds was extended to January 2023. The principal balance was ¥3.5 billion ($32.2 million) as of December 31, 2019 and ¥3.5 billion ($31.9 million) as of December 31, 2018. The Company recorded gains of $0.3 million, $0.8 million and $1.1 million during the years ended December 31, 2019, 2018 and 2017, respectively.

As of December 31, 2019, aggregate future required minimum principal payments based on the terms of the long-term borrowings were as follows:

(in thousands)	**December 31, 2019**
2020	15,000
2021	15,000
2022	15,000
2023	47,225
2024	15,000
Thereafter	1,850,000
Total principal of long-term borrowings	$ 1,957,225

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.

The Company prices 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.

There were no transfers of financial instruments between levels during the years ended December 31, 2019, 2018 and 2017.

Fair value measurements for those items measured on a recurring basis are summarized below as of December 31, 2019:

(in thousands)	December 31, 2019 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	$ 600,259	$ 1,080,518	$ —	$ —	$ 1,680,777
U.S. and Non-U.S. government obligations	106,690	20,847	—	—	127,537
Corporate Bonds	—	171,591	—	—	171,591
Exchange traded notes	243	48,894	—	—	49,137
Currency forwards	—	242,552	—	(211,398)	31,154
Options	8,538	—	—	—	8,538
	715,730	1,564,402	—	(211,398)	2,068,734
Financial instruments owned, pledged as collateral:					
Equity securities	362,439	291,927	—	—	654,366
Exchange traded notes	12	42,578	—	—	42,590
	362,451	334,505	—	—	696,956
Other Assets					
Equity investment	—	—	46,245	—	46,245
Exchange stock	2,721	—	—	—	2,721
	2,721	—	46,245	—	48,966
Liabilities					
Financial instruments sold, not yet purchased, at fair value:					
Equity securities	1,022,814	1,163,888	—	—	2,186,702
U.S. and Non-U.S. government obligations	39,091	2,713	—	—	41,804
Corporate Bonds	—	244,700	—	—	244,700
Exchange traded notes	15	21,631	—	—	21,646
Currency forwards	—	196,554	—	(196,535)	19
Options	3,087	—	—	—	3,087
	$ 1,065,007	$ 1,629,486	$ —	$ (196,535)	$ 2,497,958

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

	December 31, 2018				
(in thousands)	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
U.S. and Non-U.S. government obligations	—	—	—	—	—
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

SBI Investment

The Company has a minority investment (the “SBI Investment”) in SBI Japannext Co., Ltd. (“SBI”), a proprietary trading system based in Tokyo. In connection with the SBI Investment, the Company issued the SBI Bonds (as described in Note 10 “Borrowings”) and used the proceeds to partially finance the transaction. As of December 31, 2019, the fair value of the 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, 2019 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.

Financial Instruments Not Measured at Fair Value

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, 2019:

	December 31, 2019				
(in thousands)	Carrying Value	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets					
Cash and cash equivalents	$ 732,164	$ 732,164	$ 732,164	$ —	$ —
Cash restricted or segregated under regulations and other	41,116	41,116	41,116	—	—
Securities borrowed	1,928,763	1,928,763	—	1,928,763	—
Securities purchased under agreements to resell	143,032	143,032	—	143,032	—
Receivables from broker-dealers and clearing organizations	1,318,584	1,318,584	40,842	1,277,742	—
Total Assets	4,163,659	4,163,659	814,122	3,349,537	—
Liabilities					
Short-term borrowings	73,486	75,586	—	75,586	—
Long-term borrowings	1,917,866	1,966,850	—	1,966,850	—
Securities loaned	1,600,099	1,600,099	—	1,600,099	—
Securities sold under agreements to repurchase	340,742	340,742	—	340,742	—
Payables to broker-dealers and clearing organizations	826,750	826,750	49,514	777,236	—
Total Liabilities	$ 4,758,943	$ 4,810,027	$ 49,514	$ 4,760,513	$ —

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				
(in thousands)	Carrying Value	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (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 following presents the changes in Level 3 financial instruments measured at fair value on a recurring basis:

	Year Ended December 31, 2019						
(in thousands)	Balance at December 31, 2018	Purchases	Total Realized and Unrealized Gains / (Losses)	Net Transfers into (out of) Level 3	Settlement	Balance at December 31, 2019	Change in Net Unrealized Gains / (Losses) on Investments still held at December 31, 2019
Assets							
Other assets:							
Equity investment	$ 45,856	$ —	$ 389	$ —	$ —	$ 46,245	$ 389
Total	45,856	—	389	—	—	46,245	389

	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

Table of Contents

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, 2019 and December 31, 2018:

	December 31, 2019					
				Amounts Not Offset in the Consolidated Statement of Financial Condition		
(in thousands)	Gross Amounts of Recognized Assets	Amounts Offset in the Consolidated Statement of Financial Condition	Amounts of Assets Presented in the Consolidated Statement of Financial Condition	Financial Instruments	Cash Collateral Received	Net Amount
Offsetting of Financial Assets:						
Securities borrowed	$ 1,928,763	$ —	$ 1,928,763	$ (1,881,005)	$ (15,280)	$ 32,478
Securities purchased under agreements to resell	143,032	—	143,032	(142,922)	—	110
Trading assets, at fair value:						
Currency forwards	242,552	(211,398)	31,154	—	—	31,154
Options	8,538	—	8,538	(8,537)	—	1
Total	$ 2,322,885	$ (211,398)	$ 2,111,487	$ (2,032,464)	$ (15,280)	$ 63,743

				Amounts Not Offset in the Consolidated Statement of Financial Condition		
(in thousands)	Gross Amounts of Recognized Liabilities	Gross Amounts Offset in the Consolidated Statement of Financial Condition	Net Amounts of Liabilities Presented in the Consolidated Statement of Financial Condition	Financial Instruments	Cash Collateral Pledged	Net Amount
Offsetting of Financial Liabilities:						
Securities loaned	$ 1,600,099	$ —	$ 1,600,099	$ (1,552,146)	$ (15,281)	$ 32,672
Securities sold under agreements to repurchase	340,742	—	340,742	(340,718)	—	24
Trading liabilities, at fair value:						
Currency forwards	196,554	(196,535)	19	—	—	19
Options	3,087	—	3,087	(3,087)	—	—
Total	$ 2,140,482	$ (196,535)	$ 1,943,947	$ (1,895,951)	$ (15,281)	$ 32,715

	December 31, 2018					
				Gross Amounts Not Offset in the Consolidated Statement of Financial Condition		
(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	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

(in thousands)	Gross Amounts of Recognized Liabilities	Gross Amounts Offset in the Consolidated Statement of Financial Condition	Net Amounts of Liabilities Presented in the Consolidated Statement of Financial Condition	Gross Amounts Not Offset in the Consolidated Statement of Financial Condition: Financial Instruments	Gross Amounts Not Offset in the Consolidated Statement of Financial Condition: 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

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:

	December 31, 2019				
	Remaining Contractual Maturity				
(in thousands)	Overnight and Continuous	Less than 30 days	30 - 60 days	61 - 90 Days	Total
Securities sold under agreements to repurchase:					
Equity securities	$ —	$ 75,000	$ 50,000	$ 150,000	$ 275,000
U.S. and Non-U.S. government obligations	65,742	—	—	—	65,742
Total	65,742	75,000	50,000	150,000	340,742
Securities loaned:					
Equity securities	1,600,099	—	—	—	1,600,099
Total	$ 1,600,099	$ —	$ —	$ —	$ 1,600,099

	December 31, 2018				
	Remaining Contractual Maturity				
(in thousands)	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

12. Derivative Instruments

The fair value of the Company's derivative instruments on a gross basis consisted of the following at December 31, 2019 and December 31, 2018:

(in thousands)		December 31, 2019		December 31, 2018	
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	$ (1,366)	$ 4,502,017	$ (15,382)	$ 2,891,606
Commodity futures	Receivables from broker-dealers and clearing organizations	40,656	7,758,974	69,235	11,595,215
Currency futures	Receivables from broker-dealers and clearing organizations	(2,860)	1,116,246	(9,432)	3,756,914
Fixed income futures	Receivables from broker-dealers and clearing organizations	47	155,697	(28)	18,694
Options	Financial instruments owned	8,538	442,808	11,899	659,101
Currency forwards	Financial instruments owned	242,552	24,369,818	2,792,373	171,288,432
Interest rate swap	Other assets	8,976	525,000	—	—

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	$ 751	$ 83,803	$ 468	$ 106,487
Commodity futures	Payables to broker-dealers and clearing organizations	(45,175)	3,604,979	(375)	54,782
Currency futures	Payables to broker-dealers and clearing organizations	(23,223)	6,594,991	(30,643)	6,239,725
Fixed income futures	Payables to broker-dealers and clearing organizations	94	190,938	93	8,591
Options	Financial instruments sold, not yet purchased	3,087	436,422	11,051	608,756
Currency forwards	Financial instruments sold, not yet purchased	196,554	24,346,818	2,720,749	171,252,224
Derivative instruments designated as hedging instruments:					
Currency forwards	Financial instruments sold, not yet purchased	—	—	(792)	13,501

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 (loss) from derivative instruments not designated as hedging instruments under ASC 815, which are recorded in total revenues, and from those designated as hedging instruments 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, 2019, 2018 and 2017.

		Years Ended December 31,		
(in thousands)	**Financial Statements Location**	**2019**	**2018**	**2017**
Derivative instruments not designated as hedging instruments:				
Futures	Trading income, net	$ 247,619	$ (309,598)	$ 290,609
Currency forwards	Trading income, net	(44,293)	174,310	2,603
Options	Trading income, net	19,692	(6,161)	(7,166)
Interest rate swap (1)	Other, net	8,976	—	—
		$ 231,994	$ (141,449)	$ 286,046
Derivative instruments designated as hedging instruments:				
Foreign exchange - forward contract	Accumulated other comprehensive income	$ —	$ 63	(642)

(1) As disclosed in “Note 10 Borrowings”, the Company's Credit Agreement was amended on October 9, 2019, on which date VFH borrowed an additional $525.0 million of Incremental Term Loans. The Company entered into a five-year $525 million floating to fixed interest rate swap agreement that effectively fixes interest payment obligations on the Incremental Term Loans at 4.8% through September 2024. As of December 31, 2019, this interest rate swap did not meet the criteria in ASC 815 to qualify for hedge accounting, and gains and losses due to the derivative's change in market value were recorded in Other, net within total revenues.

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. As a result of the ITG Acquisition, subsequent to the ITG Closing Date, the Company has additional revenue streams as described below.

The guidance in ASC 606 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 market making 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 guidance primarily impacts the presentation of the Company's Execution Services revenue streams discussed below, all of which are presented within Commissions, net and technology services on the Company’s Consolidated Statements of Comprehensive Income.

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, net and technology services in the Consolidated Statements of Comprehensive Income.

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.

Workflow technology. Through its front-end workflow solutions and network capabilities, the Company provides order and trade execution management and order routing services.

The Company provides trade order routing from its execution management system (“EMS”) to its execution services offerings, with each trade order routed through the EMS representing a separate performance obligation that is satisfied at a point in time. Commissions earned are fixed and revenue is recognized on the trade date. A portion of the commissions earned on the trade is then allocated to workflow technology based on the stand-alone selling price paid by third-party brokers for order routing. The remaining commission is allocated to commissions, net using a residual allocation approach.

The Company participates in commission share arrangements, where trade orders are routed to third-party brokers from its EMS and its order management system (“OMS”). Commission share revenues from third-party brokers are generally fixed and revenue is recognized at a point in time on the trade date.

The Company provides OMS and related software products and connectivity services to customers and recognizes license fee revenues and monthly connectivity fees. License fee revenues, generated for the use of the Company's OMS and other software products, is fixed and recognized at the point in time at which the customer is able to use and benefit from the license. Connectivity revenue is variable in nature, based on the number of live connections, and is recognized over time on a monthly basis using a time-based measure of progress.

Analytics. The Company provides customers with analytics products and services, including trading and portfolio analytics tools. The Company provides analytics products and services to customers and recognizes subscription fees, which are fixed for the contract term, based on when the products and services are delivered. Analytics services can be delivered either over time (when customers are provided with distinct ongoing access to analytics data) or at a point in time (when reports are only delivered to the customer on a periodic basis). Over time performance obligations are recognized using a time-based measure of progress on a monthly basis, since the analytics products and services are continually provided to the client. Point in time performance obligations are recognized when the analytics reports are delivered to the client.

Analytics products and services can also be paid for through variable bundled arrangements with trade execution services. Customers agree to pay for analytics products and services with commissions generated from trade execution services, and commissions are allocated to the analytics performance obligation(s) using:

(i) the commission value for each customer for the products and services it receives, which is priced using the value for similar stand-alone subscription arrangements; and
(ii) a calculated ratio of the commission value for the products and services relative to the total amount of commissions generated from the customer.

For these bundled commission arrangements, the allocated commissions to each analytics performance obligation are then recognized as revenue when the analytics product is delivered, either over time or at a point in time. These allocated commissions may be deferred if the allocated amount exceeds the amount recognizable based on delivery.

Disaggregation of Revenues

The following tables present 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 years ended December 31, 2019 and 2018:

	Year Ended December 31, 2019			
(in thousands)	**Market Making**	**Execution Services**	**Corporate**	**Total**
Revenues from contracts with customers:				
Commissions, net	$ 23,526	$ 357,401	$ —	$ 380,927
Workflow technology	—	82,610	—	82,610
Analytics	—	35,007	—	35,007
Total revenue from contracts with customers	23,526	475,018	—	498,544
Other sources of revenue	1,008,546	18,890	4,102	1,031,538
Total revenues	1,032,072	493,908	4,102	1,530,082
Timing of revenue recognition:				
Services transferred at a point in time	1,032,072	427,721	4,102	1,463,895
Services transferred over time	—	66,187	—	66,187
Total revenues	$ 1,032,072	$ 493,908	$ 4,102	$ 1,530,082

	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

Remaining Performance Obligations and Revenue Recognized from Past Performance Obligations

As of December 31, 2019, the aggregate amount of the transaction price allocated to the performance obligations relating to technology services, workflow technology, and analytics 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 $53.6 million and $1.7 million as of December 31, 2019 and December 31, 2018, respectively. The Company did not identify any contract assets. There were no impairment losses on receivables as of December 31, 2019.

Deferred revenue primarily relates to deferred commissions allocated to analytics products and subscription fees billed in advance of satisfying the performance obligations. Deferred revenue related to contracts with customers was $8.6 million as of December 31, 2019. During the year ended December 31, 2019, the Company recognized revenue of $32.6 million that had been initially recorded as deferred revenue.

The Company has not identified any costs to obtain or fulfill its contracts under ASC 606.

14. Income Taxes

Income before income taxes and noncontrolling interest is as follows for the years ended December 31, 2019, 2018 and 2017:

	For the Year Ended December 31,		
	2019	2018	2017
(in thousands)			
U.S. operations	$ (103,080)	$ 659,937	$ 70,484
Non-U.S. operations	(12,902)	36,426	42,680
	$ (115,982)	$ 696,363	$ 113,164

The provision for income taxes consists of the following for the years ended December 31, 2019, 2018 and 2017:

	For the Year Ended December 31,		
(in thousands)	2019	2018	2017
Current provision (benefit)			
Federal	$ (1,861)	$ 49,047	$ (9,991)
State and Local	4,362	18,697	65
Foreign	3,675	4,276	1,219
Deferred provision (benefit)			
Federal	(13,422)	4,986	106,415
State and Local	(1,455)	(1,599)	(3,380)
Foreign	(3,576)	764	(62)
Provision for income taxes	$ (12,277)	$ 76,171	$ 94,266

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, 2019, 2018 and 2017:

	For the Year Ended December 31,		
	2019	2018	2017
(in thousands, except percentages)			
Tax provision at the U.S. federal statutory rate	21.0 %	21.0 %	35.0 %
Less: rate attributable to noncontrolling interest	(8.1)%	(10.2)%	(19.1)%
State and local taxes, net of federal benefit	2.4 %	1.9 %	(1.9)%
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	(3.7)%	(0.3)%	1.9 %
Other, net	(1.0)%	(1.5)%	0.2 %
Effective tax rate	10.6 %	10.9 %	83.3 %

The components of the deferred tax assets and liabilities as of December 31, 2019, and 2018 are as follows:

	December 31,	
(in thousands)	2019	2018
Deferred income tax assets		
Tax Receivable Agreement	$ 197,598	$ 167,117
Share-based compensation	15,572	9,419
Intangibles	2,467	12,738
Fixed assets and other	44,908	21,088
Tax credits and net operating loss carryforwards	86,420	44,972
Less: Valuation allowance on net operating loss carryforwards and tax credits	(60,594)	(44,947)
Total deferred income tax assets	$ 286,371	$ 210,387
Deferred income tax liabilities		
Intangibles	71,700	10,028
Total deferred income tax liabilities	$ 71,700	$ 10,028

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 the years ended December 31, 2019, 2018 and 2017 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, 2019 and December 31, 2018 are current income tax receivables of $39.3 million and $41.1 million, respectively. The balances at December 31, 2019 and December 31, 2018 primarily comprise income tax benefits due to the Company from federal, state and local, and foreign tax jurisdictions based on income before taxes. Included in Accounts payable, accrued expenses and other liabilities on the Consolidated Statements of Financial Condition at December 31, 2019 and December 31, 2018 are current tax liabilities of $11.5 million and $10.0 million, respectively. The balances at December 31, 2019 and December 31, 2018 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 (see Note 6 “Tax Receivable Agreements”), the Acquisition of KCG and the ITG Acquisition (see Note 3 “ITG Acquisition”), 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 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. At December 31, 2019, the Company had U.S. federal net operating loss carryforwards of $91.3 million. The Company recorded a deferred tax asset related to these federal net operating carryforwards of $19.2 million. The Company did not record a valuation allowance against this deferred tax asset. At December 31, 2019, the Company recorded deferred income taxes related to state and local net operating losses of $3.7 million. These net operating losses will begin to expire in 2031. The Company did not record a valuation allowance against this deferred tax asset.

As a result of the ITG Acquisition, the Company has non-U.S. net operating losses at December 31, 2019 of $86.3 million and has recorded a related deferred tax asset of $17.9 million. A valuation allowance of $15.6 million was recorded against this deferred tax asset at December 31, 2019 as it is more likely than not that a portion of this deferred tax asset will not be realized. As a result of the Acquisition of KCG, the Company has non-U.S. net operating losses at December 31, 2019 and December 31, 2018 of $239.0 million and $239.3 million, respectively, and has recorded a related deferred tax asset of $44.9 million and $44.9 million, respectively. A full valuation allowance was also recorded against this deferred tax asset at December 31, 2019 and December 31, 2018 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, 2019 and December 31, 2018 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, 2019, the Company's tax years for 2013 through 2018 and 2010 through 2018 are subject to examination by U.S. and non-U.S. tax authorities, respectively. As a result of the ITG Acquisition and the Acquisition of KCG, the Company has assumed any ITG and KCG tax exposures. In addition, the Company is subject to state and local income tax examinations in various jurisdictions for the tax years 2013 through 2018. 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 $8.8 million of unrecognized tax benefits as of December 31, 2019, 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, 2019.

The table below presents the changes in the liability for unrecognized tax benefits. This liability is included in Accounts payable and accrued expenses and other liabilities on the Consolidated Statement of Financial Condition.

(in thousands)		
Balance at December 31, 2016	$	—
Increase from Acquisition of KCG		7,232
Decreases based on tax positions related to prior period		—
Increase based on tax positions related to current period		68
Balance at December 31, 2017		7,300
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		7,328
Increase from ITG Acquisition		2,713
Decreases based on tax positions related to prior period		(1,263)
Increase based on tax positions related to current period		—
Balance at December 31, 2019	$	8,778

15. Commitments, Contingencies and Guarantees

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 judgments, settlements, disgorgements, restitution, penalties, injunctions, 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 and other 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. In October 2019, the parties reached an agreement in principle to settle the matter. The agreement is subject to customary conditions including execution of definitive settlement documentation and final court approval. The proposed settlement contains no admission of any liability or wrongdoing on the part of the defendants, each of whom continues to deny all of the allegations against them and believes that the claims are without merit. Though the Company believes the likelihood of approval of the settlement is probable, we cannot predict with certainty the outcome of the litigation, and if an agreement is not reached or the settlement is not finally approved by the Court, we believe that we have meritorious defenses to the claims in the operative complaint.

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. Additionally, on February 27, 2019, and March 1, 2019, the Company was named as a defendant in *Bittner v. ProShares Trust II, et al.*, No. 19-cv-1840, and *Mareno v. ProShares Trust II*, et al., No. 19-cv-1955, respectively. The complaints were filed in federal district court in New York on behalf of putative classes, and asserted substantially similar claims against the Company and other financial institutions. On April 29, 2019, these three actions were consolidated in federal district court in New York as *In re ProShares Trust II Securities Litigation*, No. 19-cv-886-DLC. A consolidated amended complaint, which did not specify the amount of alleged damages, was filed in the consolidated action on June 21, 2019. Defendants moved to dismiss the consolidated amended complaint on August 2, 2019. In response, plaintiffs filed a consolidated second amended complaint on September 6, 2019, which complaint also does not specify the amount of alleged damages. Defendants moved to dismiss the consolidated second amended complaint on September 27, 2019. The defendants' motion to dismiss was granted on January 3, 2020, and plaintiffs subsequently filed a Notice of Appeal of the district court's ruling on the motion to dismiss on January 31, 2020. The Company believes that the claims are without merit and is defending itself vigorously.

As a result of the ITG Acquisition, the Company assumed potential liabilities relating to ITG's business, including but not limited to those potential liabilities arising from or related to pending, threatened or potential litigation or regulatory matters. These matters include but not are not necessarily limited to a Statement of Claim filed on July 27, 2018 by a former employee of ITG requesting a FINRA arbitration. The former ITG employee alleged that ITG breached the non-disparagement clause in his July 2011 separation agreement and tortiously interfered with his business relations. On June 26, 2019, the former employee informed the Company that he was seeking damages of approximately $65 million (exclusive of claims for pre-judgment interest, punitive damages, costs and fees). In an award dated October 24, 2019, the FINRA arbitration panel awarded the claimant $3 million in compensatory damages, and ordered the Company to pay additional fees and expenses which totaled an additional amount of approximately $3 million. The Company has paid all such amounts due to the claimant in full and final satisfaction of the award. The Company is vigorously seeking the reimbursement of a portion of the award from an insurance carrier.

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 and low-priced 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, alternative trading system (“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, the Financial Industry Regulatory Authority 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 result in a disciplinary action and/or a civil or administrative action. For example, in December 2015, 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 in 2018 was reduced to €3.0 million (approximately $3.4 million). The Company has fully reserved for the monetary penalty as of December 31, 2019 and anticipates paying the fine during the year ended December 31, 2020.

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 enters into contracts that contain a variety of representations and warranties and general indemnifications. The Company has also 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. Leases

The Company adopted ASU 2016-02 on January 1, 2019, and elected the modified retrospective method of implementation. The standard requires the recognition of ROU assets and lease liabilities for leases, which are defined as a contract, or part of a contract, that conveys the right to control the use of identified property, plant or equipment for a period of time in exchange for consideration. The Company has elected the practical expedient which allows for leases with an initial term of 12 months or less to be excluded from recognition on the Consolidated Statement of Financial Condition and for which lease expense is recognized on a straight-line basis over the lease term.

Topic 842 primarily affected the accounting treatment for operating lease agreements in which the Company is the lessee. These leases are primarily for corporate office space, datacenters, and technology equipment. The leases have remaining terms of 1 year to 15 years, some of which include options to extend the initial term at the Company's discretion. The lease terms used in calculating ROU assets and lease liabilities include the options to extend the initial term when the Company is reasonably certain of exercising the options. The Company's lease agreements do not contain any material residual value guarantees, restrictions or covenants. In addition to the base rental costs, the Company’s lease agreements for corporate office space generally provide for rent escalations resulting from increased assessments for operating expenses, real estate taxes and other charges. Payments for such reimbursable expenses are considered variable and are recognized as variable lease costs in the period in which the obligation for those payments was incurred.

The Company also subleases certain office space and facilities to third parties. The subleases have remaining terms of 1 to 12 years. The Company recognizes sublease income on a straight-line basis over the term of the sublease within Other, net on the Consolidated Statement of Comprehensive Income.

As the implied discount rate for most of the Company's leases is not readily determinable, the Company uses its incremental borrowing rate on its secured borrowings, which was based on the information available as of the initial transition date, January 1, 2019, in determining the present value of lease payments.

As part of its purchase price allocation related to the ITG Acquisition, the balances of ROU assets and lease liabilities for certain acquired ITG office space were adjusted to reflect their fair values as of the ITG Closing Date. Additionally, the discount rate used to value the lease liabilities on the acquired leases was adjusted to the Company's incremental borrowing rate on its secured borrowings as of the ITG Closing Date. See Note 3 “ITG Acquisition” for further information on the ITG Acquisition.

During the year ended December 31, 2019, the Company ceased use of certain office lease premises as part of its ongoing effort to consolidate office space. For the year ended December 31, 2019, the Company recognized $66.5 million in Termination of office leases on the Consolidated Statement of Comprehensive Income, comprising $27.1 million of impairments of ROU assets, $37.9 million of write-offs of leasehold improvements and fixed assets, and $1.4 million of dilapidation charges.

Lease assets and liabilities are summarized as follows:

(in thousands)	Financial Statement Location		December 31, 2019
Operating leases			
Operating lease right-of-use assets	Operating lease right-of-use assets	$	314,526
Operating lease liabilities	Operating lease liabilities		365,364
Finance leases			
Property and equipment, at cost	Property, equipment, and capitalized software, net		37,589
Accumulated depreciation	Property, equipment, and capitalized software, net		(24,579)
Finance lease liabilities	Accounts payable, accrued expenses, and other liabilities		13,371

Weighted average remaining lease term and discount rate are as follows:

	December 31, 2019
Weighted average remaining lease term	
Operating leases	7.50 years
Finance leases	1.45 years
Weighted average discount rate	
Operating leases	5.70%
Finance leases	3.52%

The components of lease expense were as follows:

(in thousands)		Year Ended December 31, 2019
Operating lease cost:		
Fixed	$	72,714
Variable		8,333
Impairment of ROU Asset		27,104
Total Operating lease cost		108,151
Finance lease cost:		
Amortization of right-of-use assets		12,565
Interest on lease liabilities		661
Total Finance lease cost		13,226
Sublease income		12,590

Future minimum lease payments under operating and finance leases with non-cancelable lease terms, as of December 31, 2019, are as follows:

(in thousands)		Operating Leases		Finance Leases
2020	$	76,118	$	10,929
2021		73,062		3,305
2022		66,850		565
2023		63,676		—
2024		32,144		—
2025 and thereafter		141,371		—
Total lease payments		453,221		14,799
Less imputed interest		(87,857)		(1,428)
Total lease liability	$	365,364	$	13,371

Future lease payments under non-cancelable leases and sublease receipts as of December 31, 2018 are as follows:

(thousands)		Capital		Operating		Subleases
2019	$	21,983	$	32,755	$	(8,979)
2020		11,283		30,473		(9,324)
2021		1,651		25,564		(8,844)
2022		—		22,710		(8,552)
2023		—		21,456		(8,695)
Thereafter		—		113,779		(36,312)
Total minimum lease payments	$	34,917	$	246,737	$	(80,706)

17. Cash

The following table provides a reconciliation of cash and cash equivalents together with restricted or segregated cash as reported within the Consolidated Statements of Financial Condition to the sum of the same such amounts shown in the consolidated statements of cash flows.

(in thousands)	December 31, 2019	December 31, 2018
Cash and cash equivalents	$ 732,164	$ 729,547
Cash restricted or segregated under regulations and other	41,116	6,500
Total cash, cash equivalents and restricted cash shown in the statement of cash flows	$ 773,280	$ 736,047

18. 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 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.

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 Virtu Financial Units. As of December 31, 2019 and December 31, 2018, there were 7,919,952 and 8,760,755 Virtu Financial Units outstanding held by Employee Holdco (as defined below), respectively, and 840,803, 3,540,312, and 1,930,468 of such 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, 2019, 2018 and 2017, 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.

Amended and Restated Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan

On the ITG Closing Date, the Company assumed the Amended and Restated ITG 2007 Equity Plan and the Assumed Awards. As of the ITG Closing Date, the aggregate number of shares of Class A Common Stock subject to such Assumed Awards was 2,497,028 and the aggregate number of shares of Class A Common Stock that remained issuable pursuant to the Amended and Restated ITG 2007 Equity Plan was 1,230,406.

Acquisition of KCG

On the KCG Closing Date, 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 Common Stock to Aranda Investments Pte. Ltd. ("Aranda"), an affiliate of Temasek Holdings (Private) Limited ("Temasek"), for an aggregate purchase price of approximately $125.0 million and 40,064,103 shares of the Company's Class A Common 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. The investment agreements are filed as exhibits to the Company's 2018 Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 1, 2019.

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. 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. The share repurchase program entitled the Company to repurchase shares from time to time in open market transactions, privately negotiated transactions or by other means. Repurchases were also permitted to be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions were determined by the Company's management based on its evaluation of market conditions, share price, legal requirements and other factors. The program expired on September 30, 2019. From the inception of the program in February 2018, the Company repurchased approximately 2.6 million shares of Class A Common Stock and Virtu Financial Units for approximately $65.9 million.

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 “Amended and Restated Registration Rights Agreement”) to add Mr. Vincent Viola and Mr. Michael Viola, directors of the Company, and to confirm that certain other persons (including the Company’s CEO) remain parties to the Amended and Restated Registration Rights Agreement.

In May 2019, the Company completed a public offering (the “May 2019 Secondary Offering”) of 9,000,000 shares of Class A Common Stock at a purchase price per share paid by the underwriters of $22.00, the 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 14, 2019 by and between the Company and TJMT Holdings LLC.

Employee Exchanges

During the years ended December 31, 2019, 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 840,839, 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 a 62.2% interest in Virtu Financial at December 31, 2019.

19. Share-based Compensation

Pursuant to the Amended and Restated 2015 Management Incentive Plan as described in Note 18 “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 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 years ended December 31, 2019, 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	2,058,000	$	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	—	—		19.00
Forfeited or expired	(83,750)		—	—	—		—
At December 31, 2018	3,486,150		19.00	6.30	1,660,400		19.00
Granted	156,129		13.60	4.37	156,129		13.60
Exercised	(353,500)		19.00	—	(353,500)		19.00
Forfeited or expired	(55,000)		—	—	—		—
At December 31, 2019	3,233,779	$	18.74	5.24	3,248,779	$	18.74

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 $1.4 million, $5.8 million, and $5.2 million for the years ended December 31, 2019, 2018 and 2017, respectively, of compensation expense in relation to the stock options issued and outstanding. As of December 31, 2019 the stock options to purchase shares of Class A Common Stock were fully vested. As of December 31, 2018, total unrecognized share-based compensation expense related to unvested stock options was $1.6 million, and the amount was to be recognized over a weighted average period of 0.3 years.

Amended and Restated Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan

On the ITG Closing Date, the Company assumed the Amended and Restated ITG 2007 Equity Plan and the Assumed Awards. The Assumed Awards are subject to the same terms and conditions that were applicable to them under the Amended and Restated ITG 2007 Equity Plan, except that (i) the Assumed Awards relate to shares of the Company's Class A Common Stock, (ii) the number of shares of Class A Common Stock subject to the Assumed Awards was the result of an adjustment based upon an Exchange Ratio (as defined in the ITG Merger Agreement) and (iii) the performance share unit awards were converted into service-based vesting restricted stock unit awards that were no longer subject to any performance based vesting conditions. As of the ITG Closing Date, the aggregate number of shares of Class A Common Stock subject to such Assumed Awards was 2,497,028 and the aggregate number of shares of Class A Common Stock that remained issuable pursuant to the Amended and Restated ITG 2007 Equity Plan was 1,230,406. The Company filed a Registration Statement on Form S-8 on the ITG Closing Date to register such shares of Class A Common Stock.

Class A Common Stock and Restricted Stock Units

Pursuant to the Amended and Restated 2015 Management Incentive Plan as described in Note 18 "Capital Structure", subsequent to the IPO, shares of immediately vested Class A Common Stock and restricted stock units were granted, with the latter vesting 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, 2019, 2018 and 2017, respectively, there were 441,920, 594,536 and 19,719 shares of immediately vested Class A Common Stock granted as part of year-end compensation. In addition, the Company accrued compensation expense of $12.6 million, $11.2 million and $11.0 million for the years ended December 31, 2019 and 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 compensation and payroll taxes on the Consolidated Statements of Comprehensive Income and Accounts payable, accrued expenses and other liabilities on the Consolidated Statements of Financial Condition.

The following table summarizes activity related to the RSUs (including the Assumed Awards):

	Number of Shares	Weighted Average Fair Value
At December 31, 2016	1,573,441	$ 18.28
Granted	64,402	18.09
Exercised	(258,250)	18.40
Forfeited or expired	(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
Granted	4,063,541	25.07
Forfeited	(643,709)	21.58
Vested	(1,805,265)	24.08
At December 31, 2019	2,993,489	$ 24.10

The Company recognized $66.1 million, $17.9 million, and $9.9 million for the years ended December 31, 2019, 2018 and 2017, respectively, of compensation expense in relation to the restricted stock units. As of December 31, 2019 and December 31, 2018, total unrecognized share-based compensation expense related to unvested RSUs was $43.4 million and $21.3 million, respectively, and this amount is to be recognized over a weighted average period of 2.0 and 1.7 years, respectively.

20. Property, Equipment and Capitalized Software

Property, equipment and capitalized software consisted of the following at December 31, 2019 and December 31, 2018:

(in thousands)	2019	2018
Capitalized software costs	$ 143,748	$ 108,220
Leasehold improvements	71,981	67,995
Furniture and equipment	357,589	260,825
Total	573,318	437,040
Less: Accumulated depreciation and amortization	(457,229)	(323,718)
Total property, equipment and capitalized software, net	$ 116,089	$ 113,322

Depreciation expense for property and equipment for the years ended December 31, 2019, 2018, and 2017 was approximately $44.7 million, $48.4 million, and $36.8 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 $32.5 million, $24.4 million, and $15.7 million for the years ended December 31, 2019, 2018, and 2017, respectively. The related amortization expense was approximately $21.4 million, $20.4 million, and $10.1 million for the years ended December 31, 2019, 2018, and 2017, respectively, and is included within Depreciation and amortization 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 for the year ended December 31, 2017. 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 Class B interests of Virtu Financial were approximately $0.02 million, and $0.1 million for the years ended December 31, 2018 and 2017, respectively.

21. Regulatory Requirement

U.S. Subsidiaries

As of December 31, 2019 and December 31, 2018, U.S. 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 for each of the five U.S. broker-dealers as detailed in the table below. Pursuant to NYSE rules, VAL was also required to maintain $1.0 million of capital in connection with the operation of its designated market maker ("DMM") business as of December 31, 2019. 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 regulatory capital and regulatory capital requirements of the U.S broker-dealer subsidiaries as of December 31, 2019 were as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Virtu Americas LLC	$ 257,452	$ 2,571	$ 254,881
Virtu Financial BD LLC	30,317	1,000	29,317
Virtu Financial Capital Markets LLC	3,710	1,000	2,710
Virtu ITG LLC	66,069	1,000	65,069
Virtu Alternet Securities LLC	1,931	100	1,831

The regulatory capital and regulatory capital requirements of the U.S. broker-dealer 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

As of December 31, 2019, VAL and VITG had $22.3 million and $7.4 million, respectively, of cash in special reserve bank accounts for the benefit of customers pursuant to SEC Rule 15c3-3, *Computation for Determination of Reserve Requirements*, and $4.5 million and $5.0 million, respectively, of cash in reserve bank accounts for the benefit of proprietary accounts of brokers. The balances are included within Cash restricted or segregated under regulations and other on the Consolidated Statement of Financial Condition.

Foreign Subsidiaries

The Company's foreign subsidiaries are subject to regulatory capital requirements set by local regulatory bodies, including the Investment Industry Regulatory Organization of Canada ("IIROC"), the Central Bank of Ireland, the Financial Conduct Authority in the United Kingdom, the Australian Securities Exchange, the Securities and Futures Commission in Hong Kong, and the Monetary Authority of Singapore. Virtu Financial Canada ULC was admitted to membership in IIROC in March 2019. The regulatory net capital balances and regulatory capital requirements applicable to these subsidiaries as of December 31, 2019 were as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Canada			
Virtu ITG Canada Corp	$ 13,029	$ 193	$ 12,836
TriAct Canada Marketplace LP	2,538	193	2,345
Virtu Financial Canada ULC	2,459	193	2,266
Ireland			
Virtu ITG Europe Limited	54,129	32,484	21,645
Virtu Financial Ireland Limited	78,385	43,233	35,152
United Kingdom			
Virtu ITG UK Limited	1,378	991	387
Asia Pacific			
Virtu ITG Australia Limited	24,574	8,451	16,123
Virtu ITG Hong Kong Limited	3,805	539	3,266
Virtu ITG Singapore Pte Limited	1,179	72	1,107

As of December 31, 2019, Virtu ITG Europe Limited and Virtu ITG Canada Corp had $1.2 million and $0.4 million, respectively, of funds on deposit for trade clearing and settlement activity, and Virtu ITG Hong Kong Ltd had $30 thousand of segregated balances under a collateral account control agreement for the benefit of certain customers.

22. 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 of the 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, 2019, 2018 and 2017:

	Years Ended December 31,		
(in thousands)	2019	2018	2017
Revenues:			
United States (1)	$ 1,146,104	$ 1,644,641	$ 791,044
Ireland	188,154	81,531	97,637
United Kingdom	(1,735)	15,681	21,143
Singapore	109,761	136,161	113,891
Canada	49,666	—	—
Australia	34,933	—	—
Others	3,199	704	4,267
Total revenues	$ 1,530,082	$ 1,878,718	$ 1,027,982

(1) Includes $337.6 million gain on sale of BondPoint for the year ended December 31, 2018 and $86.6 million gain on the reduction of the Company's tax receivable agreement obligation as a result of the decrease in the U.S. corporate income tax rate for the year ended December 31, 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 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.

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 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 (iii) matching of client conditional orders in POSIT Alert and in the Company's ATSs, including Virtu MatchIt, POSIT, and MATCHNow. The Execution Services segment also includes revenues derived from providing (a) proprietary risk management and trading infrastructure technology to select third parties for a service fee, (b) workflow technology, the Company’s integrated, broker-neutral trading tools delivered across the globe including trade order and execution management and order management software applications and network connectivity and (c) trading analytics, including (1) tools enabling portfolio managers and traders to improve pre-trade, real-time and post-trade execution performance, (2) portfolio construction and optimization decisions and (3) securities valuation.

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, 2019, 2018 and 2017 are summarized in the following table:

(in thousands)	Market Making	Execution Services	Corporate	Consolidated Total
2019				
Total revenue	$ 1,032,072	$ 493,908	$ 4,102	$ 1,530,082
Income before income taxes and noncontrolling interest	109,189	(126,930)	(98,241)	(115,982)
2018				
Total revenue	1,384,475	496,333	(2,090)	1,878,718
Income (loss) 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

23. Related Party Transactions

The Company incurs expenses and maintains balances with its affiliates in the ordinary course of business. As of December 31, 2019, and December 31, 2018 the Company had a net receivable from its affiliates of $1.3 million and a net payable to its affiliates of $3.0 million, respectively.

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 $12.9 million, $9.5 million and $6.0 million for the years ended December 31, 2019, 2018 and 2017, respectively, to SBI for these trading activities.

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 $19.9 million, $20.0 million and $8.3 million to the JVs for the years ended December 31, 2019, 2018 and 2017, respectively. Additionally, in 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.

The Company purchases network connections services from affiliates of Level 3 Communications (“Level 3”). Temasek and its affiliates have a significant ownership interest in Level 3. The Company paid $1.5 million, $1.5 million and $2.5 million for the years ended December 31, 2019, 2018 and 2017, respectively, to Level 3 for these services.

Subsequent to the ITG Acquisition, the Company makes commission-sharing arrangement (“CSA”) payments to affiliates of DBS Group Holdings (“DBS”). Temasek and its affiliates have a significant ownership interest in DBS. The Company made payments of $0.1 million to DBS for the year ended December 31, 2019.

In May 2019, the Company completed the May 2019 Secondary Offering of 9,000,000 shares of Class A Common Stock at a purchase price per share paid by the underwriters of $22.00, the 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, the Company’s founding equity holder, pursuant to that certain Member Purchase Agreement, entered into on May 14, 2019 by and between the Company and TJMT Holdings LLC.

24. Parent Company

VFI is the sole managing member of Virtu Financial, which guarantees the indebtedness of its direct subsidiary under the First Lien Term Loan Facility (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 the Credit Agreement. 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)	**2019**	**2018**
Assets		
Cash	$ 4,650	$ 3,841
Deferred tax asset	197,792	189,627
Investment in subsidiary	2,689,026	1,730,867
Other assets	33,653	35,998
Total assets	$ 2,925,121	$ 1,960,333
Liabilities, redeemable membership interest and equity		
Liabilities		
Payable to affiliate	$ 1,724,465	$ 694,028
Accounts payable and accrued expenses and other liabilities	—	6
Tax receivable agreement obligations	269,282	214,403
Total liabilities	$ 1,993,747	$ 908,437
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 — 120,435,912 and 108,955,048 shares, Outstanding — 118,257,141 and 106,776,277 shares at December 31, 2019 and December 31, 2018, 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, 2019 and December 31, 2018, respectively	—	—
Class C common stock (par value $0.00001), Authorized — 90,000,000 and 90,000,000 shares, Issued and Outstanding — 12,887,178 and 13,749,886 shares at December 31, 2019 and December 31, 2018, respectively	—	—
Class D common stock (par value $0.00001), Authorized — 175,000,000 and 175,000,000 shares, Issued and Outstanding — 60,091,740 and 69,091,740 shares at December 31, 2019 and December 31, 2018, respectively	1	1
Treasury stock, at cost, 2,178,771 and 2,178,771 shares at December 31, 2019 and December 31, 2018, respectively	(55,005)	(55,005)
Additional paid-in capital	1,075,779	1,010,468
Retained earnings (accumulated deficit)	(88,755)	96,513
Accumulated other comprehensive income (loss)	(647)	(82)
Total Virtu Financial Inc. stockholders' equity	$ 931,374	$ 1,051,896
Total liabilities and stockholders' equity	$ 2,925,121	$ 1,960,333

Virtu Financial, Inc.
(Parent Company Only)
Condensed Statements of Comprehensive Income

	For the Years Ended December 31,		
(in thousands)	**2019**	**2018**	**2017**
Revenues:			
Other Income	—	—	86,599
	—	—	86,599
Operating Expenses:			
Operations and administrative	3	1	181
Income (loss) before equity in income of subsidiary	(3)	(1)	86,418
Equity in income (loss) of subsidiary, net of tax	(29,416)	620,193	(83,479)
Net income (loss)	$ (29,419)	$ 620,192	$ 2,939
Net income (loss) attributable to common stockholders	(29,419)	620,192	2,939
Other comprehensive income (loss):			
Foreign currency translation adjustment, net of taxes	(565)	(3,073)	3,243
Comprehensive income (loss)	$ (29,984)	$ 617,119	$ 6,182

Virtu Financial, Inc.
(Parent Company Only)
Condensed Statements of Cash Flows

(in thousands)	For the Years Ended December 31, 2019	2018	2017
Cash flows from operating activities			
Net income	$ (29,419)	$ 620,192	$ 2,939
Adjustments to reconcile net income to net cash provided by operating activities:			
Equity in income of subsidiary, net of tax	136,878	(305,936)	(513,601)
Tax receivable agreement obligation reduction	54,879	79,722	(86,599)
Deferred taxes	(8,165)	(64,996)	102,973
Other	—	—	(8,500)
Changes in operating assets and liabilities:	2,339	(25,268)	(8,832)
Net cash provided by (used in) operating activities	156,512	303,714	(511,620)
Cash flows from investing activities			
Acquisition of KCG, net of cash acquired, described in Note 3	—	—	(23,908)
Investments in subsidiaries, equity basis	70,762	34,909	16,846
Net cash provided by (used in) investing activities	70,762	34,909	(7,062)
Cash flows from financing activities			
Distribution from Virtu Financial to non-controlling interest	(99,221)	(206,903)	(89,563)
Dividends	(112,414)	(100,329)	(63,814)
Payments on repurchase of non-voting common interest	—	—	(11,143)
Repurchase of Class C common stock	(196)	(8,216)	—
Purchase of treasury stock	(14,259)	(66,218)	(2,683)
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	(375)	(950)	—
Net cash provided by (used in) financing activities	$ (226,465)	$ (394,975)	$ 561,726
Net increase (decrease) in Cash	$ 809	$ (56,352)	$ 43,044
Cash, beginning of period	3,841	60,193	17,149
Cash, end of period	$ 4,650	$ 3,841	$ 60,193
Supplemental disclosure of cash flow information:			
Taxes paid	$ —	$ —	$ 133
Non-cash financing activities			
Tax receivable agreement described in Note 6	—	—	1,534

25. 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 11, 2020, 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 participating Restricted Stock Unit that will be paid on March 16, 2020 to holders of record as of March 2, 2020.

On January 29, 2020, the Company entered into a five-year $1,000 million floating to fixed interest rate swap agreement that effectively fixes interest payment obligations on $1,000 million of principal under the First Lien Term Loan Facility at 4.9% through January 2025.

On February 10, 2020, the Company announced a repricing amendment (“Amendment No. 2”) to its Credit Agreement to decrease the applicable interest rate by 0.5%. This amendment is expected to close on or about March 2, 2020, subject to the satisfaction of customary closing conditions. Following such closing, the applicable borrowing rates for term loan borrowings and revolver borrowings under the Credit Agreement will bear interest at a per annum rate equal to, at the Company's election, either (i) the greatest of (a) the prime rate in effect, (b) the greater of (1) the federal funds effective rate and (2) the overnight bank funding rate, in each case plus 0.5%, (c) an adjusted LIBOR rate for a Eurodollar borrowing with an interest period of one month plus 1% and (d) 1.00%, plus, in each case, 2.00%, or (ii) the greater of (x) an adjusted LIBOR rate for the interest period in effect and (y) 0%, plus, in each case, 3.00%.

The lower interest rate resulting from Amendment No. 2, when consummated, in combination with the interest rate swaps entered into on January 29, 2020 and on October 9, 2019 will result in a blended fixed rate of 4.367% on $1,525 million of the First Lien Term Loan Facility debt for approximately five years. The remaining $400 million of the First Lien Term Loan Facility debt will remain floating and pegged to LIBOR, but at a reduced spread.

SUPPLEMENTAL FINANCIAL INFORMATION

Consolidated Quarterly Results of Operations (Unaudited)

(in thousands, except share and per share data)	For the Three Months Ended March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019
Total revenue	$ 362,991	$ 378,456	$ 385,364	$ 403,272
Total operating expenses	379,195	445,035	391,192	430,646
Operating income	$ (16,204)	$ (66,579)	$ (5,828)	$ (27,374)
Net income	(13,619)	(55,485)	(5,184)	(29,419)
Less: net income attributable to noncontrolling interests	6,946	25,594	872	11,691
Net income attributable to Virtu Financial, Inc.	$ (6,673)	$ (29,891)	$ (4,312)	$ (17,728)
Net income per share of common stock:				
Basic	$ (0.07)	$ (0.27)	$ (0.04)	$ (0.16)
Diluted	$ (0.07)	$ (0.27)	$ (0.04)	$ (0.16)

(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 (loss)	$ 468,536	$ 49,622	$ 29,425	$ 148,780
Net income (loss)	410,022	46,622	15,610	147,938
Less: net income (loss) attributable to noncontrolling interests	235,271	21,413	6,998	67,069
Net income (loss) 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

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, 2019. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2019, 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 SEC’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, 2019. 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, 2019, internal control over financial reporting is effective.

We acquired ITG, Inc. ("ITG") on March 1, 2019, and have not yet included ITG in our assessment of the effectiveness of our internal control over financial reporting. SEC staff guidance permits a company to exclude an acquired business from management's assessment of the effectiveness of internal control over financial reporting for the year in which the acquisition was completed. As of December 31, 2019, ITG accounted for $769.1 million of our total assets, and a loss of $61.8 million of our total net loss for the year end December 31, 2019.

PricewaterhouseCoopers LLP has audited our internal control over financial reporting as of December 31, 2019; 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 three months ended December 31, 2019 that has or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

Information with respect to this Item will be set forth in our 2020 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2019. For the limited purpose of providing the information necessary to comply with this Item 10, the 2020 Proxy Statement is incorporated herein by this reference. All references to the 2020 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 2020 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2019. For the limited purpose of providing the information necessary to comply with this Item 11, the 2020 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 2020 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2019. For the limited purpose of providing the information necessary to comply with this Item 12, the 2020 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 2020 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2019. For the limited purpose of providing the information necessary to comply with this Item 13, the 2020 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 2020 Proxy Statement, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2019. For the limited purpose of providing the information necessary to comply with this Item 14, the 2020 Proxy Statement is incorporated herein by this reference.

PART IV

ITEM 15. EXHIBITS

Exhibit Number	Description
2.1	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*	Description of the Capital Stock
10.1†	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).
10.2†	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).
10.3†	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).
10.4†	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)
10.5†	Amended and Restated Employment Agreement, dated as of November 15, 2017, by and between Virtu Financial, Inc. and Mr. Douglas A. Cifu (incorporated herein by reference to Exhibit 10.4 to the Company's Annual Report on Form 10-K (File No. 001-37352) filed on March 13, 2018).
10.6†	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).
10.7†	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).
10.8†	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 (incorporated herein by reference to Exhibit 10.8 to the Company's Annual Report on Form 10-K (File No. 001-37352) filed on March 13, 2018).
10.9†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2019, by and between Virtu Financial, Inc. and Joseph Molluso (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, 2019).
10.10†	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 (incorporated herein by reference to Exhibit 10.9 to the Company's Annual Report on Form 10-K (File No. 001-37352) filed on March 31, 2018).

10.11†	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 (incorporated herein by reference to Exhibit 10.10 to the Company's Annual Report on Form 10-K (File No. 001-37352) filed on March 13, 2018).
10.12	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).
10.13	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).
10.14	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).
10.15	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).
10.16	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).
10.17	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).
10.18	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)
10.19	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).
10.20	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).
10.21	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).
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	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 (incorporated herein by reference to Exhibit 10.30 to the Company's Annual Report on Form 10-K (File No. 001-37352), filed on March 13, 2018).
10.26†	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).
10.27	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).

10.28	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).
10.29	Credit Agreement, dated March 1, 2019, among Virtu Financial LLC, as Holdings, Impala Borrower LLC, as Acquisition Borrower, VFH Parent LLC, as Refinancing Borrower, the Lenders, Issuing Banks and Swingline Lender Partry Hereto, and Jefferies Finance LLC, as Administrative Agent, and Jefferies Finance LLC and RBC Capital Markets, as Joint Lead Arrangers and Joint Bookrunners (incorporated herein by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2019).
10.30†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2019, by and between Virtu Financial, Inc. and Douglas A. Cifu (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, 2019).
10.31†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2019, by and between Virtu Financial, Inc. and Stephen Cavoli (incorporated herein by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2019).
10.32†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Award Agreement, dated as of February 26, 2019, by and between Virtu Financial, Inc. and Douglas A. Cifu (incorporated herein by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on May 10, 2019).
10.33	Amendment No. 1 dated October 9, 2019 to Credit Agreement, dated March 1, 2019, among Virtu Financial LLC, as Holdings, Impala Borrower LLC, as Acquisition Borrower, VFH Parent LLC, as Refinancing Borrower, the Lenders, Issuing Banks and Swingline Lender Party Hereto, and Jefferies Finance LLC, as Administrative Agent, and Jefferies Finance LLC and RBC Capital Markets, as Joint Lead Arrangers and Joint Bookrunners (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-37352), filed on November 7, 2019).
10.34†	Letter agreements dated April 17, 2019, July 3, 2019 and September 3, 2019 between Virtu Financial Operating LLC and Brett Fairclough (incorporated herein by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2019).
10.35†	Employment Agreement, dated as of August 31, 2019, by and between Virtu Financial Operating LLC and Alex Ioffe (incorporated herein by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2019).
10.36†	Virtu Financial, Inc. Amended and Restated 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 Brett Fairclough (incorporated herein by reference to Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2019).
10.37†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit and Common Stock Award Agreement, dated as of January 23, 2019, by and between Virtu Financial, Inc. and Brett Fairclough (incorporated herein by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2019).
10.38†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit Agreement, dated as of October 2, 2019, by and between Virtu Financial, Inc. and Alex Ioffe (incorporated herein by reference to Exhibit 10.10 to the Company's Quarterly Report on Form 10-Q (File No. 001-37352) filed on November 8, 2019).
10.39*†	Amended and Restated Employment Agreement, dated as of February 26, 2020, by and between Virtu Financial, Inc. and Mr. Brett Fairclough.
10.40*†	Amended and Restated Employment Agreement, dated as of February 26, 2020, by and between Virtu Financial, Inc. and Mr. Stephen Cavoli.
10.41*†	Virtu Financial, Inc. 2015 Amended and Restated Management Incentive Plan Employee Restricted Stock Award Agreement, dated as of February 27, 2020, by and between Virtu Financial, Inc. and Douglas A. Cifu.
10.42*†	Virtu Financial, Inc. 2015 Amended and Restated Management Incentive Plan Employee Restricted Stock Award Agreement, dated as of February 27, 2020, by and between Virtu Financial, Inc. and Brett Fairclough.
10.43*†	Virtu Financial, Inc. 2015 Amended and Restated Management Incentive Plan Employee Restricted Stock Award Agreement, dated as of February 27, 2020, by and between Virtu Financial, Inc. and Stephen Cavoli.

10.44*†	Separation Agreement by and between Joseph Molluso and Virtu Financial Operating LLC and Virtu Financial, Inc., dated as of September 3, 2019
10.45†	Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan, Amended and Restated Effective June 8, 2017 (incorporated herein by reference to Exhibit 4.3 to the Company's Registration Statement on Form S-8 (File No. 333-230012) filed on March 1, 2019).
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
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Filed herewith.
† Management contract or compensatory plan or arrangement.

SIGNATURES

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:	February 28, 2020	By:	/s/ Douglas A. Cifu
			Douglas A. Cifu
			Chief Executive Officer
DATE:	February 28, 2020	By:	/s/ Alex Ioffe
			Alex Ioffe
			Chief Financial Officer

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Douglas A. Cifu and Alex Ioffe, 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.

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 February 28, 2020.

Signature	**Title**
/s/ Douglas A. Cifu Douglas A. Cifu	Chief Executive Officer (Principal Executive Officer) and Director
/s/ Alex Ioffe Alex Ioffe	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/ Virginia Gambale Virginia Gambale	Director
/s/ Joseph J. Grano, Jr. Joseph J. Grano, Jr.	Director
/s/ Glenn Hutchins Glenn Hutchins	Director
/s/ John D. Nixon John D. Nixon	Director
/s/ Christopher Quick Christopher Quick	Director
/s/ John F. Sandner John F. Sandner	Director
/s/ David Urban David Urban	Director
/s/ Michael T. Viola Michael T. Viola	Director

DESCRIPTION OF THE CAPITAL STOCK

In this document, the "Company", "we" and "us" refer to Virtu Financial, Inc., a Delaware corporation.

Capital Stock

Our amended and restated certificate of incorporation authorizes 1,000,000,000 shares of Class A common stock, par value $0.00001 per share, 175,000,000 shares of Class B common stock, par value $0.00001 per share, 90,000,000 shares of Class C common stock, par value $0.00001 per share, 175,000,000 shares of Class D common stock, par value $0.00001 per share, and 50,000,000 shares of preferred stock, par value $0.00001 per share.

Our Class A common stock are registered under Section 12(b) of the Securities Exchange Act of 1934, as amended, and are listed on Nasdaq under the ticker symbol "VIRT".

Common Stock

Voting

The holders of our Class A common stock, Class B common stock, Class C common stock and Class D common stock vote together as a single class on all matters submitted to stockholders for their vote or approval, except (i) as required by applicable law or (ii) any amendment (including by merger, consolidation, reorganization or similar event) to our certificate of incorporation that would affect the rights of the Class A common stock and the Class C common stock in a manner that is disproportionately adverse as compared to the Class B common stock or Class D common stock, or vice versa, in which case the holders of Class A common stock and Class C common stock or the holders of Class B common stock and Class D common stock, as applicable, shall vote together as a class.

Holders of our Class A common stock and Class C common stock are entitled to one vote on all matters submitted to stockholders for their vote or approval. Holders of our Class B common stock and Class D common stock are entitled to ten votes on all matters submitted to stockholders for their vote or approval.

TJMT Holdings LLC (the "Founder Member"), an affiliate of Mr. Vincent Viola, our Founder and Chairman Emeritus, controls a majority of the combined voting power of our common stock as a result of its ownership of our Class D common stock. Accordingly, the Founder Member controls our business policies and affairs and can control any action requiring the general approval of our stockholders, including the election of our board or 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. The Founder Member will continue to have such control as long as it owns at least 25% of our issued and outstanding common stock. 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 Member, even if such events are in the best interests of minority stockholders.

Dividends

The holders of Class A common stock and Class B common stock are entitled to receive dividends when, as and if declared by our board of directors out of legally available funds. Under our amended and restated certificate of incorporation, dividends may not be declared or paid in respect of Class B common stock unless they are declared or paid in the same amount in respect of Class A common stock, and vice versa. With respect to stock dividends, holders of Class B common stock must receive Class B common stock while holders of Class A common stock must receive Class A common stock.

The holders of our Class C common stock and Class D common stock do not have any right to receive dividends other than dividends consisting of shares of our (i) Class C common stock, paid proportionally with respect to each outstanding share of our Class C common stock, and (ii) Class D common stock, paid proportionally with respect to each outstanding share of our Class D common stock, in each case in connection with stock dividends.

Merger, Consolidation, Tender or Exchange Offer

The holders of Class B common stock and Class D common stock are not entitled to receive economic consideration for their shares in excess of that payable to the holders of Class A common stock and Class C common stock, respectively, in the event of a merger, consolidation or other business combination requiring the approval of our stockholders or a tender or exchange offer to acquire any shares of our common stock. However, in any such event involving consideration in the form of securities, the holders of Class B common stock and Class D common stock will be entitled to receive securities that have no more than ten times the voting power of any securities distributed to the holders of Class A common stock and Class C common stock.

Liquidation or Dissolution

Upon our liquidation or dissolution, the holders of our Class A common stock and Class B common stock are entitled to share ratably in those of our assets that are legally available for distribution to stockholders after payment of liabilities and subject to the prior rights of any holders of preferred stock then outstanding. Other than their par value, the holders of our Class C common stock and Class D common stock do not have any right to receive a distribution upon a liquidation or dissolution of our company.

Conversion, Transferability and Exchange

Our amended and restated certificate of incorporation provides that each share of our Class B common stock is convertible at any time, at the option of the holder, into one share of Class A common stock, and each share of our Class D common stock is convertible at any time, at the option of the holder, into one share of Class C common stock. Our amended and restated certificate of incorporation further provides that each share of our Class B common stock will automatically convert into one share of Class A common stock, and each share of our Class D common stock will automatically convert into one share of our Class C common stock (a) immediately prior to any sale or other transfer of such share by the Founder Member or any of its affiliates or permitted transferees (collectively, "Founder Equityholders"), subject to certain limited exceptions, such as transfers to permitted transferees, or (b) if Founder Equityholders own less than 25% of our issued and outstanding common stock. Shares of our Class A common stock and Class C common stock are not subject to any conversion right.

Under our amended and restated certificate of incorporation, "permitted transferees" of the Founder Member include (i) Vincent Viola or any of his immediate family members (which would include parents, grandparents, lineal descendants, siblings of such person or such person's spouse, and lineal descendants of siblings of such person or such person's spouse) or any trust, family-partnership or estate-planning vehicle so long as Mr. Viola and/or his immediate family members are the sole economic beneficiaries thereof, (ii) any corporation, limited liability company, partnership or other entity of which all of the economic beneficial ownership thereof belongs to Mr. Viola, his immediate family members or any trust, family-partnership or estate-planning vehicle whose economic beneficiaries consist solely of Mr. Viola and/or his immediate family members, (iii) a charitable institution controlled by Mr. Viola and/or his immediate family members, (iv) an individual mandated under a qualified domestic relations order and (v) a legal or personal representative of Mr. Viola and/or his immediate family members in the event of death or disability.

Among other exceptions described in our amended and restated certificate of incorporation, the Founder Equityholders are permitted to pledge shares of Class D common stock and/or Class B common stock that they hold from time to time without causing an automatic conversion to Class C common stock or

Class A common stock, as applicable, provided that any pledged shares are not transferred to or registered in the name of the pledgee.

Subject to the terms of the Exchange Agreement entered into on April 15, 2015 by and among us, Virtu Financial LLC and holders of non-voting common interest units of Virtu Financial LLC, which we refer to as "Virtu Financial Units" (i) the Founder Member may exchange its Virtu Financial Units and a corresponding number of shares of our Class D common stock or, after the Triggering Event (defined as the point in time when the Founder Equityholders no longer beneficially own shares representing 25% of our issued and outstanding common stock), Class C common stock, for shares of our Class B common stock (or, after the Triggering Event, Class A common stock) and (ii) the other Virtu Post-IPO Members may exchange their vested Virtu Financial Units and a corresponding number of shares of our Class C common stock for shares of our Class A common stock. Each such exchange will be on a one-for-one basis, subject to customary conversion rate adjustments for stock splits, stock dividends and reclassifications. Upon exchange, each share of our Class C common stock or Class D common stock so exchanged will be cancelled.

Other Provisions

None of the Class A common stock, Class B common stock, Class C common stock or Class D common stock has any pre-emptive or other subscription rights. There are no redemption or sinking fund provisions applicable to the Class A common stock, Class B common stock, Class C common stock or Class D common stock.

At such time as no Virtu Financial Units remain exchangeable for shares of our Class A common stock, our Class C common stock will be cancelled. At such time as no Virtu Financial Units remain exchangeable for shares of our Class B common stock, our Class D common stock will be cancelled.

Preferred Stock

We are authorized to issue up to 50,000,000 shares of preferred stock. Our board of directors is authorized, subject to limitations prescribed by Delaware law and our amended and restated certificate of incorporation, to determine the terms and conditions of the preferred stock, including whether the shares of preferred stock will be issued in one or more series, the number of shares to be included in each series and the powers, designations, preferences and rights of the shares. Our board of directors is also authorized to designate any qualifications, limitations or restrictions on the shares without any further vote or action by the stockholders. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control of our Company and may adversely affect the voting and other rights of the holders of our Class A common stock, Class B common stock, Class C common stock and Class D common stock, which could have a negative impact on the market price of our Class A common stock.

Corporate Opportunities

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 Member, Mr. Viola, and certain affiliates of Temasek Holdings (Private) Limited ("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. Douglas A. Cifu, our Chief Executive Officer, 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 Third Amended and Restated LLC Agreement of Virtu Financial LLC provides that Mr. Viola, in addition to our other executive officers and our employees that are members of Virtu Financial LLC, 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. Certain affiliates of Temasek and our non-employee directors are not subject to any such restriction.

Certain Certificate of Incorporation, By-Law and Statutory Provisions

The provisions of our amended and restated certificate of incorporation and by-laws and of the Delaware General Corporation Law summarized below may have an anti-takeover effect and may delay, defer or prevent a tender offer or takeover attempt that you might consider in your best interest, including an attempt that might result in your receipt of a premium over the market price for your shares of Class A common stock.

Anti-Takeover Effects of our Certificate of Incorporation and Bylaws

Our amended and restated certificate of incorporation and by-laws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and that may have the effect of delaying, deferring or preventing a future takeover or change in control of our Company unless such takeover or change in control is approved by our board of directors.

These provisions include:

Classified Board. Our amended and restated certificate of incorporation provides that our board of directors is divided into three classes of directors, with the classes as nearly equal in number as possible. As a result, approximately one-third of our board of directors is elected each year. The classification of directors has the effect of making it more difficult for stockholders to change the composition of our board. Our amended and restated certificate of incorporation also provides that, subject to any rights of holders of preferred stock to elect additional directors under specified circumstances, the number of directors is fixed exclusively pursuant to a resolution adopted by our board of directors.

In addition, our amended and restated certificate of incorporation provides that, following the Triggering Event (defined as the point in time when Founder Equityholders no longer beneficially own shares representing 25% of our issued and outstanding common stock), other than preferred stock directors and subject to obtaining any required stockholder votes or consents under the Stockholders Agreement dated as of April 15, 2015 by and among the Company and the stockholders named therein, directors may only be removed for cause and by the affirmative vote of holders of 75% of the total voting power of our outstanding shares of common stock, voting together as a single class. This requirement of a super-majority vote to remove directors for cause could enable a minority of our stockholders to exercise veto power over any such removal.

Action by Written Consent; Special Meetings of Stockholders. Our amended and restated certificate of incorporation provides that, following the Triggering Event, stockholder action can be taken only at an annual or special meeting of stockholders and cannot be taken by written consent in lieu of a meeting. Our amended and restated certificate of incorporation and by-laws also provide that, subject to any special rights of the holders of any series of preferred stock and except as otherwise required by law, special meetings of the stockholders can only be called by the chairman or vice chairman of the board or the chief executive officer, or pursuant to a resolution adopted by a majority of the board of directors or, until the Triggering Event, at the request of holders of a majority of the total voting power of our outstanding shares of common stock, voting together as a single class. Except as described above, stockholders are not permitted to call a special meeting or to require the board of directors to call a special meeting.

Advance Notice Procedures. Our amended and restated by-laws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the board of directors. Stockholders at an annual meeting are only able to consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the board of directors or by a stockholder who was a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has given our Secretary timely written notice, in proper form, of the stockholder's intention to bring that business before the meeting. Although the by-laws do not give our board of directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting, the by-laws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of our Company.

Super-Majority Approval Requirements. The Delaware General Corporation Law generally provides that the affirmative vote of the holders of a majority of the total voting power of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless either a corporation's certificate of incorporation or by-laws require a greater percentage. Our amended and restated certificate of incorporation and by-laws provide that, following the Triggering Event, the affirmative vote of holders of 75% of the total voting power of our outstanding common stock eligible to vote in the election of directors, voting together as a single class, is required to amend, alter, change or repeal specified provisions, including those relating to the classified board, actions by written consent of stockholders, calling of special meetings of stockholders, business combinations and amendment of our amended and restated certificate of incorporation and by-laws. This requirement of a super-majority vote to approve amendments to our amended and restated certificate of incorporation and by-laws could enable a minority of our stockholders to exercise veto power over any such amendments.

Authorized but Unissued Shares. Our authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

Business Combinations with Interested Stockholders. Our amended and restated certificate of incorporation provides that we are not subject to Section 203 of the Delaware General Corporation Law, an antitakeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination, such as a merger, with a person or group owning 15% or more of the corporation's voting stock for a period of three years following the date the person became an interested stockholder, unless (with certain exceptions) the business combination or the transaction in which the person became an interested stockholder is approved in a prescribed manner. Accordingly, we are not subject to any anti-takeover effects of Section 203. Nevertheless, our amended and restated certificate of incorporation contains provisions that have the same effect as Section 203, except that it provides that the Founder Member, certain affiliates of Temasek, their respective affiliates and successors and their transferees are not deemed to be "interested stockholders," regardless of the percentage of our voting stock owned by them, and accordingly are not subject to such restrictions.

Amended and Restated Employment Agreement (this “Agreement”), dated as of February 26, 2020 (the “Effective Date”), between Virtu Financial Operating LLC, a Delaware limited liability company (together with all parents, affiliates and subsidiaries as the "Company"), and Brett Fairclough (“Executive”).

WHEREAS, the Company and Executive are party to an offer letter dated April 17, 2019 (the “Existing Agreement”) and desire to amend and restate the Existing Agreement as herein provided; and

WHEREAS, Executives’s agreement to enter into this Agreement and be bound by the terms hereof, including the restrictive covenants described herein, is a material inducement to the Company’s willingness to provide equity-based compensation to Executive as described herein, and the Company would not otherwise grant such equity-based compensation to Executive if Executive did not agree to enter into this Agreement.

NOW, THEREFORE, in consideration of the mutual agreements, provisions and covenants contained herein, and intending to be legally bound hereby, the parties hereto agree as set forth below:

1. **Term.**

a. The term of Executive’s employment under this Agreement shall continue from the Effective Date until the four (4)-year anniversary of the Effective Date (the “Initial Expiration Date”), provided that on the Initial Expiration Date and each subsequent anniversary of the Initial Expiration Date, the term of Executive’s employment under this Agreement shall be extended for one (1) additional year unless either party provides written notice to the other party at least ninety (90) days prior to the Initial Expiration Date (or any such anniversary, as applicable) that Executive’s employment hereunder shall not be so extended (in which case, Executive’s employment under this Agreement shall terminate on the Initial Expiration Date or expiration of the extended term, as applicable); provided, however, that Executive’s employment under this Agreement may be terminated at any time pursuant to the provisions of Section 5. The period of time from the Effective Date through the termination of this Agreement and Executive’s employment hereunder pursuant to its terms is herein referred to as the “Term”; and the date on which the Term is scheduled to expire (i.e., the Initial Expiration Date or the scheduled expiration of the extended term, if applicable) is herein referred to as the “Expiration Date.” Notwithstanding anything contained herein to the contrary, if upon the effective date of a Change in Control, the Expiration Date is less than one (1) year from the date of such Change in Control, the Term shall automatically be renewed so that the Expiration Date is one (1) year from the effective date of such Change in Control.

b. Executive agrees and acknowledges that the Company has no obligation to extend the Term or to continue Executive’s employment following the Expiration Date, and Executive expressly acknowledges that no promises or understandings to the contrary have been made or reached. Executive also agrees and acknowledges that, should Executive and the Company choose to continue Executive’s employment for any period of time following the Expiration Date without extending the term of Executive’s employment under this Agreement or entering into a new written employment agreement, Executive’s employment with the Company shall be “at will,” such that the Company may terminate Executive’s employment at any time, with or without reason and with or without notice, and Executive may resign at any time, with or without reason and with or without notice (for the sake of clarity, the provisions of this Agreement shall not apply following the expiration of the Term (except as otherwise expressly provided herein)).

2. **Definitions.** For purposes of this Agreement, the following terms, as used herein, shall have the definitions set forth below.

a. “Affiliate” means, with respect to any specified Person, any other Person that directly or indirectly, through one or more intermediaries, Controls, is Controlled by, or is under common Control with, such specified Person; provided, that in no event shall any entity Controlled by Vincent Viola but in which the Company does not have a direct or indirect ownership interest be treated as an Affiliate of the Company.

b. “Cause” means that any of the following occurs:

i. Executive is convicted of, or pleads guilty or *nolo contendere* to, any felony or commits any fraudulent or illegal acts with regard to the Company or its employees, independent contractors, officers, members or managers;

ii. Executive is repeatedly intoxicated or under the influence of illegal substances while performing his employment duties;

iii. Executive does not have any necessary license or regulatorily required qualification, or becomes subject to a decree or order, in each case, from a regulatory agency, in each case, that prevents him from working for the Company;

iv. Execuitve (A) violates any material regulatory or trading policy, procedure, requirement, rule or regulation of the Company, any exchange, regulatory agency or self-regulatory body with authority to govern or regulate him or the Company, (B) violates any material obligation or is in breach of any representation in this Agreement (including for the avoidance of doubt any exhibit hereto), or (C) violates any material written company policy as stated in the Company’s employee policy manual (as amended or revised by the Company from time to time) or the Company’s Code of Conduct and Ethics; provided, that any act, or failure to act, based upon the instructions of the Board or the Chief Executive Officer (“CEO”) or reasonably based upon the written advice of counsel for the Company shall not be considered a violation under clauses (A) or (C) herein;

v. Executives intentionally and wrongfully damages material assets of the Company;

vi. Executive intentionally and wrongfully discloses material confidential information of the Company; or

vii. Executive intentionally and wrongfully engages in any competitive activity which constitutes a material breach of this Agreement, the Proprietary Invention Assignment, Noncompetition and Confidentiality Agreement, and/or a breach of his duty of loyalty;

provided that Cause shall not apply to any act or omission described above unless the Company provides written notice of the act or omission (which, except in the case of an allegation of Cause that is subject to cure, may be provided at the time of termination) and, with respect to clauses (iii), (iv), or (vi), if curable, the act or omission is cured within 10 days after receipt of such notice and does not recur within 180 days after the initial act or omission.

c. “Change in Control” has the meaning set forth in the Plan.

d. “Control” means (including, with correlative meanings, the terms “Controlled by” and “under common Control with”), as used with respect to any Person, means the direct or indirect possession of the power to direct or cause the direction of the management or policies of such Person, whether through the ownership of voting securities or by contract.

e. “Good Reason” means the termination of Executive’s employment at his initiative after, without Executive’s prior written consent, one (1) or more of the following events:

i. an adverse change in Executive’s title or reporting relationship such that he no longer reports to the Chief Executive Officer of the ultimate parent company of Virtu or a material reduction in authority, duties or responsibilities at the Company or a successor employer relative to the Executive’s authority, duties or responsibilities (with respect to a termination in connection with a Change in Control, relative to Executive’s authority, title, duties or responsibilities immediately prior to the Change in Control) or are being required to report other than to the CEO or the Board or a material reduction in Base Salary;

ii. a material breach of this Agreement by the Company or a successor employer; or

iii. required relocation or performance of primary services (other than through routine and reasonable travel) by the Executive more than thirty (30) miles from his current place of employment in order to continue to perform the duties and responsibilities of his position.

Notwithstanding the above, Executive’s termination of employment will not be for Good Reason unless (1) he notifies the Company in writing of the existence of the condition that he believes constitutes Good Reason within 30 days of the initial existence of such condition (which notice specifically identifies such condition), (2) the Company fails to remedy such condition within thirty (30) days after the date on which it receives such notice (the “Remedial Period”), and (3) so long as the Company acknowledges in writing the existence of Good Reason, the Executive actually terminates employment within thirty (30) days following the expiration of the Remedial Period and before the Company remedies such condition. If the Company does not acknowledge in writing the existence of Good Reason, Executive shall only be required to resign for Good Reason within two years of the end of the Remedial Period.

f. “Person” means any individual, firm, corporation, partnership, limited liability company, trust, joint venture, association, unincorporated entity or other entity.

g. “Plan” means the Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan.

3. **Duties and Responsibilities.**

a. The Company hereby employs Executive and Executive hereby accepts employment, subject to the terms and conditions contained herein, during the Term, as Executive Vice President reporting to the Company’s Chief Executive Officer. During the Term, Executive agrees to be employed by and devote substantially all of Executive’s business time and attention to the Company and the promotion of its interests and to use his best efforts to faithfully and diligently serve the Company; provided, however, that, to the extent such activities do not significantly interfere with the performance of his duties, services and responsibilities under this Agreement, Executive shall be permitted to (i) manage his personal, financial and legal affairs, (ii) serve on civic or charitable boards and committees of such boards and (iii) to the extent approved by the Board pursuant to a duly authorized resolution of the Board, serve on corporate boards and committees of such boards. Executive will perform such lawful duties and responsibilities as are commensurate with Executive’s titles and positions and as are generally consistent with those exercised by Executive prior to the Effective Date, and such other duties and responsibilities commensurate with Executive’s titles and positions as may be reasonably requested by the Chief Executive Officer from time to time. Executive will have the authority customarily exercised by an individual serving as Executive Vice President of a corporation of the size and nature of the Company. During the Term, upon request shall serve as a director or an officer of one or more subsidiaries of the Company, or of an Affiliate of the Company. Executive shall not be compensated additionally in Executive’s capacity as a member of the Board or as a director or officer of a subsidiary or Affiliate of the Company.

b. During the Term, Executive’s principal place of employment shall be in the Company’s principal office in Manhattan, New York. Executive acknowledges that Executive’s duties and responsibilities shall require Executive to travel on business to the extent reasonably necessary to fully perform Executive’s duties and responsibilities hereunder.

4. **Compensation and Related Matters.**

a. *Base Salary*. As of the Effective Date, Executive shall receive an annual base salary (“Base Salary”) of $500,000 per year, payable in accordance with the Company’s normal payroll procedures and may be increased (but not decreased) by the CEO together with the Compensation Committeee (as defined below) in its sole discretion (such salary, as may be increased, the “Base Salary”). For the avoidance of doubt, the position is exempt from any and all overtime laws.

b. *Annual Bonus*. During the Term, for each calendar year, Executive shall be eligible to receive an annual bonus (“Annual Bonus”) with a target Annual Bonus amount of $1,500,000 (the “Target Bonus”) and a maximum Annual Bonus amount of $2,500,000 (the “Maximum Bonus”). Eighty percent (80%) of the Annual Bonus shall be based on the achievement of annual quantitative targets established in the sole and absolute discretion of the Compensation Committee (the "Compensation Committee") of the Board of Directors of Virtu Financial, Inc. ("Virtu") together with the Company's CEO (the "Quantitative Goals") and the remaining twenty percent (20%) of the Annual Bonus will be based on annual qualitative targets established in the sole and absolute discretion of the Compensation Committee together with the Company's CEO (the "Qualitative Goals"). Accordingly, up to $1,200,000 of the Target Bonus and $2,000,000 of the Maximum Bonus may be earned based on the achievement of the Quantitative Goals and up to $300,000 of the Target Bonus and $500,000 of the Maximum Bonus may be earned based on the achievement of the Qualitative Goals. Any Annual Bonus payable may be paid in a combination of cash and long-term equity, and the proportion between cash and long-term equity will be entirely within the discretion of the Company but is expected to be paid 40% in cash and 60% in stock and restricted stock units in Virtu, which shall be subject to the terms and conditions of the Plan and a separate award agreement. Any performance bonus will be paid at a time such that it qualifies as a "short-term deferral" under Section 409A.

c. *Initial Equity Award*. Shortly following the Effective Date, the Executive will be granted 150,000 restricted shares of Class A common stock ("Stock") of the Company (the "Initial Equity Award") which shall be earned and vest in accordance with the terms hereof and the terms, the terms of the applicable award agreement and the terms of the Plan.

i. The Initial Equity Award shall be earned and vested in three separate annual installments, and the number of shares earned with respect to the installment for each calendar year ended during such period shall be determined based on the percentage of the Company's budgeted EBITDA achieved in such calendar year in accordance with the following table:

Percentage of Budgeted EBITDA Achieved	**Number of Shares Earned**
75% or more	50,000
74%	45,000
73%	40,000
72%	35,000
71%	30,000
70%	25,000
Less than 70%	0

If the percentage of the Company's budgeted EBITDA achieved is greater than 70% but less than 75%, then the amount of earned shares in the table above will be determined based on linear interpolation.

ii. To the extent any shares of Stock are earned with respect to the Initial Equity Award in accordance with 4(c)(i), such shares shall vest on the last day of the calendar year to which such instalment relates, subject in all cases to the Executive's continued employment through the applicable vesting date.

iii. The Initial Equity Award will be issued pursuant to the Plan and will be subject to the terms and conditions of the Plan and a separate award agreement attached hereto as Exhibit A, which shall include the approval of the Compensation Committee, and which shall also provide that in the event of Executive's termination other than for Cause or resignation for Good Reason (x) the next scheduled vesting installment prorated for the number of days elapsed during the applicable vesting period, plus (y) the full next installment of RSUs scheduled for vesting, if any, shall together be deemed vested immediately upon such termination (the "Initial Equity Award Acceleration").

d. *Annual Equity Awards*. In addition, commencing with calendar year 2020, Executive shall be eligible to receive an equity award at the beginning of each calendar year during his employment (each such grant, an " Annual Equity Award ") as determined by the Compensation Committee together with the Company's CEO. It is the current intention of the Company that such Annual Equity Award will be in the form of restricted shares of Stock; 50% of such shares shall vest on the last day of the calendar year to which such award relates and the remaining 50% shall vest on the last day of the subsequent calendar year, subject in all cases to Executive's continued employment through the applicable vesting date.

e. *Benefits and Perquisities*. Executive will be eligible for all employee benefits offered by the Company to employees in similar positions. The Company retains the right to modify or change its benefits and compensation policy from time to time, as it deems necessary, other than those provided for Executive in this employment agreement. The Company also retains the right to assign Executive's employment agreement to an Affiliate, subject to the terms and conditions of this Agreement.

f. *Indemification***.** The Company will indemnify Executive to the fullest extent permitted by law and the Company's governing documents.

5. **Termination of Employment.**

a. Executive's employment under this Agreement may be terminated by either party at any time and for any reason; provided, however, that Executive shall be required to give the Company at least sixty (60) days' advance written notice of any voluntary resignation of Executive's employment hereunder (other than resignation for Good Reason) (and in such event the Company in its sole discretion may elect to accelerate Executive's date of termination of employment, it being understood that such termination shall still be treated as a voluntary resignation for purposes of this Agreement). Notwithstanding the foregoing, Executive's employment shall automatically terminate upon Executive's death.

b. Upon termination, irrespective of the reason, the Company shall pay Executive: (i) unpaid salary earned through the date of termination; (ii) compensation at the rate of the salary for any vacation time earned but not used as of the date Executive's employment terminates in accordance with Company policies as then in effect; (iii) reimbursement, in accordance with the Company's policies and procedures, for business expenses incurred by Executive but not yet paid as of the date employment terminates; and (iv) all other payments, benefits or fringe benefits to which

Executive is entitled under the terms of the applicable arrangements and/or applicable law (all of the foregoing clauses (i)-(iv) collectively, the "Accrued Obligations").

c. If Executive's employment under this Agreement is terminated (i) by the Company without Cause, (ii) due to death or disability, (iii) by Executive for Good Reason, or (iv) due to expiration of the Term on the Expiration Date as a result of the Company delivering a notice of non-renewal as contemplated by Section 1, in addition to the payments and benefits specified in Section 5(b), Executive shall also receive the following termination payments and benefits on or beginning with the first payroll whose cutoff date follows the date Executive's employment ends or according to such timing as otherwise set forth below (collectively, the "Severance Benefits"):

   i. an amount equal to greater of (x) the sum of twelve (12) months' Base Salary, at the rate in effect immediately prior to termination (or, if higher, the highest rate in effect within the preceding six months) and (y) an amount equal to the total amount of Base Salary that Executive would have been entitled to receive had Executive continued to be employed through the Expiration Date, payable in a single lump sum on the next payroll date whose cutoff follows the day the Release (as defined below) becomes irrevocable (or, if earlier, within five business days folloing irrevocability), except where payment is delayed according to the timing relating to the Release Period as set forth below or pursuant to Section 409A (as defined below) (such date, the "Severance Payment Date");

   ii. any bonus that the Company had definitively determined to pay to Executive and which was authorized and approved in accordance with the Company's policies and procedures but which had not yet been paid to as of the date of termination, payable in a lump sum at the same date as provided under clause (i) above;

   iii. the Initial Equity Award Acceleration; and

   iv. the employer portion of COBRA continuation coverage for Executive and any covered dependents will continue to be paid in accordance with the Company's regular payroll practices, so long as the Executive has not become actually covered by the medical plan of a subsequent employer during any such month and are otherwise entitled to COBRA continuation coverage, with such payments for up to a maximum of twelve (12) months following the date of termination.

d. Notwithstanding anything herein to the contrary, if at any time within twelve (12) months following a Change in Control (as defined in the Plan as of the date thereof) or in anticipation of a Change of Control towards which material steps have been taken at the time of such termination and such Change of Control actually occurs, Executive's employment under this Agreement is terminated (i) by the Company without Cause, (ii) due to death or disability, (iii) by Executive for Good Reason, or (iv) due to expiration of the Term on the Expiration Date as a result of the Company delivering a notice of non-renewal as contemplated by Section 1, then in in lieu of the Severance Benefits described in Section 5(c) the Executive shall be entitled to receive the following:

   i. An amount equalt to two (2) times the sum of (x) Executive's Base Salary and (y) the Annual Bonus (including any amounts deferred or satisfied through the grant of equity awards) most recently awarded to Executive for completed fiscal years of the Company payable in a single lump sum on the Severance Payment Date;

   ii. any bonus that the Company had definitively determined to pay to Executive and which was authorized and approved in accordance with the Company's policies and procedures but which had not yet been paid to as of the date of termination, payable in a lump sum at the same date as provided under clause (i) above;

   iii. the Initial Equity Award Acceleration; and

   iv. the benefits described in Section 5(c)(iv) above.

e. For avoidance of doubt, all payments owed to the Executive under Section 5 of this Agreement will be paid in a single lump sum on the Severance Payment Date.

f. Notwithstanding anything else herein to the contrary, the Company's obligation to pay the benefits described herein shall be conditioned on the receipt of a customary release and waiver of all claims (the "Release") in a form substantially consistent with the Company's form separation agreement. Such release and waiver must be executed and become irrevocable within sixty (60) days following the date Executive's employment ends (the"Release Period"). If such Release Period ends in the calendar year subsequent to the calendar year in which Executive's employment ends and any Severance Benefits or the Change in Control Bonus is subject to Section 409A, payment of such covered amounts will not be made earlier than the first business day of that subsequent year.

g. To the extent (i) any payments to which Executive becomes entitled under this agreement, or any agreement or plan referenced herein, in connection with Executive's termination of employment with the Company, constitute deferred compensation subject to Section 409A of the Internal Revenue Code ("Section 409A") and (ii) Executive is deemed at the time of such termination of employment to be a "specified" employee under Section 409A, then such payment or payments shall not be made or commence until the earlier of (i) the expiration of the 6-month period measured from the date of Executive's "separation from service" (as such term is at the time defined in regulations under Section 409A) with the Company and (ii) the date of Executive's death following such separation from service, provided, however, that such deferral shall be effected only to the extent required to avoid adverse tax treatment to Executive, including (without limitation) the additional twenty-percent (20%) tax for which Executive would otherwise be liable under Section 409A(a)(1)(B) in the absence of such deferral. Upon the expiration of the applicable deferral period, any payments which would have otherwise been made during that period (whether in a single sum or in installments) in the absence of this paragraph shall be paid to Executive or Executive's beneficiary in one lump sum (without interest). To the extent that any provision of this Agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that (i) all payments hereunder are exempt from Section 409A to the maximum permissible extent and, (ii) for any payments where such construction is not tenable, so that those payments comply with Section 409A to the maximum permissible extent. Payments pursuant to this Agreement (or referenced in this Agreement), and each installment thereof, are intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the regulations under Section 409A. All references to termination of employment or similar terms shall be deemed to mean separation from service within the meaning of Section 409A. Notwithstanding anything to the contrary herein, except to the extent any expense, reimbursement or in-kind benefit provided pursuant to this Agreement does not constitute a "deferral of compensation" within the meaning of Section 409A: (x) the amount of expenses eligible for reimbursement or in-kind benefits provided to Executive during any calendar year will not affect the amount of expenses eligible for reimbursement or in-kind benefits provided to Executive in any other calendar year, (y) the Company will reimburse Executive for expenses for which Executive is entitled to be reimbursed on or before the last day of the calendar year following the calendar year in which the applicable expense is incurred or, if earlier, within 30 days after Executive has substantiated the expense, and (z) the right to payment or reimbursement or in-kind benefits hereunder may not be liquidated or exchanged for any other benefit.

6. **280G Matters.**

a. Anything in this Agreement to the contrary notwithstanding, in the event that the Accounting Firm shall determine that receipt of all Payments would subject Executive to tax under Section 4999 of the Code, the Accounting Firm shall determine whether some amount of Agreement Payments meets the definition of "Reduced Amount." If the Accounting Firm determines that there is a Reduced Amount, then the aggregate Agreement Payments shall be reduced to such Reduced Amount.

b. If the Accounting Firm determines that the aggregate Agreement Payments should be reduced to the Reduced Amount, the Company shall promptly give Executive notice to that effect and a copy of the detailed calculation thereof, and Executive may then elect, in his sole discretion, which and how much of the Agreement Payments shall be eliminated or reduced (as long as after such election the Present Value of the aggregate Agreement Payments equals the Reduced Amount). All determinations made by the Accounting Firm under this Paragraph shall be binding upon the Company and Executive. In connection with making determinations under this Paragraph, the Accounting Firm shall take into account the value of any reasonable compensation for services to be rendered by Executive before or after the Change in Control, including any non-competition provisions that may apply to Executive and the Company shall cooperate in the valuation of any such services, including any non-competition provisions.

c. As a result of the uncertainty in the application of Section 4999 of the Code at the time of the initial determination by the Accounting Firm hereunder, it is possible that amounts will have been paid or distributed by the Company to or for Executive's benefit pursuant to this Agreement which should not have been so paid or distributed (each, an "Overpayment") or that additional amounts which will have not been paid or distributed by the Company to or for Executive's benefit pursuant to this Agreement could have been so paid or distributed (each, an "Underpayment"), in each case, consistent with the calculation of the Reduced Amount hereunder. In the event that the Accounting Firm, based upon the assertion of a deficiency by the Internal Revenue Service against either the Company or Executive which the Accounting Firm believes has a high probability of success determines that an Overpayment has been made, any such Overpayment paid or distributed by the Company to or for Executive's benefit shall be repaid by Executive to the Company together with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code; provided, however, that no such repayment shall be required if and to the extent such deemed repayment would not either reduce the amount on which Executive is subject to tax under Section 1 and Section 4999 of the Code or generate a refund of such taxes. In the event that the Accounting Firm, based upon controlling precedent or substantial authority, determines that an Underpayment has occurred, any such Underpayment shall be promptly paid by the Company to or for Executive's benefit together with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code. All fees and expenses of the Accounting Firm in implementing the provisions of this Paragraph shall be borne by the Company.

d. *Definitions*. The following terms shall have the following meanings for purposes of this Paragraph. (1) A "Payment" shall mean any payment or distribution in the nature of compensation (within the meaning of Section 280G(b)(2) of the Code) to or for Executive's benefit, whether paid or payable pursuant to this Agreement or otherwise; (2) "Agreement Payment" shall mean a Payment paid or payable pursuant to this Agreement (disregarding this Paragraph); (3) "Net After-Tax Receipt" shall mean the Present Value of a Payment net of all taxes imposed on Executive with respect thereto under Sections 1 and 4999 of the Code and under applicable state and local laws, determined by applying the highest marginal rate under Section 1 of the Code and under state and local laws which applied to Executive's taxable income for the immediately preceding taxable year, or such other rate(s) as Executive shall certify, in Executive's sole discretion, as likely to apply to Executive in the relevant tax year(s); (4) "Accounting Firm" shall mean the Company's regular auditor, unless Executive objects to the use of that auditor, in which event the auditor shall be an independent auditor or other independent professional services organization that is a certified public accounting firm recognized as an expert in determinations and calculations for purposes of Section 280G of the Code selected by the Company and reasonably acceptable to Executive, which auditor shall not, without Executive's consent, be a firm serving as accountant or auditor for the individual, entity or group effecting the Change in Control (the "Auditor"); (5) "Parachute Value" of a Payment shall mean the present value as of the date of the change of control for purposes of Section 280G of the Code of the portion of such Payment that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accounting Firm for purposes of determining whether and to what extent the Excise Tax will apply to such Payment; and (6) "Reduced Amount" shall mean the amount of Agreement Payments that (x) has a Present Value that is less than the Present Value of all Agreement Payments and (y) results in aggregate Net After-Tax Receipts for all Payments that are greater than the Net After-Tax Receipts for all Payments that would result if the aggregate Present Value of Agreement Payments were any other amount that is less than the Present Value of all Agreement Payments.

7. **Mutual Arbitration.** Executive and the Company both knowingly and voluntarily agree to a pre-dispute arbitration clause so that should any controversy or dispute arise in connection with Excutive's employment, the cessation of Executive's employment or the interpretation of this agreement, Executive and the Company agree to the arbitration of any and all such claims at a site in New York, before a neutral panel of the American Arbitration Association or JAMS, as dictated by the underlying facts and circumstances giving rise to Executive's claim(s). In the course of any arbitration pursuant to this agreement, Executive and the Company agree: (a) to request that a written award be issued by the panel, and (b) that each side is entitled to receive any and all relief they would be entitled to receive in a court proceeding, except that Executive agrees to waive any claim or right Executive may have for punitive or other indirect or consequential damages. Executive and the Company knowingly and voluntarily

agree to enter into this arbitration clause and to waive any rights that might otherwise exist to request a jury trial or other court proceeding, except that Executive agrees that the Company may seek and obtain from a court any injunctive or equitable relief necessary to maintain (and/or to restore) the status quo or to prevent the possibility of irreversible or irreparable harm pending final resolution of mediation, arbitration or court proceedings, as applicable. The agreement between Executive and the Company to arbitrate disputes includes, but is not limited to, any claims of unlawful discrimination and/or unlawful harassment under Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, the New York Civil Rights Laws, the New York Executive Law, the New York City Human Rights Law, or any other federal, state of local law relating to discrimination in employment and any claims relating to wage and hour claims and any other statutory or common law claims. If Executive is deemed an associated person under FINRA's rules, this agreement does not prohibit or restrict Executive from filing an arbitration claim in the FINRA arbitration forum as specified in FINRA rules.

8. **Offset and Mitigation.** No payments due Executive hereunder shall be subject to any offset for obligations owed by Executive to the Company or its Affiliates (except as required by applicable law). In no event shall Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to Executive under any of the provisions of this Agreement.

9. **Restrictive Covenants.** Executive acknowledges and agrees that Executive shall continue to be bound by the restrictive covenants to which he is presently bound, including those set forth in the Proprietary Agreement (as defined below) (collectively, the "Restrictive Covenants"), in accordance with the terms and conditions thereof; provided, however, that the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for any disclosure of a trade secret that is made: (A) in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney; and (B) solely for the purpose of reporting or investigating a suspected violation of law; or is made in a complaint or other document that is filed under seal in a lawsuit or other proceeding. If the Executive files a lawsuit for retaliation by the Company for reporting a suspected violation of law, the Executive may disclose the Company's trade secrets to the Executive's attorney and use the trade secret information in the court proceeding if the Executive: (1) files any document containing the trade secret under seal; and (2) does not disclose the trade secret, except pursuant to court order.

10. **Return of Property.** Executive acknowledges that all notes, memoranda, specifications, devices, formulas, records, files, lists, drawings, documents, models, equipment, property, computer, software or intellectual property relating to the businesses of the Company, in whatever form (including electronic), and all copies thereof, that are received or created by Executive while an employee of the Company or its subsidiaries or Affiliates are and shall remain the property of the Company, and Executive shall immediately return such property to the Company upon the termination of Executive's employment and, in any event, at the Company's request and subject to inspection in accordance with applicable Company employee policies generally, except as may otherwise be agreed by Executive and the Company at the time of termination; provided, that Executive shall be permitted to retain a copy of his contacts/rolodex, including in electronic form.

11. **Remedies and Injunctive Relief.** Executive acknowledges that a violation by Executive of any of the covenants contained in Sections 9 or 10 would cause irreparable damage to the Company in an amount that would be material but not readily ascertainable, and that any remedy at law (including the payment of damages) would be inadequate. Accordingly, Executive agrees that, notwithstanding any provision of this Agreement to the contrary, the Company shall be entitled (without the necessity of showing economic loss or other actual damage) to injunctive relief (including temporary restraining orders, preliminary injunctions and/or permanent injunctions) in any court of competent jurisdiction for any actual or threatened breach of any of the covenants set forth in Sections 9 or 10 in addition to any other legal or equitable remedies it may have. The preceding sentence shall not be construed as a waiver of the rights that the Company may have for damages under this Agreement or otherwise, and all of the Company's rights shall be unrestricted.

12. **Representations of Executive; Advice of Counsel.**

    a. Executive represents, warrants and covenants that as of the date hereof: (i) Executive has the full right, authority and capacity to enter into this Agreement and perform Executive's obligations hereunder, (ii) Executive is not bound by any agreement that conflicts with or prevents or restricts the full performance of Executive's duties and obligations to the Company hereunder during or after the Term, and (iii) the execution and delivery of this Agreement shall not result in any breach or violation of, or a default under, any existing obligation, commitment or agreement to which Executive is subject.

    b. Prior to execution of this Agreement, Executive was advised by the Company of Executive's right to seek independent advice from an attorney of Executive's own selection regarding this Agreement. Executive acknowledges that Executive has entered into this Agreement knowingly and voluntarily and with full knowledge and understanding of the provisions of this Agreement after being given the opportunity to consult with counsel. Executive further represents that in entering into this Agreement, Executive is not relying on any statements or representations made by any of the Company's directors, officers, employees or agents which are not expressly set forth herein, and that Executive is relying only upon Executive's own judgment and any advice provided by Executive's attorney.

13. **Cooperation**. Executive agrees that, upon reasonable notice and without the necessity of the Company obtaining a subpoena or court order, Executive shall provide reasonable cooperation in connection with any suit, action or proceeding (or any appeal from any suit, action or proceeding), and any investigation and/or defense of any claims asserted against the Company or its Affiliates, which relates to events occurring during Executive's employment with the Company and its Affiliates as to which Executive may have relevant information (including but not limited to furnishing relevant information and materials to the Company or its designee and/or providing testimony at depositions and at trial); provided that with respect to such cooperation occurring following termination of employment, the Company shall reimburse Executive for expenses reasonably incurred in connection therewith, and further provided that any such cooperation occurring after the termination of Executive's employment shall be scheduled so as not to unreasonably interfere with Executive's business or personal affairs.

14. **Withholding**. The Company may deduct and withhold from any amounts payable under this Agreement such Federal, state, local, non-U.S. or other taxes as are required to be withheld pursuant to any applicable law or regulation.

15. **Assignment.**

    a. This Agreement is personal to Executive and without the prior written consent of the Company shall not be assignable by Executive, except for the assignment by will or the laws of descent and distribution of any accrued pecuniary interest of Executive, and any assignment in violation of this Agreement shall be void. The Company may only assign this Agreement, and its rights and obligations hereunder, in accordance with the terms of Section 14(b).

b. This Agreement shall be binding on, and shall inure to the benefit of, the parties to it and their respective heirs, legal representatives, successors and permitted assigns (including, without limitation, successors by merger, consolidation, sale or similar transaction, and, in the event of Executive's death or disability, Executive's estate, successors, heirs and assigns in the case of any payments due to Executive hereunder). The Company will require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business and/or assets of the Company to assume expressly and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform it if no such succession had taken place. "Company" means the Company as hereinbefore defined and any successor to its business and/or assets as aforesaid that assumes and agrees to perform this Agreement by operation of law or otherwise. Following a Change in Control, if the Company is not the ultimate parent corporation and the Company's common stock is not publicly traded, the "Board of Directors" or "Board" as used in this Agreement shall refer to the board of directors of the ultimate parent of the Company.

c. Executive acknowledges and agrees that all of Executive's covenants and obligations to the Company, as well as the rights of the Company hereunder, shall run in favor of and shall be enforceable by the Company and its successors and assigns.

16. Governing Law; No Construction Against Drafter. This Agreement shall be deemed to be made in the State of New York, and the validity, interpretation, construction, and performance of this Agreement in all respects shall be governed by the laws of the State of New York without regard to its principles of conflicts of law. No provision of this Agreement or any related document will be construed against or interpreted to the disadvantage of any party hereto by any court or other governmental or judicial authority by reason of such party having or being deemed to have structured or drafted such provision.

17. Amendment; No Waiver; Severability.

a. No provisions of this Agreement may be amended, modified, waived or discharged except by a written document signed by Executive and a duly authorized officer of the Company (other than Executive). The failure of a party to insist upon strict adherence to any term of this Agreement on any occasion shall not be considered a waiver of such party's rights or deprive such party of the right thereafter to insist upon strict adherence to that term or any other term of this Agreement. No failure or delay by either party in exercising any right or power hereunder will operate as a waiver thereof, nor will any single or partial exercise of any such right or power, or any abandonment of any steps to enforce such a right or power, preclude any other or further exercise thereof or the exercise of any other right or power.

b. If any term or provision of this Agreement is invalid, illegal or incapable of being enforced by any applicable law or public policy, all other conditions and provisions of this Agreement shall nonetheless remain in full force and effect so long as the economic and legal substance of the transactions contemplated by this Agreement is not affected in any manner materially adverse to any party; provided, that in the event that any court of competent jurisdiction shall finally hold in a non- appealable judicial determination that any provision of Section 7, 8 or 9 (whether in whole or in part) is void or constitutes an unreasonable restriction against Executive, such provision shall not be rendered void but shall be deemed to be modified to the minimum extent necessary to make such provision enforceable for the longest duration and the greatest scope as such court may determine constitutes a reasonable restriction under the circumstances. Subject to the foregoing, upon such determination that any term or other provision is invalid, illegal or incapable of being enforced, the parties hereto shall negotiate in good faith to modify this Agreement so as to effect the original intent of the parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the fullest extent possible.

18. Entire Agreement. This Agreement constitutes the entire agreement and understanding between the Company and Executive with respect to the subject matter hereof and supersedes all prior agreements and understandings (whether written or oral), between Executive and the Company, relating to such subject matter, except that the terms of the Proprietary Invention Assignment, Noncompetition and Confidentiality Agreement (the "Proprietary Agreement") dated on or around April 17, 2019, the letter agreements dated on April 17, 2019, July 3, 2019 and September 3, 2019, and Executive's joinder agreement to the Amended and Restated Limited Liability Company Agreement of Virtu Employee Holdco LLC shall each continue in full force and effect in accordance with their terms, and any award agreements issued pursuant to the Plan shall continue in full force and effect in accordance with their terms.

19. Survival. The rights and obligations of the parties under the provisions of this Agreement shall survive, and remain binding and enforceable, notwithstanding the expiration of the Term, the termination of this Agreement, the termination of Executive's employment hereunder or any settlement of the financial rights and obligations arising from Executive's employment hereunder, to the extent necessary to preserve the intended benefits of such provisions.

20. **Notices.** All notices or other communications required or permitted to be given hereunder shall be in writing and shall be delivered by hand or sent by facsimile or sent, postage prepaid, by registered, certified or express mail or overnight courier service and shall be deemed given when so delivered by hand or facsimile, or if mailed, three days after mailing (one (1) business day in the case of express mail or overnight courier service) to the parties at the following addresses or facsimiles (or at such other address for a party as shall be specified by like notice):

If to the Company: Virtu Financial
One Liberty Plaza, 5th Floor
New York, NY 10006
Attn: Legal Department
E-mail: Legal @virtu.com

If to Executive: At the most recent address on file in the Company's records

Notices delivered by email shall have the same legal effect as if such notice had been delivered in person.

21. **Headings and References.** The headings of this Agreement are inserted for convenience only and neither constitute a part of this Agreement nor affect in any way the meaning or interpretation of this Agreement. When a reference in this Agreement is made to a Section, such reference shall be to a Section of this Agreement unless otherwise indicated.

22. Counterparts. This Agreement may be executed in one or more counterparts (including via facsimile and electronic image scan (.pdf)), each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument and shall become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties.

[Signature Page Follows]

This Agreement has been duly executed by the parties as of the date first written above.

VIRTU FINANCIAL OPERATING LLC

By: ________________
Name: Douglas A. Cifu
Title: Chief Executive Officer

By: ________________
Name: Brett Fairclough

Amended and Restated Employment Agreement (this "Agreement"), dated as of February 26, 2020 (the "Effective Date"), between Virtu Financial Operating LLC, a Delaware limited liability company (together with all parents, affiliates and subsidiaries as the "Company"), and Stephen Cavoli ("Executive").

WHEREAS, the Company and Executive are party to an offer letter dated June 24, 2015 (the "Existing Agreement") and desire to amend and restate the Existing Agreement as herein provided; and

WHEREAS, Executives's agreement to enter into this Agreement and be bound by the terms hereof, including the restrictive covenants described herein, is a material inducement to the Company's willingness to provide equity-based compensation to Executive as described herein, and the Company would not otherwise grant such equity-based compensation to Executive if Executive did not agree to enter into this Agreement.

NOW, THEREFORE, in consideration of the mutual agreements, provisions and covenants contained herein, and intending to be legally bound hereby, the parties hereto agree as set forth below:

1. **Term.**

a. The term of Executive's employment under this Agreement shall continue from the Effective Date until the three (3)-year anniversary of the Effective Date (the "Initial Expiration Date"), provided that on the Initial Expiration Date and each subsequent anniversary of the Initial Expiration Date, the term of Executive's employment under this Agreement shall be extended for one (1) additional year unless either party provides written notice to the other party at least ninety (90) days prior to the Initial Expiration Date (or any such anniversary, as applicable) that Executive's employment hereunder shall not be so extended (in which case, Executive's employment under this Agreement shall terminate on the Initial Expiration Date or expiration of the extended term, as applicable); provided, however, that Executive's employment under this Agreement may be terminated at any time pursuant to the provisions of Section 5. The period of time from the Effective Date through the termination of this Agreement and Executive's employment hereunder pursuant to its terms is herein referred to as the "Term"; and the date on which the Term is scheduled to expire (i.e., the Initial Expiration Date or the scheduled expiration of the extended term, if applicable) is herein referred to as the "Expiration Date." Notwithstanding anything contained herein to the contrary, if upon the effective date of a Change in Control, the Expiration Date is less than one (1) year from the date of such Change in Control, the Term shall automatically be renewed so that the Expiration Date is one (1) year from the effective date of such Change in Control.

b. Executive agrees and acknowledges that the Company has no obligation to extend the Term or to continue Executive's employment following the Expiration Date, and Executive expressly acknowledges that no promises or understandings to the contrary have been made or reached. Executive also agrees and acknowledges that, should Executive and the Company choose to continue Executive's employment for any period of time following the Expiration Date without extending the term of Executive's employment under this Agreement or entering into a new written employment agreement, Executive's employment with the Company shall be "at will," such that the Company may terminate Executive's employment at any time, with or without reason and with or without notice, and Executive may resign at any time, with or without reason and with or without notice (for the sake of clarity, the provisions of this Agreement shall not apply following the expiration of the Term (except as otherwise expressly provided herein)).

2. **Definitions.** For purposes of this Agreement, the following terms, as used herein, shall have the definitions set forth below.

a. "Affiliate" means, with respect to any specified Person, any other Person that directly or indirectly, through one or more intermediaries, Controls, is Controlled by, or is under common Control with, such specified Person; provided, that in no event shall any entity Controlled by Vincent Viola but in which the Company does not have a direct or indirect ownership interest be treated as an Affiliate of the Company.

b. "Cause" means that any of the following occurs:

i. Executive is convicted of, or pleads guilty or *nolo contendere* to, any felony or commits any fraudulent or illegal acts with regard to the Company or its employees, independent contractors, officers, members or managers;

ii. Executive is repeatedly intoxicated or under the influence of illegal substances while performing his employment duties;

iii. Executive does not have any necessary license or regulatorily required qualification, or becomes subject to a decree or order, in each case, from a regulatory agency, in each case, that prevents him from working for the Company;

iv. Execuitve (A) violates any material regulatory or trading policy, procedure, requirement, rule or regulation of the Company, any exchange, regulatory agency or self-regulatory body with authority to govern or regulate him or the Company, (B) violates any material obligation or is in breach of any representation in this Agreement (including for the avoidance of doubt any exhibit hereto), or (C) violates any material written company policy as stated in the Company's employee policy manual (as amended or revised by the Company from time to time) or the Company's Code of Conduct and Ethics; provided, that any act, or failure to act, based upon the instructions of the Board or the Chief Executive Officer ("CEO") or reasonably based upon the written advice of counsel for the Company shall not be considered a violation under clauses (A) or (C) herein;

v. Executives intentionally and wrongfully damages material assets of the Company;

vi. Executive intentionally and wrongfully discloses material confidential information of the Company; or

vii. Executive intentionally and wrongfully engages in any competitive activity which constitutes a material breach of this Agreement, the Proprietary Invention Assignment, Noncompetition and Confidentiality Agreement, and/or a breach of his duty of loyalty;

provided that Cause shall not apply to any act or omission described above unless the Company provides written notice of the act or omission (which, except in the case of an allegation of Cause that is subject to cure, may be provided at the time of termination) and, with respect to clauses (iii), (iv), or (vi), if curable, the act or omission is cured within 10 days after receipt of such notice and does not recur within 180 days after the initial act or omission.

c. “Change in Control” has the meaning set forth in the Plan.

d. “Control” means (including, with correlative meanings, the terms “Controlled by” and “under common Control with”), as used with respect to any Person, means the direct or indirect possession of the power to direct or cause the direction of the management or policies of such Person, whether through the ownership of voting securities or by contract.

e. “Good Reason” means the termination of Executive’s employment at his initiative after, without Executive’s prior written consent, one (1) or more of the following events:

i. an adverse change in Executive’s title or reporting relationship such that he no longer reports to the Chief Executive Officer of the ultimate parent company of Virtu or a material reduction in authority, duties or responsibilities at the Company or a successor employer relative to the Executive’s authority, duties or responsibilities (with respect to a termination in connection with a Change in Control, relative to Executive’s authority, title, duties or responsibilities immediately prior to the Change in Control) or are being required to report other than to the CEO or the Board or a material reduction in Base Salary;

ii. a material breach of this Agreement by the Company or a successor employer; or

iii. required relocation or performance of primary services (other than through routine and reasonable travel) by the Executive more than thirty (30) miles from his current place of employment in order to continue to perform the duties and responsibilities of his position.

Notwithstanding the above, Executive’s termination of employment will not be for Good Reason unless (1) he notifies the Company in writing of the existence of the condition that he believes constitutes Good Reason within 30 days of the initial existence of such condition (which notice specifically identifies such condition), (2) the Company fails to remedy such condition within thirty (30) days after the date on which it receives such notice (the “Remedial Period”), and (3) so long as the Company acknowledges in writing the existence of Good Reason, the Executive actually terminates employment within thirty (30) days following the expiration of the Remedial Period and before the Company remedies such condition. If the Company does not acknowledge in writing the existence of Good Reason, Executive shall only be required to resign for Good Reason within two years of the end of the Remedial Period.

f. “Person” means any individual, firm, corporation, partnership, limited liability company, trust, joint venture, association, unincorporated entity or other entity.

g. “Plan” means the Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan.

3. **Duties and Responsibilities.**

a. The Company hereby employs Executive and Executive hereby accepts employment, subject to the terms and conditions contained herein, during the Term, as Executive Vice President reporting to the Company’s Chief Executive Officer. During the Term, Executive agrees to be employed by and devote substantially all of Executive’s business time and attention to the Company and the promotion of its interests and to use his best efforts to faithfully and diligently serve the Company; provided, however, that, to the extent such activities do not significantly interfere with the performance of his duties, services and responsibilities under this Agreement, Executive shall be permitted to (i) manage his personal, financial and legal affairs, (ii) serve on civic or charitable boards and committees of such boards and (iii) to the extent approved by the Board pursuant to a duly authorized resolution of the Board, serve on corporate boards and committees of such boards. Executive will perform such lawful duties and responsibilities as are commensurate with Executive’s titles and positions and as are generally consistent with those exercised by Executive prior to the Effective Date, and such other duties and responsibilities commensurate with Executive’s titles and positions as may be reasonably requested by the Chief Executive Officer from time to time. Executive will have the authority customarily exercised by an individual serving as Executive Vice President of a corporation of the size and nature of the Company. During the Term, upon request shall serve as a director or an officer of one or more subsidiaries of the Company, or of an Affiliate of the Company. Executive shall not be compensated additionally in Executive’s capacity as a member of the Board or as a director or officer of a subsidiary or Affiliate of the Company.

b. During the Term, Executive’s principal place of employment shall be in the Company’s principal office in Manhattan, New York. Executive acknowledges that Executive’s duties and responsibilities shall require Executive to travel on business to the extent reasonably necessary to fully perform Executive’s duties and responsibilities hereunder.

4. **Compensation and Related Matters.**

a. *Base Salary*. As of the Effective Date, Executive shall receive an annual base salary (“Base Salary”) of $500,000 per year, payable in accordance with the Company’s normal payroll procedures and may be increased (but not decreased) by the CEO together with the Compensation Committee (as defined below) in its sole discretion (such salary, as may be increased, the “Base Salary”). For the avoidance of doubt, the position is exempt from any and all overtime laws.

b. *Annual Bonus*. During the Term, for each calendar year, Executive shall be eligible to receive an annual bonus (“Annual Bonus”) with a target Annual Bonus amount of $1,500,000 (the “Target Bonus”) and a maximum Annual Bonus amount of $2,500,000 (the “Maximum Bonus”). Eighty percent (80%) of the Annual Bonus shall be based on the achievement of annual quantitative targets established in the sole and absolute discretion of the Compensation Committee (the "Compensation Committee") of the Board of Directors of Virtu Financial, Inc. ("Virtu") together with the Company's CEO (the "Quantitative Goals") and the remaining twenty percent (20%) of the Annual Bonus will be based on annual qualitative targets established in the sole and absolute discretion of the Compensation Committee together with the Company's CEO (the "Qualitative Goals"). Accordingly, up to $1,200,000 of the Target Bonus and $2,000,000 of the Maximum Bonus may be earned based on the achievement of the Quantitative Goals and up to $300,000 of the Target Bonus and $500,000 of the Maximum Bonus may be earned based on the achievement of the Qualitative Goals. Any Annual Bonus payable may be paid in a combination of cash and long-term equity, and the proportion between cash and long-term equity will be entirely within the discretion of the Company but is expected to be paid 40% in cash and 60% in stock and restricted stock units in Virtu, which shall be subject to the terms and conditions of the Plan and a separate award agreement. Any performance bonus will be paid at a time such that it qualifies as a "short-term deferral" under Section 409A.

c. *Initial Equity Award*. Shortly following the Effective Date, the Executive will be granted 150,000 restricted shares of Class A common stock ("Stock") of the Company (the "Initial Equity Award") which shall be earned and vest in accordance with the terms hereof and the terms, the terms of the applicable award agreement and the terms of the Plan.

i. The Initial Equity Award shall be earned and vested in three separate annual installments, and the number of shares earned with respect to the installment for each calendar year ended during such period shall be determined based on the percentage of the Company's budgeted EBITDA achieved in such calendar year in accordance with the following table:

Percentage of Budgeted EBITDA Achieved	**Number of Shares Earned**
75% or more	50,000
74%	45,000
73%	40,000
72%	35,000
71%	30,000
70%	25,000
Less than 70%	0

If the percentage of the Company's budgeted EBITDA achieved is greater than 70% but less than 75%, then the amount of earned shares in the table above will be determined based on linear interpolation.

ii. To the extent any shares of Stock are earned with respect to the Initial Equity Award in accordance with 4(c)(i), such shares shall vest on the last day of the calendar year to which such instalment relates, subject in all cases to the Executive's continued employment through the applicable vesting date.

iii. The Initial Equity Award will be issued pursuant to the Plan and will be subject to the terms and conditions of the Plan and a separate award agreement attached hereto as Exhibit A, which shall include the approval of the Compensation Committee, and which shall also provide that in the event of Executive's termination other than for Cause or resignation for Good Reason (x) the next scheduled vesting installment prorated for the number of days elapsed during the applicable vesting period, plus (y) the full next installment of RSUs scheduled for vesting, if any, shall together be deemed vested immediately upon such termination (the "Initial Equity Award Acceleration").

d. *Annual Equity Awards*. In addition, commencing with calendar year 2020, Executive shall be eligible to receive an equity award at the beginning of each calendar year during his employment (each such grant, an " Annual Equity Award ") as determined by the Compensation Committee together with the Company's CEO. It is the current intention of the Company that such Annual Equity Award will be in the form of restricted shares of Stock; 50% of such shares shall vest on the last day of the calendar year to which such award relates and the remaining 50% shall vest on the last day of the subsequent calendar year, subject in all cases to Executive's continued employment through the applicable vesting date.

e. *Benefits and Perquisities*. Executive will be eligible for all employee benefits offered by the Company to employees in similar positions. The Company retains the right to modify or change its benefits and compensation policy from time to time, as it deems necessary, other than those provided for Executive in this employment agreement. The Company also retains the right to assign Executive's employment agreement to an Affiliate, subject to the terms and conditions of this Agreement.

f. *Indemification***.** The Company will indemnify Executive to the fullest extent permitted by law and the Company's governing documents.

5. **Termination of Employment.**

a. Executive's employment under this Agreement may be terminated by either party at any time and for any reason; provided, however, that Executive shall be required to give the Company at least sixty (60) days' advance written notice of any voluntary resignation of Executive's employment hereunder (other than resignation for Good Reason) (and in such event the Company in its sole discretion may elect to accelerate Executive's date of termination of employment, it being understood that such termination shall still be treated as a voluntary resignation for purposes of this Agreement). Notwithstanding the foregoing, Executive's employment shall automatically terminate upon Executive's death.

b. Upon termination, irrespective of the reason, the Company shall pay Executive: (i) unpaid salary earned through the date of termination; (ii) compensation at the rate of the salary for any vacation time earned but not used as of the date Executive's employment terminates in accordance with Company policies as then in effect; (iii) reimbursement, in accordance with the Company's policies and procedures, for business expenses incurred by Executive but not yet paid as of the date employment terminates; and (iv) all other payments, benefits or fringe benefits to which

Executive is entitled under the terms of the applicable arrangements and/or applicable law (all of the foregoing clauses (i)-(iv) collectively, the "Accrued Obligations").

c. If Executive's employment under this Agreement is terminated (i) by the Company without Cause, (ii) due to death or disability, (iii) by Executive for Good Reason, or (iv) due to expiration of the Term on the Expiration Date as a result of the Company delivering a notice of non-renewal as contemplated by Section 1, in addition to the payments and benefits specified in Section 5(b), Executive shall also receive the following termination payments and benefits on or beginning with the first payroll whose cutoff date follows the date Executive's employment ends or according to such timing as otherwise set forth below (collectively, the "Severance Benefits"):

  i. an amount equal to greater of (x) the sum of twelve (12) months' Base Salary, at the rate in effect immediately prior to termination (or, if higher, the highest rate in effect within the preceding six months) and (y) an amount equal to the total amount of Base Salary that Executive would have been entitled to receive had Executive continued to be employed through the Expiration Date, payable in a single lump sum on the next payroll date whose cutoff follows the day the Release (as defined below) becomes irrevocable (or, if earlier, within five business days folloing irrevocability), except where payment is delayed according to the timing relating to the Release Period as set forth below or pursuant to Section 409A (as defined below) (such date, the "Severance Payment Date");

  ii. any bonus that the Company had definitively determined to pay to Executive and which was authorized and approved in accordance with the Company's policies and procedures but which had not yet been paid to as of the date of termination, payable in a lump sum at the same date as provided under clause (i) above;

  iii. the Initial Equity Award Acceleration; and

  iv. the employer portion of COBRA continuation coverage for Executive and any covered dependents will continue to be paid in accordance with the Company's regular payroll practices, so long as the Executive has not become actually covered by the medical plan of a subsequent employer during any such month and are otherwise entitled to COBRA continuation coverage, with such payments for up to a maximum of twelve (12) months following the date of termination.

d. Notwithstanding anything herein to the contrary, if at any time within twelve (12) months following a Change in Control (as defined in the Plan as of the date thereof) or in anticipation of a Change of Control towards which material steps have been taken at the time of such termination and such Change of Control actually occurs, Executive's employment under this Agreement is terminated (i) by the Company without Cause, (ii) due to death or disability, (iii) by Executive for Good Reason, or (iv) due to expiration of the Term on the Expiration Date as a result of the Company delivering a notice of non-renewal as contemplated by Section 1, then in in lieu of the Severance Benefits described in Section 5(c) the Executive shall be entitled to receive the following:

  i. An amount equalt to two (2) times the sum of (x) Executive's Base Salary and (y) the Annual Bonus (including any amounts deferred or satisfied through the grant of equity awards) most recently awarded to Executive for completed fiscal years of the Company payable in a single lump sum on the Severance Payment Date;

  ii. any bonus that the Company had definitively determined to pay to Executive and which was authorized and approved in accordance with the Company's policies and procedures but which had not yet been paid to as of the date of termination, payable in a lump sum at the same date as provided under clause (i) above;

  iii. the Initial Equity Award Acceleration; and

  iv. the benefits described in Section 5(c)(iv) above.

e. For avoidance of doubt, all payments owed to the Executive under Section 5 of this Agreement will be paid in a single lump sum on the Severance Payment Date.

f. Notwithstanding anything else herein to the contrary, the Company's obligation to pay the benefits described herein shall be conditioned on the receipt of a customary release and waiver of all claims (the "Release") in a form substantially consistent with the Company's form separation agreement. Such release and waiver must be executed and become irrevocable within sixty (60) days following the date Executive's employment ends (the"Release Period"). If such Release Period ends in the calendar year subsequent to the calendar year in which Executive's employment ends and any Severance Benefits or the Change in Control Bonus is subject to Section 409A, payment of such covered amounts will not be made earlier than the first business day of that subsequent year.

g. To the extent (i) any payments to which Executive becomes entitled under this agreement, or any agreement or plan referenced herein, in connection with Executive's termination of employment with the Company, constitute deferred compensation subject to Section 409A of the Internal Revenue Code ("Section 409A") and (ii) Executive is deemed at the time of such termination of employment to be a "specified" employee under Section 409A, then such payment or payments shall not be made or commence until the earlier of (i) the expiration of the 6-month period measured from the date of Executive's "separation from service" (as such term is at the time defined in regulations under Section 409A) with the Company and (ii) the date of Executive's death following such separation from service, provided, however, that such deferral shall be effected only to the extent required to avoid adverse tax treatment to Executive, including (without limitation) the additional twenty-percent (20%) tax for which Executive would otherwise be liable under Section 409A(a)(1)(B) in the absence of such deferral. Upon the expiration of the applicable deferral period, any payments which would have otherwise been made during that period (whether in a single sum or in installments) in the absence of this paragraph shall be paid to Executive or Executive's beneficiary in one lump sum (without interest). To the extent that any provision of this Agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that (i) all payments hereunder are exempt from Section 409A to the maximum permissible extent and, (ii) for any payments where such construction is not tenable, so that those payments comply with Section 409A to the maximum permissible extent. Payments pursuant to this Agreement (or referenced in this Agreement), and each installment thereof, are intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the regulations under Section 409A. All references to termination of employment or similar terms shall be deemed to mean separation from service within the meaning of Section 409A. Notwithstanding anything to the contrary herein, except to the extent any expense, reimbursement or in-kind benefit provided pursuant to this Agreement does not constitute a "deferral of compensation" within the meaning of Section 409A: (x) the amount of expenses eligible for reimbursement or in-kind benefits provided to Executive during any calendar year will not affect the amount of expenses eligible for reimbursement or in-kind benefits provided to Executive in any other calendar year, (y) the Company will reimburse Executive for expenses for which Executive is entitled to be reimbursed on or before the last day of the calendar year following the calendar year in which the applicable expense is incurred or, if earlier, within 30 days after Executive has substantiated the expense, and (z) the right to payment or reimbursement or in-kind benefits hereunder may not be liquidated or exchanged for any other benefit.

6. **280G Matters.**

a. Anything in this Agreement to the contrary notwithstanding, in the event that the Accounting Firm shall determine that receipt of all Payments would subject Executive to tax under Section 4999 of the Code, the Accounting Firm shall determine whether some amount of Agreement Payments meets the definition of "Reduced Amount." If the Accounting Firm determines that there is a Reduced Amount, then the aggregate Agreement Payments shall be reduced to such Reduced Amount.

b. If the Accounting Firm determines that the aggregate Agreement Payments should be reduced to the Reduced Amount, the Company shall promptly give Executive notice to that effect and a copy of the detailed calculation thereof, and Executive may then elect, in his sole discretion, which and how much of the Agreement Payments shall be eliminated or reduced (as long as after such election the Present Value of the aggregate Agreement Payments equals the Reduced Amount). All determinations made by the Accounting Firm under this Paragraph shall be binding upon the Company and Executive. In connection with making determinations under this Paragraph, the Accounting Firm shall take into account the value of any reasonable compensation for services to be rendered by Executive before or after the Change in Control, including any non-competition provisions that may apply to Executive and the Company shall cooperate in the valuation of any such services, including any non-competition provisions.

c. As a result of the uncertainty in the application of Section 4999 of the Code at the time of the initial determination by the Accounting Firm hereunder, it is possible that amounts will have been paid or distributed by the Company to or for Executive's benefit pursuant to this Agreement which should not have been so paid or distributed (each, an "Overpayment") or that additional amounts which will have not been paid or distributed by the Company to or for Executive's benefit pursuant to this Agreement could have been so paid or distributed (each, an "Underpayment"), in each case, consistent with the calculation of the Reduced Amount hereunder. In the event that the Accounting Firm, based upon the assertion of a deficiency by the Internal Revenue Service against either the Company or Executive which the Accounting Firm believes has a high probability of success determines that an Overpayment has been made, any such Overpayment paid or distributed by the Company to or for Executive's benefit shall be repaid by Executive to the Company together with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code; provided, however, that no such repayment shall be required if and to the extent such deemed repayment would not either reduce the amount on which Executive is subject to tax under Section 1 and Section 4999 of the Code or generate a refund of such taxes. In the event that the Accounting Firm, based upon controlling precedent or substantial authority, determines that an Underpayment has occurred, any such Underpayment shall be promptly paid by the Company to or for Executive's benefit together with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code. All fees and expenses of the Accounting Firm in implementing the provisions of this Paragraph shall be borne by the Company.

d. *Definitions*. The following terms shall have the following meanings for purposes of this Paragraph. (1) A "Payment" shall mean any payment or distribution in the nature of compensation (within the meaning of Section 280G(b)(2) of the Code) to or for Executive's benefit, whether paid or payable pursuant to this Agreement or otherwise; (2) "Agreement Payment" shall mean a Payment paid or payable pursuant to this Agreement (disregarding this Paragraph); (3) "Net After-Tax Receipt" shall mean the Present Value of a Payment net of all taxes imposed on Executive with respect thereto under Sections 1 and 4999 of the Code and under applicable state and local laws, determined by applying the highest marginal rate under Section 1 of the Code and under state and local laws which applied to Executive's taxable income for the immediately preceding taxable year, or such other rate(s) as Executive shall certify, in Executive's sole discretion, as likely to apply to Executive in the relevant tax year(s); (4) "Accounting Firm" shall mean the Company's regular auditor, unless Executive objects to the use of that auditor, in which event the auditor shall be an independent auditor or other independent professional services organization that is a certified public accounting firm recognized as an expert in determinations and calculations for purposes of Section 280G of the Code selected by the Company and reasonably acceptable to Executive, which auditor shall not, without Executive's consent, be a firm serving as accountant or auditor for the individual, entity or group effecting the Change in Control (the "Auditor"); (5) "Parachute Value" of a Payment shall mean the present value as of the date of the change of control for purposes of Section 280G of the Code of the portion of such Payment that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accounting Firm for purposes of determining whether and to what extent the Excise Tax will apply to such Payment; and (6) "Reduced Amount" shall mean the amount of Agreement Payments that (x) has a Present Value that is less than the Present Value of all Agreement Payments and (y) results in aggregate Net After-Tax Receipts for all Payments that are greater than the Net After-Tax Receipts for all Payments that would result if the aggregate Present Value of Agreement Payments were any other amount that is less than the Present Value of all Agreement Payments.

7. **Mutual Arbitration.** Executive and the Company both knowingly and voluntarily agree to a pre-dispute arbitration clause so that should any controversy or dispute arise in connection with Excutive's employment, the cessation of Executive's employment or the interpretation of this agreement, Executive and the Company agree to the arbitration of any and all such claims at a site in New York, before a neutral panel of the American Arbitration Association or JAMS, as dictated by the underlying facts and circumstances giving rise to Executive's claim(s). In the course of any arbitration pursuant to this agreement, Executive and the Company agree: (a) to request that a written award be issued by the panel, and (b) that each side is entitled to receive any and all relief they would be entitled to receive in a court proceeding, except that Executive agrees to waive any claim or right Executive may have for punitive or other indirect or consequential damages. Executive and the Company knowingly and voluntarily

agree to enter into this arbitration clause and to waive any rights that might otherwise exist to request a jury trial or other court proceeding, except that Executive agrees that the Company may seek and obtain from a court any injunctive or equitable relief necessary to maintain (and/or to restore) the status quo or to prevent the possibility of irreversible or irreparable harm pending final resolution of mediation, arbitration or court proceedings, as applicable. The agreement between Executive and the Company to arbitrate disputes includes, but is not limited to, any claims of unlawful discrimination and/or unlawful harassment under Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, the New York Civil Rights Laws, the New York Executive Law, the New York City Human Rights Law, or any other federal, state of local law relating to discrimination in employment and any claims relating to wage and hour claims and any other statutory or common law claims. If Executive is deemed an associated person under FINRA's rules, this agreement does not prohibit or restrict Executive from filing an arbitration claim in the FINRA arbitration forum as specified in FINRA rules.

8. **Offset and Mitigation.** No payments due Executive hereunder shall be subject to any offset for obligations owed by Executive to the Company or its Affiliates (except as required by applicable law). In no event shall Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to Executive under any of the provisions of this Agreement.

9. **Restrictive Covenants.** Executive acknowledges and agrees that Executive shall continue to be bound by the restrictive covenants to which he is presently bound, including those set forth in the Proprietary Agreement (as defined below) (collectively, the "Restrictive Covenants"), in accordance with the terms and conditions thereof; provided, however, that the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for any disclosure of a trade secret that is made: (A) in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney; and (B) solely for the purpose of reporting or investigating a suspected violation of law; or is made in a complaint or other document that is filed under seal in a lawsuit or other proceeding. If the Executive files a lawsuit for retaliation by the Company for reporting a suspected violation of law, the Executive may disclose the Company's trade secrets to the Executive's attorney and use the trade secret information in the court proceeding if the Executive: (1) files any document containing the trade secret under seal; and (2) does not disclose the trade secret, except pursuant to court order.

10. **Return of Property.** Executive acknowledges that all notes, memoranda, specifications, devices, formulas, records, files, lists, drawings, documents, models, equipment, property, computer, software or intellectual property relating to the businesses of the Company, in whatever form (including electronic), and all copies thereof, that are received or created by Executive while an employee of the Company or its subsidiaries or Affiliates are and shall remain the property of the Company, and Executive shall immediately return such property to the Company upon the termination of Executive's employment and, in any event, at the Company's request and subject to inspection in accordance with applicable Company employee policies generally, except as may otherwise be agreed by Executive and the Company at the time of termination; provided, that Executive shall be permitted to retain a copy of his contacts/rolodex, including in electronic form.

11. **Remedies and Injunctive Relief.** Executive acknowledges that a violation by Executive of any of the covenants contained in Sections 9 or 10 would cause irreparable damage to the Company in an amount that would be material but not readily ascertainable, and that any remedy at law (including the payment of damages) would be inadequate. Accordingly, Executive agrees that, notwithstanding any provision of this Agreement to the contrary, the Company shall be entitled (without the necessity of showing economic loss or other actual damage) to injunctive relief (including temporary restraining orders, preliminary injunctions and/or permanent injunctions) in any court of competent jurisdiction for any actual or threatened breach of any of the covenants set forth in Sections 9 or 10 in addition to any other legal or equitable remedies it may have. The preceding sentence shall not be construed as a waiver of the rights that the Company may have for damages under this Agreement or otherwise, and all of the Company's rights shall be unrestricted.

12. **Representations of Executive; Advice of Counsel.**

    a. Executive represents, warrants and covenants that as of the date hereof: (i) Executive has the full right, authority and capacity to enter into this Agreement and perform Executive's obligations hereunder, (ii) Executive is not bound by any agreement that conflicts with or prevents or restricts the full performance of Executive's duties and obligations to the Company hereunder during or after the Term, and (iii) the execution and delivery of this Agreement shall not result in any breach or violation of, or a default under, any existing obligation, commitment or agreement to which Executive is subject.

    b. Prior to execution of this Agreement, Executive was advised by the Company of Executive's right to seek independent advice from an attorney of Executive's own selection regarding this Agreement. Executive acknowledges that Executive has entered into this Agreement knowingly and voluntarily and with full knowledge and understanding of the provisions of this Agreement after being given the opportunity to consult with counsel. Executive further represents that in entering into this Agreement, Executive is not relying on any statements or representations made by any of the Company's directors, officers, employees or agents which are not expressly set forth herein, and that Executive is relying only upon Executive's own judgment and any advice provided by Executive's attorney.

13. **Cooperation**. Executive agrees that, upon reasonable notice and without the necessity of the Company obtaining a subpoena or court order, Executive shall provide reasonable cooperation in connection with any suit, action or proceeding (or any appeal from any suit, action or proceeding), and any investigation and/or defense of any claims asserted against the Company or its Affiliates, which relates to events occurring during Executive's employment with the Company and its Affiliates as to which Executive may have relevant information (including but not limited to furnishing relevant information and materials to the Company or its designee and/or providing testimony at depositions and at trial); provided that with respect to such cooperation occurring following termination of employment, the Company shall reimburse Executive for expenses reasonably incurred in connection therewith, and further provided that any such cooperation occurring after the termination of Executive's employment shall be scheduled so as not to unreasonably interfere with Executive's business or personal affairs.

14. **Withholding**. The Company may deduct and withhold from any amounts payable under this Agreement such Federal, state, local, non-U.S. or other taxes as are required to be withheld pursuant to any applicable law or regulation.

15. **Assignment.**

    a. This Agreement is personal to Executive and without the prior written consent of the Company shall not be assignable by Executive, except for the assignment by will or the laws of descent and distribution of any accrued pecuniary interest of Executive, and any assignment in violation of this Agreement shall be void. The Company may only assign this Agreement, and its rights and obligations hereunder, in accordance with the terms of Section 14(b).

b. This Agreement shall be binding on, and shall inure to the benefit of, the parties to it and their respective heirs, legal representatives, successors and permitted assigns (including, without limitation, successors by merger, consolidation, sale or similar transaction, and, in the event of Executive's death or disability, Executive's estate, successors, heirs and assigns in the case of any payments due to Executive hereunder). The Company will require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business and/or assets of the Company to assume expressly and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform it if no such succession had taken place. "Company" means the Company as hereinbefore defined and any successor to its business and/or assets as aforesaid that assumes and agrees to perform this Agreement by operation of law or otherwise. Following a Change in Control, if the Company is not the ultimate parent corporation and the Company's common stock is not publicly traded, the "Board of Directors" or "Board" as used in this Agreement shall refer to the board of directors of the ultimate parent of the Company.

c. Executive acknowledges and agrees that all of Executive's covenants and obligations to the Company, as well as the rights of the Company hereunder, shall run in favor of and shall be enforceable by the Company and its successors and assigns.

16. Governing Law; No Construction Against Drafter. This Agreement shall be deemed to be made in the State of New York, and the validity, interpretation, construction, and performance of this Agreement in all respects shall be governed by the laws of the State of New York without regard to its principles of conflicts of law. No provision of this Agreement or any related document will be construed against or interpreted to the disadvantage of any party hereto by any court or other governmental or judicial authority by reason of such party having or being deemed to have structured or drafted such provision.

17. Amendment; No Waiver; Severability.

a. No provisions of this Agreement may be amended, modified, waived or discharged except by a written document signed by Executive and a duly authorized officer of the Company (other than Executive). The failure of a party to insist upon strict adherence to any term of this Agreement on any occasion shall not be considered a waiver of such party's rights or deprive such party of the right thereafter to insist upon strict adherence to that term or any other term of this Agreement. No failure or delay by either party in exercising any right or power hereunder will operate as a waiver thereof, nor will any single or partial exercise of any such right or power, or any abandonment of any steps to enforce such a right or power, preclude any other or further exercise thereof or the exercise of any other right or power.

b. If any term or provision of this Agreement is invalid, illegal or incapable of being enforced by any applicable law or public policy, all other conditions and provisions of this Agreement shall nonetheless remain in full force and effect so long as the economic and legal substance of the transactions contemplated by this Agreement is not affected in any manner materially adverse to any party; provided, that in the event that any court of competent jurisdiction shall finally hold in a non- appealable judicial determination that any provision of Section 7, 8 or 9 (whether in whole or in part) is void or constitutes an unreasonable restriction against Executive, such provision shall not be rendered void but shall be deemed to be modified to the minimum extent necessary to make such provision enforceable for the longest duration and the greatest scope as such court may determine constitutes a reasonable restriction under the circumstances. Subject to the foregoing, upon such determination that any term or other provision is invalid, illegal or incapable of being enforced, the parties hereto shall negotiate in good faith to modify this Agreement so as to effect the original intent of the parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the fullest extent possible.

18. Entire Agreement. This Agreement constitutes the entire agreement and understanding between the Company and Executive with respect to the subject matter hereof and supersedes all prior agreements and understandings (whether written or oral), between Executive and the Company, relating to such subject matter, except that the terms of the Proprietary Invention Assignment, Noncompetition and Confidentiality Agreement (the "Proprietary Agreement") dated on or around June 24, 2015 shall continue in full force and effect, and any award agreements issued pursuant to the Plan shall continue in full force and effect in accordance with their terms.

19. Survival. The rights and obligations of the parties under the provisions of this Agreement shall survive, and remain binding and enforceable, notwithstanding the expiration of the Term, the termination of this Agreement, the termination of Executive's employment hereunder or any settlement of the financial rights and obligations arising from Executive's employment hereunder, to the extent necessary to preserve the intended benefits of such provisions.

20. **Notices.** All notices or other communications required or permitted to be given hereunder shall be in writing and shall be delivered by hand or sent by facsimile or sent, postage prepaid, by registered, certified or express mail or overnight courier service and shall be deemed given when so delivered by hand or facsimile, or if mailed, three days after mailing (one (1) business day in the case of express mail or overnight courier service) to the parties at the following addresses or facsimiles (or at such other address for a party as shall be specified by like notice):

If to the Company: Virtu Financial
One Liberty Plaza, 5th Floor
New York, NY 10006
Attn: Legal Department
E-mail: Legal @virtu.com

If to Executive: At the most recent address on file in the Company's records

Notices delivered by email shall have the same legal effect as if such notice had been delivered in person.

21. **Headings and References.** The headings of this Agreement are inserted for convenience only and neither constitute a part of this Agreement nor affect in any way the meaning or interpretation of this Agreement. When a reference in this Agreement is made to a Section, such reference shall be to a Section of this Agreement unless otherwise indicated.

22. Counterparts. This Agreement may be executed in one or more counterparts (including via facsimile and electronic image scan (.pdf)), each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument and shall become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties.

[Signature Page Follows]

This Agreement has been duly executed by the parties as of the date first written above.

VIRTU FINANCIAL OPERATING LLC

By: ________________
Name: Douglas A. Cifu
Title: Chief Executive Officer

By: ________________
Name: Stephen Cavoli

VIRTU FINANCIAL, INC.
AMENDED AND RESTATED 2015 MANAGEMENT INCENTIVE PLAN
EMPLOYEE
RESTRICTED STOCK AWARD AGREEMENT

THIS RESTRICTED STOCK AWARD AGREEMENT (the "Agreement"), is entered into as of February 27, 2020 (the "Date of Grant"), by and between Virtu Financial, Inc., a Delaware corporation (the "Company"), and Douglas A. Cifu (the "Participant").

WHEREAS, the Company has adopted the Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan (the "Plan"), pursuant to which Restricted Stock (the "Restricted Shares") may be granted;

WHEREAS, the Company and the Participant entered into that certain Amended and Restated Employment Agreement, dated as of November 15, 2017 (the "Employment Agreement"), pursuant to which the Participant is eligible to receive an equity award at the beginning of each calendar year during the Term (as defined in the Employment Agreement); and

WHEREAS, the Compensation Committee of the Board of Directors of the Company has determined that it is in the best interests of the Company and its stockholders to grant the Restricted Shares provided for herein to the Participant subject to the terms set forth herein.

NOW, THEREFORE, for and in consideration of the premises and the covenants of the parties contained in this Agreement, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties hereto, for themselves, their successors and assigns, hereby agree as follows:

1. Grant of Restricted Shares.

(a) Grant. The Company hereby grants to the Participant a total of 150,000 Restricted Shares, on the terms and conditions set forth in this Agreement and as otherwise provided in the Plan. The Restricted Shares shall be earned and vest in accordance with Section 2.

(b) Incorporation by Reference. The provisions of the Plan are incorporated herein by reference. Except as otherwise expressly set forth herein, this Agreement shall be construed in accordance with the provisions of the Plan and any interpretations, amendments, rules and regulations promulgated by the Committee from time to time pursuant to the Plan. Any capitalized terms not otherwise defined in this Agreement shall have the definitions set forth in the Plan. The Committee shall have final authority to interpret and construe the Plan and this Agreement and to make any and all determinations under them, and its decision shall be binding and conclusive upon the Participant and his legal representative in respect of any questions arising under the Plan or this Agreement. The Participant acknowledges that he has received a copy of the Plan and has had an opportunity to review the Plan and agrees to be bound by all the terms and provisions of the Plan.

2. Vesting.

(a) Subject to the Participant's continued employment or service with the Company or an Affiliate, except as may otherwise be provided herein or in the Employment Agreement, the number of Restricted Shares earned pursuant to Section 2(b) hereof shall vest in two (2) equal installments on each of December 31, 2020 and December 31, 2021 (each such date, a "Vesting Date"). Upon each Vesting Date, such portion of the Restricted Shares that vest on such date shall no longer be subject to the transfer restrictions pursuant to Section 8(a) hereof or cancellation pursuant to Section 4 hereof. Any fractional Restricted Shares resulting from the application of the vesting schedule shall be aggregated and the Restricted Shares resulting from such aggregation shall vest on the final Vesting Date.

(b) The number of Restricted Shares earned under this Agreement shall be determined based on the percentage of the Company's Adjusted EBITDA target as set forth in the Company's approved annual budget ("Budgeted EBITDA") achieved in calendar year 2020 in accordance with the table below. The Budgeted EBITDA shall be determined in a manner consistent with the methodology utilized by the Company in the ordinary course consistent with past practice.

Percentage of Budgeted EBITDA Achieved	Number of Shares Earned
75% or more	150,000
74%	135,000
73%	120,000
72%	105,000
71%	90,000
70%	75,000
Less than 70%	0

If the percentage of the Company's Budgeted EBITDA achieved is greater than 70% but less than 75%, then the amount of earned shares in the table above will be determined based on linear interpolation.

3. Dividends. In the event of any issuance of a cash dividend on the shares of Class A Common Stock (a "Dividend"), the Participant shall be entitled to receive, with respect to each Restricted Share granted pursuant to this Agreement and outstanding as of the record date for such Dividend, payment of an amount equal to the Dividend at the same time as the Dividend is paid to holders of shares of Class A Common Stock generally.

4. Termination of Employment or Service. If the Participant's employment or service with the Company and its Affiliates terminates for any reason, any unearned and unvested Restricted Shares shall be accelerated, remain eligible to be earned or cancelled in accordance with the terms of the Employment Agreement.

5. Issuance. The Restricted Shares shall be issued by the Company and shall be registered in the Participant's name on the stock transfer books of the Company promptly after the date hereof in book-entry form, subject to the Company's directions at all times prior to the date the Restricted Shares vest. As a condition of the award of Restricted Shares, Participant shall deliver to the Company a stock power, endorsed in blank, relating to such Restricted Shares. The Committee or the Company may cause a legend or legends to be put on the certificate to make appropriate reference to such restrictions as the Committee or the Company may deem advisable under the Plan or as may be required by the rules, regulations, and other requirements of the Securities and Exchange Commission, NASDAQ or any other securities exchange or inter-dealer quotation system on which the Class A Common Stock is listed or quoted, and any applicable federal, state or local laws. To the extent allowable by applicable law, neither the Committee, the Company, nor their respective designees, as applicable, shall be liable for any act it or they may do or omit to do with respect to holding the Restricted Shares in escrow and while acting in good faith in the exercise of its or their judgment.

6. Rights as a Stockholder. The Participant shall be, and shall have the rights or privileges of, a stockholder of the Company, including, without limitation, any voting rights, in respect of the Restricted Shares.

7. Compliance with Legal Requirements.

(a) Generally. The granting and settlement of the Restricted Shares, and any other obligations of the Company under this Agreement, shall be subject to all applicable U.S. federal, state and local laws, rules and regulations, all applicable non-U.S. laws, rules and regulations and to such approvals by any regulatory or governmental agency as may be required. The Participant agrees to take all steps the Committee or the Company determines are reasonably necessary to comply with all applicable provisions of U.S. federal and state securities law and non-U.S. securities law in exercising his rights under this Agreement.

(b) Taxes and Withholding. The vesting of the Restricted Shares shall be subject to the Participant satisfying any applicable U.S. federal, state and local tax withholding obligations and non-U.S. tax withholding obligations. The Participant shall be required to pay to the Company, and the Company shall have the right and is hereby authorized to withhold any cash, shares of Class A Common Stock, other securities or other property or from any compensation or other amounts owing to the Participant, the amount (in cash, Class A Common Stock, other securities or other property) of any required withholding taxes in respect of the Restricted Shares or any payment or transfer of the Restricted Shares, and to take any such other action as the Committee or the Company deem necessary to satisfy all obligations for the payment of such withholding taxes. In its sole discretion, the Company may permit the Participant to satisfy, in whole or in part, the tax obligations by withholding shares of Class A Common Stock that would otherwise be deliverable to the Participant upon vesting of the Restricted Shares with a Fair Market Value equal to such withholding liability.

8. Restrictive Covenants.

(a) The Participant acknowledges and agrees that the Participant remains bound by the confidentiality and restrictive covenant provisions set forth in Sections 9.04 and 12.11 of the Third Amended and Restated Limited Liability Company Agreement of Virtu Financial, LLC, dated as of the Date of Grant (or any successor provisions) as a "Member" thereof.

(b) In the event that the Participant violates any of the restrictive covenants referred to in this Section 8, in addition to any other remedy which may be available at law or in equity, the Restricted Shares shall be automatically forfeited effective as of the date on which such violation first occurs. The foregoing rights and remedies are in addition to any other rights and remedies that may be available to the Company and shall not prevent (and the Participant shall not assert that they shall prevent) the Company from bringing one or more actions in any applicable jurisdiction to recover damages as a result of the Participant's breach of such restrictive covenants.

9. Miscellaneous.

(a) Transferability. The Restricted Shares may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered (a "Transfer") by the Participant other than by will or by the laws of descent and distribution, pursuant to a qualified domestic relations order or as otherwise permitted under Section 15(b) of the Plan. Any attempted Transfer of the Restricted Shares contrary to the provisions hereof, and the levy of any execution, attachment or similar process upon the Restricted Shares, shall be null and void and without effect.

(b) Waiver. Any right of the Company contained in this Agreement may be waived in writing by the Committee. No waiver of any right hereunder by any party shall operate as a waiver of any other right, or as a waiver of the same right with respect to any subsequent occasion for its exercise, or as a waiver of any right to damages. No waiver by any party of any breach of this Agreement shall be held to constitute a waiver of any other breach or a waiver of the continuation of the same breach.

(c) Section 409A. The Restricted Shares are intended to be exempt from, or compliant with, Section 409A of the Code. Notwithstanding the foregoing or any provision of the Plan or this Agreement, if any provision of the Plan or this Agreement contravenes Section 409A of the Code or could cause the Participant to incur any tax, interest or penalties under Section 409A of the Code, the Committee may, in its sole discretion and without the Participant's consent, modify such provision to (i) comply with, or avoid being subject to, Section 409A of the Code, or to avoid the incurrence of taxes, interest and penalties under Section 409A of the Code, and/or (ii) maintain, to the maximum extent practicable, the original intent and economic benefit to the Participant of the applicable provision without materially increasing the cost to the Company or contravening the provisions of Section 409A of the Code. This Section 10(c) does not create an obligation on the part of the Company to modify the Plan or this Agreement and does not guarantee that the Restricted Shares will not be subject to interest and penalties under Section 409A.

(d) Notices. Any notices provided for in this Agreement or the Plan shall be in writing and shall be deemed sufficiently given if either hand delivered or if sent by fax, pdf/email or overnight courier, or by postage paid first class mail. Notices sent by mail shall be deemed received three business days after mailing but in no event later than the date of actual receipt. Notices shall be directed, if to the Participant, at the Participant's address indicated by the Company's records, or if to the Company, to the attention of the General Counsel at the Company's principal executive office.

(e) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

(f) No Rights to Employment or Service. Nothing contained in this Agreement shall be construed as giving the Participant any right to be retained, in any position, as an employee, consultant or director of the Company or its Affiliates or shall interfere with or restrict in any way the rights of the Company or its Affiliates, which are hereby expressly reserved, to remove, terminate or discharge the Participant at any time for any reason whatsoever.

(g) Fractional Shares. In lieu of issuing a fraction of a share of Class A Common Stock resulting from adjustment of the Restricted Shares pursuant to Section 12 of the Plan or otherwise, the Company shall be entitled to pay to the Participant an amount in cash equal to the Fair Market Value of such fractional share.

(h) Beneficiary. The Participant may file with the Committee a written designation of a beneficiary on such form as may be prescribed by the Committee and may, from time to time, amend or revoke such designation.

(i) Successors. The terms of this Agreement shall be binding upon and inure to the benefit of the Company and its successors and assigns, and of the Participant and the beneficiaries, executors, administrators, heirs and successors of the Participant.

(j) Entire Agreement. This Agreement and the Plan contain the entire agreement and understanding of the parties hereto with respect to the subject matter contained herein and supersede all prior communications, representations and negotiations in respect thereto. No change, modification or waiver of any provision of this Agreement shall be valid unless the same be in writing and signed by the parties hereto, except for any changes permitted without consent under Section 12 or 14 of the Plan.

(k) Governing Law and Venue. This Agreement shall be construed and interpreted in accordance with the laws of the State of Delaware, without regard to principles of conflicts of laws thereof, or principles of conflicts of laws of any other jurisdiction which could cause the application of the laws of any jurisdiction other than the State of Delaware.

(i) Dispute Resolution; Consent to Jurisdiction. All disputes between or among any Persons arising out of or in any way connected with the Plan, this Agreement, the Restricted Shares shall be solely and finally settled by the Committee, acting in good faith, the determination of which shall be final. Any matters not covered by the preceding sentence shall be solely and finally settled in accordance with the Plan, and the Participant and the Company consent to the personal jurisdiction of the United States Federal and state courts sitting in Wilmington, Delaware as the exclusive jurisdiction with respect to matters arising out of or related to the enforcement of the Committee's determinations and resolution of matters, if any, related to the Plan or this Agreement not required to be resolved by the Committee. Each such Person hereby irrevocably consents to the service of process of any of the aforementioned courts in any such suit, action or proceeding by the mailing of copies thereof by registered or certified mail, postage prepaid, to the last known address of such Person, such service to become effective ten (10) days after such mailing.

(ii) Waiver of Jury Trial. Each party hereto hereby waives, to the fullest extent permitted by applicable law, any right it may have to a trial by jury in any legal proceeding directly or indirectly arising out of or relating to this Agreement or the transactions contemplated (whether based on contract, tort or any other theory). Each party hereto (A) certifies that no representative, agent or attorney of any other party has represented, expressly or otherwise, that such other party would not, in the event of litigation, seek to enforce the foregoing waiver and (B) acknowledges that it and the other parties hereto have been induced to enter into this Agreement by, among other things, the mutual waivers and certifications in this section.

(l) Headings; Gender. The headings of the Sections hereof are provided for convenience only and are not to serve as a basis for interpretation or construction, and shall not constitute a part, of this Agreement. Masculine pronouns and other words of masculine gender shall refer to both men and women as appropriate.

(m) Counterparts. This Agreement may be executed in one or more counterparts (including via facsimile and electronic image scan (pdf)), each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument and shall become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties.

(n) Electronic Signature and Delivery. This Agreement may be accepted by return signature or by electronic confirmation. By accepting this Agreement, the Participant consents to the electronic delivery of prospectuses, annual reports and other information required to be delivered by U.S. Securities and Exchange Commission rules (which consent may be revoked in writing by the Participant at any time upon three business days'

notice to the Company, in which case subsequent prospectuses, annual reports and other information will be delivered in hard copy to the Participant).

(o) Electronic Participation in Plan. The Company may, in its sole discretion, decide to deliver any documents related to current or future participation in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

[*remainder of page intentionally left blank*]

IN WITNESS WHEREOF, this Agreement has been executed by the Company and the Participant as of the day first written above.

VIRTU FINANCIAL, INC.

By:__

Name: Robert Greifeld

Title: Chairman

Douglas A. Cifu

VIRTU FINANCIAL, INC.
AMENDED AND RESTATED 2015 MANAGEMENT INCENTIVE PLAN
EMPLOYEE
RESTRICTED STOCK AWARD AGREEMENT

THIS RESTRICTED STOCK AWARD AGREEMENT (the "Agreement"), is entered into as of February 27, 2020 (the "Date of Grant"), by and between Virtu Financial, Inc., a Delaware corporation (the "Company"), and Brett Fairclough (the "Participant").

WHEREAS, the Company has adopted the Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan (the "Plan"), pursuant to which Restricted Stock (the "Restricted Shares") may be granted;

WHEREAS, the Company and the Participant entered into that certain Amended and Restated Employment Agreement, dated as of February 26, 2020 (the "Employment Agreement"), pursuant to which the Participant is eligible to receive an equity award at the beginning of each calendar year during the Term (as defined in the Employment Agreement); and

WHEREAS, the Compensation Committee of the Board of Directors of the Company has determined that it is in the best interests of the Company and its stockholders to grant the Restricted Shares provided for herein to the Participant subject to the terms set forth herein.

NOW, THEREFORE, for and in consideration of the premises and the covenants of the parties contained in this Agreement, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties hereto, for themselves, their successors and assigns, hereby agree as follows:

1. Grant of Restricted Shares.

(a) Grant. The Company hereby grants to the Participant a total of 150,000 Restricted Shares, on the terms and conditions set forth in this Agreement and as otherwise provided in the Plan. The Restricted Shares shall be earned and vest in accordance with Section 2.

(b) Incorporation by Reference. The provisions of the Plan are incorporated herein by reference. Except as otherwise expressly set forth herein, this Agreement shall be construed in accordance with the provisions of the Plan and any interpretations, amendments, rules and regulations promulgated by the Committee from time to time pursuant to the Plan. Any capitalized terms not otherwise defined in this Agreement shall have the definitions set forth in the Plan. The Committee shall have final authority to interpret and construe the Plan and this Agreement and to make any and all determinations under them, and its decision shall be binding and conclusive upon the Participant and his legal representative in respect of any questions arising under the Plan or this Agreement. The Participant acknowledges that he has received a copy of the Plan and has had an opportunity to review the Plan and agrees to be bound by all the terms and provisions of the Plan.

2. Vesting.

(a) Subject to the Participant's continued employment or service with the Company or an Affiliate, except as may otherwise be provided herein or in the Employment Agreement, Restricted Shares shall vest in three (3) separate annual installments each in the amount earned as determined in accordance with Section 2(b) hereof, on each of December 31, 2020, December 31, 2021 and December 31, 2022 (each such date, a "Vesting Date"). Upon each Vesting Date, such portion of the Restricted Shares that vest on such date shall no longer be subject to the transfer restrictions pursuant to Section 8(a) hereof or cancellation pursuant to Section 4 hereof. Any fractional Restricted Shares resulting from the application of the vesting schedule shall be aggregated and the Restricted Shares resulting from such aggregation shall vest on the final Vesting Date.

(b) The number of Restricted Shares earned under this Agreement as of each Vesting Date shall be determined based on the percentage of the Company's Adjusted EBITDA target as set forth in the Company's approved annual budget ("Budgeted EBITDA") for each of the calendar years 2020, 2021 and 2022 which is achieved in each such year in accordance with the table below. The Budgeted EBITDA and actual Adjusted EBITDA shall be determined in a manner consistent with the methodology utilized by the Company in the ordinary course consistent with past practice.

Percentage of Budgeted EBITDA Achieved	Number of Shares Earned
75% or more	50,000
74%	45,000
73%	40,000
72%	35,000
71%	30,000
70%	25,000
Less than 70%	0

If the percentage of the Company's Budgeted EBITDA achieved is greater than 70% but less than 75% for any applicable year, then the amount of earned shares in the table above will be determined based on linear interpolation.

3. **Dividends.** In the event of any issuance of a cash dividend on the shares of Class A Common Stock (a "Dividend"), the Participant shall be entitled to receive, with respect to each Restricted Share granted pursuant to this Agreement and outstanding as of the record date for such Dividend, payment of an amount equal to the Dividend at the same time as the Dividend is paid to holders of shares of Class A Common Stock generally.

4. **Termination of Employment or Service.** If the Participant's employment or service with the Company and its Affiliates terminates for any reason, any unearned and unvested Restricted Shares shall be accelerated, remain eligible to be earned or cancelled in accordance with the terms of the Employment Agreement.

5. **Issuance**. The Restricted Shares shall be issued by the Company and shall be registered in the Participant's name on the stock transfer books of the Company promptly after the date hereof in book-entry form, subject to the Company's directions at all times prior to the date the Restricted Shares vest. As a condition of the award of Restricted Shares, Participant shall deliver to the Company a stock power, endorsed in blank, relating to such Restricted Shares. The Committee or the Company may cause a legend or legends to be put on the certificate to make appropriate reference to such restrictions as the Committee or the Company may deem advisable under the Plan or as may be required by the rules, regulations, and other requirements of the Securities and Exchange Commission, NASDAQ or any other securities exchange or inter-dealer quotation system on which the Class A Common Stock is listed or quoted, and any applicable federal, state or local laws. To the extent allowable by applicable law, neither the Committee, the Company, nor their respective designees, as applicable, shall be liable for any act it or they may do or omit to do with respect to holding the Restricted Shares in escrow and while acting in good faith in the exercise of its or their judgment.

6. **Rights as a Stockholder.** The Participant shall be, and shall have the rights or privileges of, a stockholder of the Company, including, without limitation, any voting rights, in respect of the Restricted Shares.

7. **Compliance with Legal Requirements.**

(a) Generally. The granting and settlement of the Restricted Shares, and any other obligations of the Company under this Agreement, shall be subject to all applicable U.S. federal, state and local laws, rules and regulations, all applicable non-U.S. laws, rules and regulations and to such approvals by any regulatory or governmental agency as may be required. The Participant agrees to take all steps the Committee or the Company determines are reasonably necessary to comply with all applicable provisions of U.S. federal and state securities law and non-U.S. securities law in exercising his rights under this Agreement.

(b) Taxes and Withholding. The vesting of the Restricted Shares shall be subject to the Participant satisfying any applicable U.S. federal, state and local tax withholding obligations and non-U.S. tax withholding obligations. The Participant shall be required to pay to the Company, and the Company shall have the right and is hereby authorized to withhold any cash, shares of Class A Common Stock, other securities or other property or from any compensation or other amounts owing to the Participant, the amount (in cash, Class A Common Stock, other securities or other property) of any required withholding taxes in respect of the Restricted Shares or any payment or transfer of the Restricted Shares, and to take any such other action as the Committee or the Company deem necessary to satisfy all obligations for the payment of such withholding taxes. In its sole discretion, the Company may permit the Participant to satisfy, in whole or in part, the tax obligations by withholding shares of Class A Common Stock that would otherwise be deliverable to the Participant upon vesting of the Restricted Shares with a Fair Market Value equal to such withholding liability.

8. **Contractual Obligations.**

(a) Nothing in this Agreement shall supersede, modify, replace or cancel any existing contractual obligations, including but not limited to restrictive covenants, applicable to Participant in *any* employment agreement, offer letter, prior equity award agreement or any other agreement or contract with the Company or its Affiliates.

(b) In the event that the Participant violates any of the contractual obligations referred to in this Section 8, in addition to any other remedy which may be available at law or in equity, the Restricted Shares shall be automatically forfeited effective as of the date on which such violation first occurs. The foregoing rights and remedies are in addition to any other rights and remedies that may be available to the Company and shall not prevent (and the Participant shall not assert that they shall prevent) the Company from bringing one or more actions in any applicable jurisdiction to recover damages as a result of the Participant's breach of such restrictive covenants.

9. **Miscellaneous.**

(a) Transferability. The Restricted Shares may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered (a "Transfer") by the Participant other than by will or by the laws of descent and distribution, pursuant to a qualified domestic relations order or as otherwise permitted under Section 15(b) of the Plan. Any attempted Transfer of the Restricted Shares contrary to the provisions hereof, and the levy of any execution, attachment or similar process upon the Restricted Shares, shall be null and void and without effect.

(b) Waiver. Any right of the Company contained in this Agreement may be waived in writing by the Committee. No waiver of any right hereunder by any party shall operate as a waiver of any other right, or as a waiver of the same right with respect to any subsequent occasion for its exercise, or as a waiver of any right to damages. No waiver by any party of any breach of this Agreement shall be held to constitute a waiver of any other breach or a waiver of the continuation of the same breach.

(c) Section 409A. The Restricted Shares are intended to be exempt from, or compliant with, Section 409A of the Code. Notwithstanding the foregoing or any provision of the Plan or this Agreement, if any provision of the Plan or this Agreement contravenes Section 409A of the Code or could cause the Participant to incur any tax, interest or penalties under Section 409A of the Code, the Committee may, in its sole discretion and without the Participant's consent, modify such provision to (i) comply with, or avoid being subject to, Section 409A of the Code, or to avoid the incurrence of taxes, interest and penalties under Section 409A of the Code, and/or (ii) maintain, to the maximum extent practicable, the original intent and economic benefit to the Participant of the applicable provision without materially increasing the cost to the Company or contravening the provisions of Section 409A of the Code. This Section 10(c) does not create an obligation on the part of the Company to modify the Plan or this Agreement and does not guarantee that the Restricted Shares will not be subject to interest and penalties under Section 409A.

(d) Notices. Any notices provided for in this Agreement or the Plan shall be in writing and shall be deemed sufficiently given if either hand delivered or if sent by fax, pdf/email or overnight courier, or by postage paid first class mail. Notices sent by mail shall be deemed received three business days after mailing but in no event later than the date of actual receipt. Notices shall be directed, if to the Participant, at the Participant's address indicated by the Company's records, or if to the Company, to the attention of the General Counsel at the Company's principal executive office.

(e) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

(f) No Rights to Employment or Service. Nothing contained in this Agreement shall be construed as giving the Participant any right to be retained, in any position, as an employee, consultant or director of the Company or its Affiliates or shall interfere with or restrict in any way the rights of the Company or its Affiliates, which are hereby expressly reserved, to remove, terminate or discharge the Participant at any time for any reason whatsoever.

(g) Fractional Shares. In lieu of issuing a fraction of a share of Class A Common Stock resulting from adjustment of the Restricted Shares pursuant to Section 12 of the Plan or otherwise, the Company shall be entitled to pay to the Participant an amount in cash equal to the Fair Market Value of such fractional share.

(h) Beneficiary. The Participant may file with the Committee a written designation of a beneficiary on such form as may be prescribed by the Committee and may, from time to time, amend or revoke such designation.

(i) Successors. The terms of this Agreement shall be binding upon and inure to the benefit of the Company and its successors and assigns, and of the Participant and the beneficiaries, executors, administrators, heirs and successors of the Participant.

(j) Entire Agreement. This Agreement and the Plan contain the entire agreement and understanding of the parties hereto with respect to the subject matter contained herein and supersede all prior communications, representations and negotiations in respect thereto. No change, modification or waiver of any provision of this Agreement shall be valid unless the same be in writing and signed by the parties hereto, except for any changes permitted without consent under Section 12 or 14 of the Plan.

(k) Governing Law and Venue. This Agreement shall be construed and interpreted in accordance with the laws of the State of Delaware, without regard to principles of conflicts of laws thereof, or principles of conflicts of laws of any other jurisdiction which could cause the application of the laws of any jurisdiction other than the State of Delaware.

(i) Dispute Resolution; Consent to Jurisdiction. All disputes between or among any Persons arising out of or in any way connected with the Plan, this Agreement, the Restricted Shares shall be solely and finally settled by the Committee, acting in good faith, the determination of which shall be final. Any matters not covered by the preceding sentence shall be solely and finally settled in accordance with the Plan, and the Participant and the Company consent to the personal jurisdiction of the United States Federal and state courts sitting in Wilmington, Delaware as the exclusive jurisdiction with respect to matters arising out of or related to the enforcement of the Committee's determinations and resolution of matters, if any, related to the Plan or this Agreement not required to be resolved by the Committee. Each such Person hereby irrevocably consents to the service of process of any of the aforementioned courts in any such suit, action or proceeding by the mailing of copies thereof by registered or certified mail, postage prepaid, to the last known address of such Person, such service to become effective ten (10) days after such mailing.

(ii) Waiver of Jury Trial. Each party hereto hereby waives, to the fullest extent permitted by applicable law, any right it may have to a trial by jury in any legal proceeding directly or indirectly arising out of or relating to this Agreement or the transactions contemplated (whether based on contract, tort or any other theory). Each party hereto (A) certifies that no representative, agent or attorney of any other party has represented, expressly or otherwise, that such other party would not, in the event of litigation, seek to enforce the foregoing waiver and (B) acknowledges that it and the other parties hereto have been induced to enter into this Agreement by, among other things, the mutual waivers and certifications in this section.

(l) Headings; Gender. The headings of the Sections hereof are provided for convenience only and are not to serve as a basis for interpretation or construction, and shall not constitute a part, of this Agreement. Masculine pronouns and other words of masculine gender shall refer to both men and women as appropriate.

(m) Counterparts. This Agreement may be executed in one or more counterparts (including via facsimile and electronic image scan (pdf)), each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument and shall become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties.

(n) Electronic Signature and Delivery. This Agreement may be accepted by return signature or by electronic confirmation. By accepting this Agreement, the Participant consents to the electronic delivery of prospectuses, annual reports and other information required to be delivered by U.S. Securities and Exchange Commission rules (which consent may be revoked in writing by the Participant at any time upon three business days'

notice to the Company, in which case subsequent prospectuses, annual reports and other information will be delivered in hard copy to the Participant).

(o) Electronic Participation in Plan. The Company may, in its sole discretion, decide to deliver any documents related to current or future participation in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

[*remainder of page intentionally left blank*]

IN WITNESS WHEREOF, this Agreement has been executed by the Company and the Participant as of the day first written above.

VIRTU FINANCIAL, INC.

By:__
Name: Douglas A. Cifu
Title: Chief Executive Officer

Brett Fairclough

VIRTU FINANCIAL, INC.
AMENDED AND RESTATED 2015 MANAGEMENT INCENTIVE PLAN
EMPLOYEE
RESTRICTED STOCK AWARD AGREEMENT

THIS RESTRICTED STOCK AWARD AGREEMENT (the "Agreement"), is entered into as of February 27, 2020 (the "Date of Grant"), by and between Virtu Financial, Inc., a Delaware corporation (the "Company"), and Stephen Cavoli (the "Participant").

WHEREAS, the Company has adopted the Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan (the "Plan"), pursuant to which Restricted Stock (the "Restricted Shares") may be granted;

WHEREAS, the Company and the Participant entered into that certain Amended and Restated Employment Agreement, dated as of February 26, 2020 (the "Employment Agreement"), pursuant to which the Participant is eligible to receive an equity award at the beginning of each calendar year during the Term (as defined in the Employment Agreement); and

WHEREAS, the Compensation Committee of the Board of Directors of the Company has determined that it is in the best interests of the Company and its stockholders to grant the Restricted Shares provided for herein to the Participant subject to the terms set forth herein.

NOW, THEREFORE, for and in consideration of the premises and the covenants of the parties contained in this Agreement, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties hereto, for themselves, their successors and assigns, hereby agree as follows:

1. Grant of Restricted Shares.

(a) Grant. The Company hereby grants to the Participant a total of 150,000 Restricted Shares, on the terms and conditions set forth in this Agreement and as otherwise provided in the Plan. The Restricted Shares shall be earned and vest in accordance with Section 2.

(b) Incorporation by Reference. The provisions of the Plan are incorporated herein by reference. Except as otherwise expressly set forth herein, this Agreement shall be construed in accordance with the provisions of the Plan and any interpretations, amendments, rules and regulations promulgated by the Committee from time to time pursuant to the Plan. Any capitalized terms not otherwise defined in this Agreement shall have the definitions set forth in the Plan. The Committee shall have final authority to interpret and construe the Plan and this Agreement and to make any and all determinations under them, and its decision shall be binding and conclusive upon the Participant and his legal representative in respect of any questions arising under the Plan or this Agreement. The Participant acknowledges that he has received a copy of the Plan and has had an opportunity to review the Plan and agrees to be bound by all the terms and provisions of the Plan.

2. Vesting.

(a) Subject to the Participant's continued employment or service with the Company or an Affiliate, except as may otherwise be provided herein or in the Employment Agreement, Restricted Shares shall vest in three (3) separate annual installments each in the amount earned as determined in accordance with Section 2(b) hereof, on each of December 31, 2020, December 31, 2021 and December 31, 2022 (each such date, a "Vesting Date"). Upon each Vesting Date, such portion of the Restricted Shares that vest on such date shall no longer be subject to the transfer restrictions pursuant to Section 8(a) hereof or cancellation pursuant to Section 4 hereof. Any fractional Restricted Shares resulting from the application of the vesting schedule shall be aggregated and the Restricted Shares resulting from such aggregation shall vest on the final Vesting Date.

(b) The number of Restricted Shares earned under this Agreement as of each Vesting Date shall be determined based on the percentage of the Company's Adjusted EBITDA target as set forth in the Company's approved annual budget ("Budgeted EBITDA") for each of the calendar years 2020, 2021 and 2022 which is achieved in each such year in accordance with the table below. The Budgeted EBITDA and actual Adjusted EBITDA shall be determined in a manner consistent with the methodology utilized by the Company in the ordinary course consistent with past practice.

Percentage of Budgeted EBITDA Achieved	Number of Shares Earned
75% or more	50,000
74%	45,000
73%	40,000
72%	35,000
71%	30,000
70%	25,000
Less than 70%	0

If the percentage of the Company's Budgeted EBITDA achieved is greater than 70% but less than 75% for any applicable year, then the amount of earned shares in the table above will be determined based on linear interpolation.

3. **Dividends.** In the event of any issuance of a cash dividend on the shares of Class A Common Stock (a "Dividend"), the Participant shall be entitled to receive, with respect to each Restricted Share granted pursuant to this Agreement and outstanding as of the record date for such Dividend, payment of an amount equal to the Dividend at the same time as the Dividend is paid to holders of shares of Class A Common Stock generally.

4. **Termination of Employment or Service.** If the Participant's employment or service with the Company and its Affiliates terminates for any reason, any unearned and unvested Restricted Shares shall be accelerated, remain eligible to be earned or cancelled in accordance with the terms of the Employment Agreement.

5. **Issuance**. The Restricted Shares shall be issued by the Company and shall be registered in the Participant's name on the stock transfer books of the Company promptly after the date hereof in book-entry form, subject to the Company's directions at all times prior to the date the Restricted Shares vest. As a condition of the award of Restricted Shares, Participant shall deliver to the Company a stock power, endorsed in blank, relating to such Restricted Shares. The Committee or the Company may cause a legend or legends to be put on the certificate to make appropriate reference to such restrictions as the Committee or the Company may deem advisable under the Plan or as may be required by the rules, regulations, and other requirements of the Securities and Exchange Commission, NASDAQ or any other securities exchange or inter-dealer quotation system on which the Class A Common Stock is listed or quoted, and any applicable federal, state or local laws. To the extent allowable by applicable law, neither the Committee, the Company, nor their respective designees, as applicable, shall be liable for any act it or they may do or omit to do with respect to holding the Restricted Shares in escrow and while acting in good faith in the exercise of its or their judgment.

6. **Rights as a Stockholder.** The Participant shall be, and shall have the rights or privileges of, a stockholder of the Company, including, without limitation, any voting rights, in respect of the Restricted Shares.

7. **Compliance with Legal Requirements.**

(a) Generally. The granting and settlement of the Restricted Shares, and any other obligations of the Company under this Agreement, shall be subject to all applicable U.S. federal, state and local laws, rules and regulations, all applicable non-U.S. laws, rules and regulations and to such approvals by any regulatory or governmental agency as may be required. The Participant agrees to take all steps the Committee or the Company determines are reasonably necessary to comply with all applicable provisions of U.S. federal and state securities law and non-U.S. securities law in exercising his rights under this Agreement.

(b) Taxes and Withholding. The vesting of the Restricted Shares shall be subject to the Participant satisfying any applicable U.S. federal, state and local tax withholding obligations and non-U.S. tax withholding obligations. The Participant shall be required to pay to the Company, and the Company shall have the right and is hereby authorized to withhold any cash, shares of Class A Common Stock, other securities or other property or from any compensation or other amounts owing to the Participant, the amount (in cash, Class A Common Stock, other securities or other property) of any required withholding taxes in respect of the Restricted Shares or any payment or transfer of the Restricted Shares, and to take any such other action as the Committee or the Company deem necessary to satisfy all obligations for the payment of such withholding taxes. In its sole discretion, the Company may permit the Participant to satisfy, in whole or in part, the tax obligations by withholding shares of Class A Common Stock that would otherwise be deliverable to the Participant upon vesting of the Restricted Shares with a Fair Market Value equal to such withholding liability.

8. **Contractual Obligations.**

(a) Nothing in this Agreement shall supersede, modify, replace or cancel any existing contractual obligations, including but not limited to restrictive covenants, applicable to Participant in *any* employment agreement, offer letter, prior equity award agreement or any other agreement or contract with the Company or its Affiliates.

(b) In the event that the Participant violates any of the contractual obligations referred to in this Section 8, in addition to any other remedy which may be available at law or in equity, the Restricted Shares shall be automatically forfeited effective as of the date on which such violation first occurs. The foregoing rights and remedies are in addition to any other rights and remedies that may be available to the Company and shall not prevent (and the Participant shall not assert that they shall prevent) the Company from bringing one or more actions in any applicable jurisdiction to recover damages as a result of the Participant's breach of such restrictive covenants.

9. **Miscellaneous.**

(a) Transferability. The Restricted Shares may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered (a "Transfer") by the Participant other than by will or by the laws of descent and distribution, pursuant to a qualified domestic relations order or as otherwise permitted under Section 15(b) of the Plan. Any attempted Transfer of the Restricted Shares contrary to the provisions hereof, and the levy of any execution, attachment or similar process upon the Restricted Shares, shall be null and void and without effect.

(b) Waiver. Any right of the Company contained in this Agreement may be waived in writing by the Committee. No waiver of any right hereunder by any party shall operate as a waiver of any other right, or as a waiver of the same right with respect to any subsequent occasion for its exercise, or as a waiver of any right to damages. No waiver by any party of any breach of this Agreement shall be held to constitute a waiver of any other breach or a waiver of the continuation of the same breach.

(c) Section 409A. The Restricted Shares are intended to be exempt from, or compliant with, Section 409A of the Code. Notwithstanding the foregoing or any provision of the Plan or this Agreement, if any provision of the Plan or this Agreement contravenes Section 409A of the Code or could cause the Participant to incur any tax, interest or penalties under Section 409A of the Code, the Committee may, in its sole discretion and without the Participant's consent, modify such provision to (i) comply with, or avoid being subject to, Section 409A of the Code, or to avoid the incurrence of taxes, interest and penalties under Section 409A of the Code, and/or (ii) maintain, to the maximum extent practicable, the original intent and economic benefit to the Participant of the applicable provision without materially increasing the cost to the Company or contravening the provisions of Section 409A of the Code. This Section 10(c) does not create an obligation on the part of the Company to modify the Plan or this Agreement and does not guarantee that the Restricted Shares will not be subject to interest and penalties under Section 409A.

(d) Notices. Any notices provided for in this Agreement or the Plan shall be in writing and shall be deemed sufficiently given if either hand delivered or if sent by fax, pdf/email or overnight courier, or by postage paid first class mail. Notices sent by mail shall be deemed received three business days after mailing but in no event later than the date of actual receipt. Notices shall be directed, if to the Participant, at the Participant's address indicated by the Company's records, or if to the Company, to the attention of the General Counsel at the Company's principal executive office.

(e) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

(f) No Rights to Employment or Service. Nothing contained in this Agreement shall be construed as giving the Participant any right to be retained, in any position, as an employee, consultant or director of the Company or its Affiliates or shall interfere with or restrict in any way the rights of the Company or its Affiliates, which are hereby expressly reserved, to remove, terminate or discharge the Participant at any time for any reason whatsoever.

(g) Fractional Shares. In lieu of issuing a fraction of a share of Class A Common Stock resulting from adjustment of the Restricted Shares pursuant to Section 12 of the Plan or otherwise, the Company shall be entitled to pay to the Participant an amount in cash equal to the Fair Market Value of such fractional share.

(h) Beneficiary. The Participant may file with the Committee a written designation of a beneficiary on such form as may be prescribed by the Committee and may, from time to time, amend or revoke such designation.

(i) Successors. The terms of this Agreement shall be binding upon and inure to the benefit of the Company and its successors and assigns, and of the Participant and the beneficiaries, executors, administrators, heirs and successors of the Participant.

(j) Entire Agreement. This Agreement and the Plan contain the entire agreement and understanding of the parties hereto with respect to the subject matter contained herein and supersede all prior communications, representations and negotiations in respect thereto. No change, modification or waiver of any provision of this Agreement shall be valid unless the same be in writing and signed by the parties hereto, except for any changes permitted without consent under Section 12 or 14 of the Plan.

(k) Governing Law and Venue. This Agreement shall be construed and interpreted in accordance with the laws of the State of Delaware, without regard to principles of conflicts of laws thereof, or principles of conflicts of laws of any other jurisdiction which could cause the application of the laws of any jurisdiction other than the State of Delaware.

(i) Dispute Resolution; Consent to Jurisdiction. All disputes between or among any Persons arising out of or in any way connected with the Plan, this Agreement, the Restricted Shares shall be solely and finally settled by the Committee, acting in good faith, the determination of which shall be final. Any matters not covered by the preceding sentence shall be solely and finally settled in accordance with the Plan, and the Participant and the Company consent to the personal jurisdiction of the United States Federal and state courts sitting in Wilmington, Delaware as the exclusive jurisdiction with respect to matters arising out of or related to the enforcement of the Committee's determinations and resolution of matters, if any, related to the Plan or this Agreement not required to be resolved by the Committee. Each such Person hereby irrevocably consents to the service of process of any of the aforementioned courts in any such suit, action or proceeding by the mailing of copies thereof by registered or certified mail, postage prepaid, to the last known address of such Person, such service to become effective ten (10) days after such mailing.

(ii) Waiver of Jury Trial. Each party hereto hereby waives, to the fullest extent permitted by applicable law, any right it may have to a trial by jury in any legal proceeding directly or indirectly arising out of or relating to this Agreement or the transactions contemplated (whether based on contract, tort or any other theory). Each party hereto (A) certifies that no representative, agent or attorney of any other party has represented, expressly or otherwise, that such other party would not, in the event of litigation, seek to enforce the foregoing waiver and (B) acknowledges that it and the other parties hereto have been induced to enter into this Agreement by, among other things, the mutual waivers and certifications in this section.

(l) Headings; Gender. The headings of the Sections hereof are provided for convenience only and are not to serve as a basis for interpretation or construction, and shall not constitute a part, of this Agreement. Masculine pronouns and other words of masculine gender shall refer to both men and women as appropriate.

(m) Counterparts. This Agreement may be executed in one or more counterparts (including via facsimile and electronic image scan (pdf)), each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument and shall become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties.

(n) Electronic Signature and Delivery. This Agreement may be accepted by return signature or by electronic confirmation. By accepting this Agreement, the Participant consents to the electronic delivery of prospectuses, annual reports and other information required to be delivered by U.S. Securities and Exchange Commission rules (which consent may be revoked in writing by the Participant at any time upon three business days'

notice to the Company, in which case subsequent prospectuses, annual reports and other information will be delivered in hard copy to the Participant).

(o) Electronic Participation in Plan. The Company may, in its sole discretion, decide to deliver any documents related to current or future participation in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or a third party designated by the Company.

[*remainder of page intentionally left blank*]

IN WITNESS WHEREOF, this Agreement has been executed by the Company and the Participant as of the day first written above.

VIRTU FINANCIAL, INC.

By:__

Name: Douglas A. Cifu

Title: Chief Executive Officer

Stephen Cavoli

CONFIDENTIAL SEPARATION AGREEMENT
AND GENERAL RELEASE OF CLAIMS

THIS CONFIDENTIAL SEPARATION AGREEMENT AND GENERAL RELEASE OF CLAIMS ("Agreement"), dated September 3, 2019 is made and entered into by and between Joseph Molluso ("Employee") and Virtu Financial Operating LLC and Virtu Financial, Inc. and all of its and their current or former parents, successors, predecessors, affiliates, subsidiaries and related entities, divisions, departments, partnerships, corporations, limited liability partnerships and limited liability companies, and each of its and their former, present and future directors, officers, employees, shareholders, fiduciaries, insurers, managers and agents (collectively, the "Company"). Capitalized terms used but not defined herein shall have the meanings assigned to them in the At-Will Agreement (as defined below).

<u>RECITALS</u>:

A. Employee and the Company (or one of the Company's affiliates) are party to an offer letter (the "Employment Letter") and employment agreement dated August 7, 2013 (the "At-Will Agreement").

B. Employee's employment with the Company will end as of October 1, 2019 (the "Termination Date").

C. Regardless of whether Employee signs this Agreement, Employee will receive all accrued salary, wages, vacation, expenses, and all other monies owed to Employee through the Termination Date.

D. This Agreement is intended to assist employee in his transition in connection with his separation of employment. Also, by this Agreement, Employee and the Company want to settle fully and finally all potential and/or actual differences between them, including all actual or potential differences which arise out of or relate to Employee's employment or separation of employment with the Company.

E. This preamble and recitals set forth herein, and **Schedule A** attached hereto, are hereby incorporated in and made a part of this Agreement.

NOW, THEREFORE, Employee and the Company understand and agree as follows:

<u>1.</u> Non-Admission of Discrimination or Wrongdoing.

This Agreement shall not in any way be construed as an admission by the Company or Employee that they acted wrongfully with respect to the other, or any other person. The Company and Employee specifically disclaim any liability to, or wrongful acts against each other, or any other person or entity, on the part of themselves, their parents, subsidiaries, affiliates, predecessors, successors, officers, employees, or agents.

<u>2.</u> <u>Separation of Employment</u>.

Employee acknowledges that his employment with the Company has ended as of the Termination Date and that the Company is not obligated to rehire or employ Employee at any time in the future.

<u>3.</u> <u>Return of Company Property; Developments</u>.

(a) Employee represents, warrants, and affirms to the Company that: (i) Employee has returned, destroyed, or will destroy (unless as otherwise directed by the Company) all property of the Company and its affiliates to the Company, including, without limitation, keys and key cards to the Company's business premises, credit cards, documents, memoranda, notes, records, source code, correspondence, handwritten notes, computer and physical files, passwords, access codes, records of developments, tapes, disks and other electronic, optical or other media, computers, including the monitors and all related hardware and software and all other tangible property in Employee's possession or control; (ii) Employee did not delete, copy, download or transfer any data from any of the Company's or its affiliates' computers or any of their business documents or records except in the normal course of Employee's duties, and to the extent he/she did, all such information shall be destroyed or has been destroyed; and (iii) any Confidential Information (as defined in the Employment Letter, At-Will Agreement or any agreement to which Employee and the Company are parties) or data in Employee's possession that resides on personal computers or other electronic media will be deleted.

(b) Employee represents, warrants, and affirms that Employee has irrevocably sold, assigned and transferred to the Company and its successors and assigns all of Employee's legal and equitable right, title and interest throughout the world in and to Employee's ideas, inventions, trademarks and other developments or improvements conceived by Employee, either alone or with others, during Employee's employment, whether or not during working hours, that are within the scope of the Company's business operations or that relate to any Company work or projects.

<u>4.</u> <u>No Lawsuits</u>.

(a) Employee promises never to file a lawsuit, administrative complaint, or charge of any kind with any court, governmental or administrative agency, or arbitrator in any jurisdiction against the Company, or any of its current or former officers, directors, agents or employees, or any of the Releasees as defined below, asserting any claims that are released in this Agreement.

(b) Employee represents and agrees that, prior to signing this Agreement, Employee has not filed, or pursued any complaints, charges or lawsuits of any kind with any court, governmental or administrative agency, or arbitrator against the Company, or any of its current or former officers, directors, agents, or employees, or any of the Releasees as defined below, asserting any claims that are released in this Agreement.

5. Payments by the Company; No Obligation To Make Payment Under Normal Policies; Consideration.

(a) The Company agrees that, on the next regularly scheduled payday following the eighth calendar day after the receipt of this Agreement signed by Employee (such date, the “Effective Date”) and provided that Employee has delivered a signed copy of the Agreement in accordance with section (d) of this Paragraph 5, does not revoke this Agreement as described herein, and complies with the terms and conditions set forth herein, the Company will pay Employee the following benefits (collectively, the “Consideration”) contained in **Schedule A** attached hereto in accordance with the schedule set forth thereon.

(b) The Company will arrange to pay directly seventy-five (75%) percent of the premiums relating to Employee’s coverage under COBRA for the period of time set forth in **Schedule A** attached hereto, and, thereafter, continued coverage will be at Employee’s full expense. No such premium contribution will be paid for any period of coverage after Employee is eligible to elect for comparable coverage on another employer’s group health plan. Payment of the Company’s portion of the premiums of Employee’s coverage under COBRA for the period of time set forth in **Schedule A** is contingent upon Employee’s initial and continuing eligibility for such coverage (and associated costs) as determined by, and subject to Employee’s present eligibility for such coverage.

(c) Employee understands that, in order to receive and retain the Consideration, Employee must sign this Agreement and comply with the terms herein, in addition to the applicable terms of the Employment Letter, the At-Will Agreement, the terms of any equity or option award issued pursuant to the Virtu Financial, Inc. 2015 Management Incentive Plan (as amended or amended and restated from time to time) (collectively, the “Pubco Award Documents”), the terms of any equity or option award issued pursuant to any pre-IPO equity incentive plan maintained by any affiliate of Virtu Financial LLC, including the terms of the limited liability company agreement (the “Employee Holdco Operating Agreement”) (to the extent Employee is a member thereof) (collectively, the “Pre-IPO Award Documents” and together with the Pubco Award Documents, the “Virtu Award Documents”)of Virtu Employee Holdco LLC (“Employee Holdco”), or any other agreement to which the Employee and the Company are parties, which explicitly or by their nature survive the termination of Employee’s employment with the Company. Employee also must not rescind his agreement hereto during the seven-day revocation period following the receipt of the signed Agreement by the Company.

(d) As provided in Paragraph 15 below, Employee shall have up to 21 days to consider whether to sign this Agreement. If Employee does not sign this Agreement within 21 days, it shall be withdrawn without further notice. If Employee signs this Agreement within 21 days, he shall then have seven days to revoke his release of claims for age discrimination. If Employee signs this Agreement within 21 days, and does not revoke this Agreement as to any claims for age discrimination within seven days, then the Consideration payments shall be provided to Employee in accordance with the terms of this Agreement.

(e) The payment of the Consideration shall be subject to applicable payroll tax deductions and withholdings as required by federal and state law.

6. Forfeiture of Certain Interests; Forfeiture of Titles

(a) The Employee and the Company acknowledge that, in accordance with the terms of the Virtu Financial, Inc. 2015 Management Incentive Plan (the “2015 MIP”), any and all unvested Options to purchase shares of Class A Common Stock are automatically forfeited without the payment of any consideration and are rendered null and void as of the Termination Date, and the Employees vested Options to purchase shares of Class A Common Stock will automatically expire on the 90th day after the Termination Date.

(b) The Employee and the Company acknowledge that, in accordance with the terms of the 2015 MIP, any and all unvested Restricted Stock Units previously granted to Employee are automatically forfeited and cancelled without the payment of any consideration and are rendered null and void as of the Termination Date.

(c) As of the Termination Date, or such prior date as is instructed by the Company, any and all titles, designations, appointments, directorships and offices held by the Employee with respect to the Company or any of its affiliates, are forfeited and the Employee agrees to execute promptly upon request by the Company or its affiliates, attorneys or advisors, any additional documents necessary to effectuate the provisions of this clause (c).

7. General and Complete Release.

(a) As a material inducement for the Company to enter into this Agreement, and in exchange for the Consideration provided herein, Employee knowingly and voluntarily waives and releases all rights and claims, known and unknown, which Employee may have against the Company, and/or any of the Company’s current or former parents (including Virtu Financial Inc.), successors, predecessors, affiliates, subsidiaries or related entities, or any of their current or former officers, directors, members, shareholders, managers, human resources representatives, employees, agents, contractors, insurance carriers, representatives, or attorneys (“Releasees”), including any and all charges, complaints, claims, liabilities, obligations, promises, agreements, including but not limited to the Employment Letter, the At-Will Agreement, the Virtu Award Documents, and any other contracts, controversies, damages, actions, causes of action, suits, rights, demands, costs, losses, debts and expenses of any kind. Employee further agrees to execute and comply with additional documentation giving effect to such releases as required by the Company.

(b) This includes, but is not limited to, claims for employment discrimination, harassment, wrongful termination, constructive termination, violation of public policy, breach of any express or implied contract, breach of any implied covenant, fraud, intentional or negligent misrepresentation, emotional distress, defamation, libel, slander, or any other claims relating to Employee’s relationship with the Company. However, any recovery Employee may obtain as a whistleblower under federal or state law or regulation is excluded from this general and complete release.

(c) This also includes a release of any claims under any federal, state or local laws or regulations, including, but not limited to: (1) Title VII of the Civil Rights Act of 1964, 42 U.S.C. §§ 2000(e), *et seq.* and the Civil Rights Act of 1991, 2 U.S.C. §§ 60l, *et seq.* (race, color, religion, sex, and national origin discrimination or harassment); (2) the Age Discrimination in Employment Act, 29 U.S.C. §§ 621, *et seq.* (age discrimination); (3) Section 1981 of the Civil Rights Act of 1866, 42 U.S.C. § 1981 (race discrimination); (4) the Equal Pay Act of 1963, 29 U.S.C. § 206 (equal pay); (5) the Fair Labor Standards Act, 29 U.S.C. §§ 201, *et seq.* (wage and hour matters, including overtime pay); (6) the Consolidated Omnibus Budget Reconciliation Act of 1985 (“COBRA”), 42 U.S.C. § 1395(c) (insurance matters); (7) Executive Order 11141 (age discrimination); (8) Section 503 of the Rehabilitation Act of 1973, 29 U.S.C. §§ 701, *et seq.* (disability discrimination); (9) the Employee Retirement Income Security Act of 1974, 29 U.S.C. §§ 1001, *et seq.* (employee benefits); (10) Title I or Title III of the Americans with Disabilities Act (disability discrimination); (11) the Economic Dislocation and Worker Adjustment Assistance Act, 41 U.S.C. §§ 701, *et seq.* or the Worker Adjustment and Retraining Notification Act (“WARN” Act), 29 U.S.C. §§ 2101-09; (12) the Family and Medical Leave Act of 1993, 29 U.S.C. §§ 2601, *et seq.* (leaves of absence); (13) the Older Worker Benefit Protection Act, 29 U.S.C. §§ 621, *et seq.* (age discrimination issues); (14) the Fair Credit Reporting Act, 15 U.S.C. §§ 1681, *et seq.* (issues involving gathering information from third parties); (15) the New York State and City Human Rights Laws, the New York Executive Law, the New York Labor Laws, the New York Workers’ Compensation Law, the New York City Administrative Code and the New York State Worker Adjustment and Retraining Notification Act. Notwithstanding any other provision in this Agreement, Employee is not waiving any (a) right to indemnification, contribution, and/or defense pursuant to any applicable Company bylaw or other Company policy, or pursuant to any insurance policy (e.g., directors and officers insurance), or (b) rights to vested 401-k or other vested pension benefits.

(d) As a material inducement for Employee to enter into this Agreement, and in exchange for the mutual promises provided herein, the Company knowingly and voluntarily waives and releases all rights and claims, known and unknown, which the Company may have against Employee, provided that such waiver and release shall not acquit, release or discharge any claims relating to (i) fraud or willful misconduct of the Employee or (ii) any claims to enforce (x) this Agreement or (y) any restrictive covenant agreements, which claims may include but are not limited to the enforcement of any agreements by the Employee not to compete with the Company or solicit its employees.

8. Unknown Claims.

Employee acknowledges and agrees that, as a condition of this Agreement, Employee expressly releases all rights and claims against the Company that Employee knows about as well as that Employee may not know about.

9. Ownership of Claims.

Employee represents and agrees that Employee has not assigned or transferred, or attempted to assign or transfer, to any person or entity, any of the claims Employee is releasing in this Agreement.

10. No Representations.

Employee represents and agrees that no promises, statements or inducements have been made to Employee that caused Employee to sign this Agreement other than those expressly stated in this Agreement. Employee represents and agrees that this Agreement is a fully integrated contract and that there are no terms, conditions or clauses that exist outside of what is written in this Agreement.

11. Confidentiality of this Agreement.

(a) Except as expressly stated in this Agreement, Employee agrees to keep the fact, terms and amount of this Agreement completely confidential, and not to disclose such information to anyone other than Employee’s immediate family or Employee’s attorneys and licensed tax and/or professional investment advisor (hereafter referred to as “Employee’s Confidants”), all of whom will be informed of, and be bound by, this confidentiality provision.

(b) Neither Employee nor Employee’s Confidants shall disclose the fact, amount or terms of this Agreement to anyone including, but not limited to, any representative of any Internet site, Blog site, print, radio or television media, to any past, present or prospective applicant for employment with the Company, executive recruiter or “headhunter,” to any counsel for any current or former employee of the Company, to any other counsel or third party, or to the public at large.

(c) Employee understands and agrees that any disclosure of information in violation of this confidentiality provision by Employee or by any of Employee's Confidants would cause the Company injury and damage, the actual amount of which would be impractical or extremely difficult to determine. Accordingly, Employee agrees that the Company, in addition to any and all other remedies to which it may be entitled, shall be entitled to recover from Employee liquidated damages in the amount of Five Thousand Dollars ($5,000) for each occasion on which Employee, or any of Employee's Confidants disclose any information in violation of the terms of this confidentiality provision.

(d) Any alleged violation of this confidentiality provision shall be resolved in accordance with the arbitration provisions herein. If any proceeding is brought concerning an alleged violation of this confidentiality provision, the prevailing party shall recover from the losing party all reasonable attorneys' fees and costs incurred in connection with such proceeding. The Company shall have the burden of proving such violation by a preponderance of the evidence. The parties understand and agree that only the Company would be damaged by a violation of this confidentiality provision and for that reason the arbitrator shall have no authority to award any damages against the Company if it does not prevail.

12. Confidential Information.

Employee understands and agrees that in the course of employment with the Company he has acquired Confidential Information and acknowledges that the obligations with respect to such Confidential Information continue in full force beyond the Termination Date in accordance with the terms of the At-Will Agreement.

13. Future Obligations.

(a) Employee will not voluntarily assist any party engaged in current or future litigation or arbitration involving the Company, by furnishing information, declarations, affidavits, statements, letters, oral assistance, documents, or depositions. Employee, however, may respond to a valid and legally enforceable subpoena or other discovery request, provided that such subpoena or discovery request also has been served on the Company. Nothing in any code, agreement, manual or in any other policies, procedures or agreements of the Company shall prohibit or restrict Employee or Employee's counsel from providing information in connection with: (i) any disclosure of information required by law or legal process; (ii) reporting possible violations of federal or state law or regulation to any governmental agency, commission or entity, including but not limited to, the Department of Justice, the Commodities Futures Trading Commission, the Securities and Exchange Commission, the Department of Labor, the Congress, any state Attorney General, self-regulatory organization and any agency Inspector General (collectively "Government Agencies") (iii) filing a charge or complaint with Government Agencies; (iv) making disclosures that are protected under the whistleblower provisions of federal or state law or regulation (collectively the "Whistleblower Statutes"); or (v) from initiating communications directly with, responding to any inquiry from, volunteering information to, testifying or otherwise participating in or assisting in any inquiry, investigation or proceeding brought by Government Agencies in connection with (i) through (v). Employee is not required to advise or seek permission from the Company before engaging in any activity set forth in (i) through (v). Further, the Company does not in any manner limit Employee's right to receive an award from Government Agencies for information provided to Government Agencies or pursuant to the Whistleblower Statutes.

(b) If any subpoena or discovery request is served on Employee, Employee agrees to notify the Company of such a subpoena or discovery request, so that the Company may challenge its validity, at the Company's expense. If such a challenge is not successful and a court or arbitrator rules that a valid subpoena or discovery request has been served, and Employee is required to provide information, Employee agrees to provide truthful information or testimony. If thereafter required by judicial process to provide testimony or other discovery, Employee agrees that he will not object to a representative of the Company being present for such testimony, or being served with all responses to discovery, if not otherwise prohibited by the court or arbitrator having jurisdiction.

(c) Upon reasonable notice and based on Employee's reasonable availability, Employee also agrees to meet with counsel for the Company or Company representative to gather information in connection with any current or future investigation, lawsuit or arbitration in which Employee is asked to participate, and to prepare for any deposition, or any other form of testimony sought from Employee in connection therewith.

(d) Employee agrees that (i) Employee will comply with Employee's obligations with respect to Confidential Information; and (ii) Employee will comply with the restrictive covenants (including Employee's non-competition, non-interference and non-solicitation obligations) as set forth in the Employment Letter, At Will Agreement, the Virtu Award Documents or any other agreement to which the Employee and the Company are parties. Employee acknowledges that if Employee does fail to comply with the terms thereof the Company may, in addition to exercising any other remedies available to it under the Agreement or otherwise in contract or at law, immediately cease paying the Consideration and shall be entitled to a full recovery of any and all installments of the Consideration previously paid. Further, in the event that Employee is in breach of Section 9.04 of the Employee Holdco Operating Agreement, which, pursuant to the terms thereof, continues in full force for the period ending on the third anniversary of the Termination Date, the Company may exercise the call right specified in Section 9.05 of the Employee Holdco Operating Agreement by delivering a Call Notice (as defined in the Employee Holdco Operating Agreement) and otherwise exercise its rights on the terms set forth therein notwithstanding that more than sixty (60) calendar days may have elapsed since the Termination Date. For the avoidance of doubt, in the case of such a breach of Section 9.04 of the Employee Holdco Operating Agreement, the Call Price in respect of any Call Notice shall be no or nominal consideration as determined in the Company's sole discretion.

(e) With respect to any Exchange Election delivered to the Company by Employee in accordance with Section 8.02 of the Employee Holdco Operating Agreement in response to which the Company is obligated to distribute shares of Class A Common

Stock pursuant to the Exchange Agreement (as defined therein) and subject to the terms of the applicable Employee Equity Letter and the terms of this Agreement, the Company shall deliver instructions to its transfer agent and take all other reasonable steps to effect the issuance of such shares of Class A Common Stock within five (5) days of Employee's delivery of an Exchange Election. Notwithstanding the foregoing, the Company's obligation to adhere to the timing obligation set forth herein shall be limited to one Exchange Election per calendar month.

14. Successors.

This Agreement shall be binding upon, and inure to the benefit of, the parties to this Agreement, and their respective heirs, administrators, representatives, executors, successors and assigns.

15. Release of Age Discrimination Claims.

(a) Age discrimination is specifically intended to be included as a Released Action: Employee specifically intends that this Agreement shall include a complete release of claims under the Age Discrimination in Employment Act of 1967 (the "ADEA," 29 U.S.C. §§ 621, *et seq.*), as amended by the Older Workers' Benefit Protection Act of 1990, except for any allegation that a breach of this Act occurred following the Effective Date of this Agreement.

(b) Additional Consideration: Employee agrees and promises that this Agreement by the Company represents obligations by the Company to Employee that are in addition to anything of value to which Employee was otherwise entitled from the Company. In addition, Employee agrees and acknowledges that additional consideration has been provided by the Company, beyond that which would have otherwise been provided, in the form of continued COBRA payments as identified above, in order to effect a valid waiver of Employee's claims under the federal age discrimination laws.

(c) Advice To Consult An Attorney: Employee is hereby advised to consult with an attorney prior to signing this Agreement, because Employee is waiving significant legal rights. Employee acknowledges that he has been so advised and has, in fact, considered whether to consult with an attorney prior to signing this Agreement.

(d) Reasonable Time To Consider Settlement Agreement: Employee acknowledges that he has been given a reasonable period of time (a maximum of 21 days, if Employee so chooses) to consider this Agreement prior to signing this Agreement. Employee understands that he has seven days following his signing of this Agreement to rescind it, but only insofar as it effects a release of a claim for violation of the ADEA, in which case it shall remain fully effective in all other respects. To rescind this Agreement as to the ADEA, Employee agrees to send a letter via electronic mail signed by Employee to the Company's legal department, electronic mail address legal@virtu.com, by the end of the seven-day period. The remainder of this Agreement shall remain in full force and effect.

(e) Non-Release of Future Claims: Employee is hereby advised that this Agreement does not waive or release any rights or claims that Employee may have under the ADEA, or otherwise, which arise after the date Employee signs this Agreement, including any right or claim Employee may have as a whistleblower under federal or state law or regulation.

16. Remedies.

The Employee understands and agrees that if he breaches any provision of this Agreement, including but not limited to those in Paragraph 4, 7, 11, 12, 13 and 15 of this Agreement, such breach will be considered a material breach and, in addition to any other legal or equitable remedy the Company may have, the Company shall be entitled to cease making any payments of Consideration or providing any benefits to the Employee agreed hereunder and shall be entitled to a full recovery of any and all installments of the Consideration previously paid. Any such action permitted to the Company by this paragraph, however, shall not affect or impair any of the Employee's obligations under this Agreement, including without limitation, the release of claims in Paragraph 7 hereof or the obligation to maintain the confidentiality of Confidential Information in Paragraph 11 (as defined therein). The Employee further agrees that nothing herein shall preclude the Company from any other remedies specifically authorized under applicable law.

17. Severability; Governing Law; Exclusive Jurisdiction; Arbitration; fees and expenses.

(a) Should any of the provisions in this Agreement be declared, or be determined to be illegal or invalid, all remaining parts, terms or provisions shall be valid, and the illegal or invalid part, term or provision shall be deemed not to be a part of this Agreement.

(b) This Agreement is made and entered into in the State of New York and shall in all respects be interpreted, enforced and governed under the laws of New York.

(c) The parties knowingly and voluntarily agree to a pre-dispute arbitration clause so that should any controversy or dispute arise in connection with this Agreement, Employee and the Company agree to arbitrate any and all such claims at a site in New York, before a neutral panel of the American Arbitration Association or JAMS, as dictated by the underlying facts and circumstances giving rise to the claim(s). Where no such forum is required by regulatory rules or directed by a court of competent jurisdiction, such forum shall be selected at the sole discretion of the Company. In the course of any arbitration pursuant to this Agreement, the Employee and the Company agree: (a) to request that a written award be issued by the panel, and (b) that each side is entitled to receive any and all relief they would be entitled to receive in a court proceeding. Employee and the Company knowingly and voluntarily agree to enter into this arbitration clause and to waive any rights that might otherwise exist to request a jury trial or other court proceeding, except that the Company may seek and obtain from a court any injunctive or equitable relief necessary to maintain (and/or to restore) the status quo or to prevent the possibility of irreversible or irreparable harm pending final resolution of mediation, arbitration or court proceedings, as applicable. However, this Agreement does not prohibit you or restrict you from filing an arbitration claim a FINRA arbitration forum as specified in FINRA rules.

(d) **THE PARTIES HEREBY VOLUNTARILY, KNOWINGLY, IRREVOCABLY AND UNCONDITIONALLY WAIVE THEIR RESPECTIVE RIGHT TO TRIAL BY JURY.**

(e) To the extent applicable, it is intended that this Agreement comply with or as applicable, constitute a short-term deferral or otherwise be exempt from the provisions of Section 409A. This Agreement will be administered and interpreted in a manner consistent with this intent, and any provision that would cause this Agreement to fail to satisfy Section 409A will have no force and effect until amended to comply therewith (which amendment may be retroactive to the extent permitted by Section 409A). Employee and the Company agree that Employee's termination of employment shall be considered a "separation from service" from the Company within the meaning of Section 409A. To the extent required in order to avoid accelerated taxation and/or tax penalties under Section 409A, amounts that would otherwise be payable and benefits that would otherwise be provided pursuant to this Agreement during the six-month period immediately following Employee's separation from service shall instead be paid on the first business day after the date that is six months following Employee's termination of employment (or upon Employee's death, if earlier). In addition, for purposes of this Agreement, each amount to be paid or benefit to be provided to Employee pursuant to this Agreement shall be construed as a separate identified payment for purposes of Section 409A. With respect to expenses eligible for reimbursement under the terms of this Agreement, (i) the amount of such expenses eligible for reimbursement in any taxable year shall not affect the expenses eligible for reimbursement in another taxable year and (ii) any reimbursements of such expenses shall be made no later than the end of the calendar year following the calendar year in which the related expenses were incurred, except, in each case, to the extent that the right to reimbursement does not provide for a "deferral of compensation" within the meaning of Section 409A. The Company makes no representation that any or all of the payments described in this Agreement will be exempt from or comply with Section 409A and makes no undertaking to preclude Section 409A from applying to any such payment. Employee understands and agrees that Employee shall be solely responsible for the payment of any taxes and penalties incurred under Section 409A.

18. Proper Construction.

(a) The language of all parts of this Agreement shall in all cases be construed as a whole according to its fair meaning, and not strictly for or against any of the parties. The Parties acknowledge and agree that they have participated fully in the preparation of this Agreement and that neither this Agreement nor any provision shall be construed for or against Employee or the Company.

(b) As used in this Agreement, the term "or" shall be deemed to include the term "and/or" and the singular or plural number shall be deemed to include the other whenever the context so indicates or requires.

(c) The paragraph headings used in this Agreement are intended solely for convenience of reference and shall not in any manner amplify, limit, modify or otherwise be used in the interpretation of any of the provisions hereof.

19. Entire Agreement.

This Agreement is the entire agreement between Employee and the Company and fully supersedes any and all prior agreements or understandings between the parties pertaining to its subject matter.

20. Confirmation of Employee's Understanding of the Terms of This Agreement.

(a) Employee represents that he has read this Agreement, in full, and understands each of its terms. Employee also represents that he has had sufficient time and opportunity to obtain legal advice, if desired, before signing this Agreement.

(b) Employee understands that Employee has been given a reasonable time to consider whether to sign this Agreement, up to a period of 21 days. If Employee fails to sign and deliver this Agreement back to the Company within 21 days, this Agreement shall automatically be revoked without further notice.

(c) If Employee chooses to sign this Agreement, Employee represents that he is signing this Agreement voluntarily, without any form of duress or coercion. Employee understands that this Agreement shall be final and binding on Employee and the Company.

[Signature pages to follow]

PLEASE READ CAREFULLY. THIS CONFIDENTIAL SEVERANCE AGREEMENT AND GENERAL RELEASE OF CLAIMS INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS.

Executed on September 3, 2019.

/s/ Joseph Molluso (EMPLOYEE)

By: Joseph Molluso

Executed on September 3 , 2019 .

VIRTU FINANCIAL OPERATING LLC

By: /s/ Douglas A. Cifu

Name: Douglas A. Cifu

Title: Chief Executive Officer

Executed on September 3 , 2019 .

VIRTU FINANCIAL, INC.

By: /s/ Douglas A. Cifu

Name: Douglas A. Cifu

Title: Chief Executive Officer

Executed on September 3 , 2019 .

SCHEDULE A -- TERMS AND CONDITIONS	
I. General Information	
Employee	Joseph Molluso
Notice Date	September 3, 2019
Termination Date	October 1, 2019
II. Final Compensation	*Whether or not Employee signs the Agreement, the Company will make the following payments.*
Outstanding Salary	You will receive a payment equaling any outstanding salary, if any, as of the Termination Date.
Accrued But Unused Vacation Days	You will receive a payment equaling any outstanding vacation, if any, as of the Termination Date.
III. Separation Benefits	*In consideration for Employee's execution, non-revocation of, and compliance with the Agreement, including the General Release of Claims, the Company agrees to provide the following Termination*

	Benefits.
Termination Payments	$1,250,000
COBRA Benefits	In accordance with Paragraph 5(b), the Company will arrange to pay Employee’s coverage under COBRA for the period of [October 1], 2019 to the six month anniversary thereof.

EXHIBIT 21.1

Subsidiaries of Virtu Financial, Inc.

The following are subsidiaries of Virtu Financial, Inc. as of December 31, 2019 and the jurisdictions in which they are organized. The names of particular subsidiaries have been omitted because, considered in the aggregate as a single subsidiary, they would not constitute, as of December 31, 2019, a "significant subsidiary" as that term is defined in Rule 1-02(w) of regulation S-X under the Securities Exchange Act of 1934.

Name	**Jurisdiction of Organization**
Virtu Financial LLC	Delaware
VFH Parent LLC	Delaware
Virtu Financial Operating LLC	Delaware
Virtu Financial Global Markets LLC	Delaware
Virtu KCG Holdings LLC	Delaware
Virtu Knight Capital Group LLC	Delaware
Virtu Strategic Holdings LLC	Delaware
Virtu Americas LLC	Delaware
Virtu ITG LLC	Delaware
ITG International Holdings Limited	Bermuda

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-203478, 333-219110 and 333-230012 on Form S-8 and Registration Statement Nos. 333-213157 and 333-224683 on Form S-3 of our report dated March 13, 2018, relating to the consolidated financial statements of Virtu Financial, Inc. and Subsidiaries (the Company) appearing in this Annual Report on Form 10-K, for the year ended December 31, 2019.

/s/ Deloitte & Touche LLP
New York, NY
February 28, 2020

EXHIBIT 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-213157), Form S-3ASR (No. 333-224683), and Forms S-8 (Nos. 333-203478, 333-219110 and 333-230012) of Virtu Financial, Inc. of our report dated February 28, 2020 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
New York, NY
February 28, 2020

EXHIBIT 31.1

CEO CERTIFICATION
PURSUANT TO SECTION 302 OF THE
SARBANES — OXLEY ACT OF 2002

I, Douglas A. Cifu, certify that:

1. I have reviewed this Annual Report on Form 10-K for the period ending December 31, 2019 of Virtu Financial, Inc. (the “registrant”) as filed with the Securities and Exchange Commission on the date hereof;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 28, 2020 By: /s/ Douglas A. Cifu

Douglas A. Cifu
Chief Executive Officer

EXHIBIT 31.2

CFO CERTIFICATION
PURSUANT TO SECTION 302 OF THE
SARBANES — OXLEY ACT OF 2002

I, Alex Ioffe, certify that:

1. I have reviewed this Annual Report on Form 10-K for the period ending December 31, 2019 of Virtu Financial, Inc. (the "registrant") as filed with the Securities and Exchange Commission on the date hereof;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2020 By: /s/ Alex Ioffe

Alex Ioffe
Chief Financial Officer

EXHIBIT 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Virtu Financial, Inc. (the "Company") for the period ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Douglas A. Cifu, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, in my capacity as an officer of the Company that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Douglas A. Cifu
Douglas A. Cifu
Chief Executive Officer

Date: February 28, 2020

EXHIBIT 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Virtu Financial, Inc. (the “Company”) for the period ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Alex Ioffe, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, in my capacity as an officer of the Company that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Alex Ioffe

Alex Ioffe
Chief Financial Officer

Date: February 28, 2020