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

FORM 10-Q
(Mark One)

☒ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2022

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.)
1633 Broadway **New York, New York**	**10019**
(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

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 ☐
			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 Securities 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 May 3, 2022
Class A common stock, par value $0.00001 per share	105,336,188
Class C common stock, par value $0.00001 per share	9,053,155
Class D common stock, par value $0.00001 per share	60,091,740

VIRTU FINANCIAL, INC. AND SUBSIDIARIES
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FOR THE QUARTER ENDED March 31, 2022

PART I

ITEM 1. FINANCIAL STATEMENTS

Index to Condensed Consolidated Financial Statements

Virtu Financial, Inc. and Subsidiaries
Condensed Consolidated Statements of Financial Condition (Unaudited)

(in thousands, except share data)	March 31, 2022	December 31, 2021
Assets		
Cash and cash equivalents	$ 564,900	$ 1,071,463
Cash restricted or segregated under regulations and other	47,788	49,490
Securities borrowed	1,700,224	1,349,322
Securities purchased under agreements to resell	160,152	119,453
Receivables from broker-dealers and clearing organizations	1,501,948	1,026,807
Trading assets, at fair value:		
Financial instruments owned	4,833,178	3,238,995
Financial instruments owned and pledged	1,137,134	1,017,960
Receivables from customers	330,378	146,476
Property, equipment and capitalized software (net of accumulated depreciation of $485,626 and $472,155 as of March 31, 2022 and December 31, 2021, respectively)	90,031	89,595
Operating lease right-of-use assets	220,140	225,328
Goodwill	1,148,926	1,148,926
Intangibles (net of accumulated amortization of $269,642 and $253,161 as of March 31, 2022 and December 31, 2021, respectively)	369,851	386,332
Deferred tax assets	145,884	158,518
Other assets ($87,484 and $84,378, at fair value, as of March 31, 2022 and December 31, 2021, respectively)	268,554	291,306
Total assets	$ 12,519,088	$ 10,319,971
Liabilities and equity		
Liabilities		
Short-term borrowings	$ 140,782	$ 61,510
Securities loaned	1,268,377	1,142,048
Securities sold under agreements to repurchase	549,707	514,325
Payables to broker-dealers and clearing organizations	934,722	571,526
Payables to customers	161,565	54,999
Trading liabilities, at fair value:		
Financial instruments sold, not yet purchased	5,104,999	3,510,779
Tax receivable agreement obligations	237,938	259,282
Deferred tax liabilities	60	65
Accounts payable, accrued expenses and other liabilities	358,059	457,942
Operating lease liabilities	269,937	278,745
Long-term borrowings	1,794,200	1,605,132
Total liabilities	10,820,346	8,456,353
Commitments and Contingencies (Note 14)		
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 — 132,872,351 and 131,497,645 shares, Outstanding — 105,636,944 and 113,170,782 shares at March 31, 2022 and December 31, 2021, 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 March 31, 2022 and December 31, 2021, respectively	—	—
Class C common stock (par value $0.00001), Authorized — 90,000,000 and 90,000,000 shares, Issued and Outstanding — 9,053,155 and 9,359,065 shares at March 31, 2022 and December 31, 2021, 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 60,091,740 shares at March 31, 2022 and December 31, 2021, respectively	1	1
Treasury stock, at cost, 27,235,407 and 18,326,863 shares at March 31, 2022 and December 31, 2021, respectively	(781,286)	(494,075)
Additional paid-in capital	1,246,983	1,223,119
Retained earnings (accumulated deficit)	897,387	830,538
Accumulated other comprehensive income (loss)	16,019	(10,196)

Virtu Financial, Inc. and Subsidiaries
Condensed Consolidated Statements of Financial Condition (Unaudited)

(in thousands, except share data)	March 31, 2022	December 31, 2021
Total Virtu Financial Inc. stockholders' equity	1,379,105	1,549,388
Noncontrolling interest	319,637	314,230
Total equity	1,698,742	1,863,618
Total liabilities and equity	$ 12,519,088	$ 10,319,971

See accompanying Notes to the Condensed Consolidated Financial Statements (Unaudited).

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

	Three Months Ended March 31,	
(in thousands, except share and per share data)	**2022**	**2021**
Revenues:		
Trading income, net	$ 522,307	$ 812,743
Interest and dividends income	21,011	6,997
Commissions, net and technology services	154,655	191,649
Other, net	3,289	1,183
Total revenue	701,262	1,012,572
Operating Expenses:		
Brokerage, exchange, clearance fees and payments for order flow, net	150,380	259,332
Communication and data processing	55,835	51,690
Employee compensation and payroll taxes	103,480	104,771
Interest and dividends expense	42,538	24,028
Operations and administrative	25,215	25,655
Depreciation and amortization	17,477	16,778
Amortization of purchased intangibles and acquired capitalized software	16,480	18,077
Termination of office leases	707	1,221
Debt issue cost related to debt refinancing, prepayment and commitment fees	25,684	1,755
Transaction advisory fees and expenses	422	(14)
Financing interest expense on long-term borrowings	21,333	19,492
Total operating expenses	459,551	522,785
Income before income taxes and noncontrolling interest	241,711	489,787
Provision for income taxes	41,786	80,555
Net income	199,925	409,232
Noncontrolling interest	(87,668)	(169,827)
Net income available for common stockholders	$ 112,257	$ 239,405
Earnings per share		
Basic	$ 0.99	$ 1.91
Diluted	$ 0.98	$ 1.89
Weighted average common shares outstanding		
Basic	109,329,468	122,062,555
Diluted	110,066,641	123,389,328
Net income	$ 199,925	$ 409,232
Other comprehensive income		
Foreign exchange translation adjustment, net of taxes	(5,168)	(3,676)
Net change in unrealized cash flow hedges gain, net of taxes	47,873	21,906
Comprehensive income	242,630	427,462
Less: Comprehensive income attributable to noncontrolling interest	(104,159)	(177,616)
Comprehensive income attributable to common stockholders	$ 138,471	$ 249,846

See accompanying Notes to the Condensed Consolidated Financial Statements (Unaudited).

Virtu Financial, Inc. and Subsidiaries
Condensed Consolidated Statements of Changes in Equity (Unaudited)
Three months ended March 31, 2022, and 2021

(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	Noncontrolling Interest	Total Equity
	Shares	Amounts	Shares	Amounts	Shares	Amounts	Shares	Amounts	Amounts					
Balance at December 31, 2021	131,497,645	$ 1	9,359,065	$ —	60,091,740	$ 1	(18,326,863)	$ (494,075)	$ 1,223,119	$ 830,538	$ (10,196)	$ 1,549,388	$ 314,230	$ 1,863,618
Share based compensation	1,669,030	—	—	—	—	—	—	—	27,377	—	—	27,377	—	27,377
Repurchase of Class C common stock	—	—	(234,269)	—	—	—	—	—	(8,204)	—	—	(8,204)	—	(8,204)
Treasury stock purchases	(612,844)	—	—	—	—	—	(8,908,544)	(287,211)	—	(18,354)	—	(305,565)	—	(305,565)
Stock options exercised	246,879	—	—	—	—	—	—	—	4,691	—	—	4,691	—	4,691
Net income	—	—	—	—	—	—	—	—	—	112,257	—	112,257	87,668	199,925
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	(3,172)	(3,172)	(1,996)	(5,168)
Net change in unrealized cash flow hedges gains	—	—	—	—	—	—	—	—	—	—	29,387	29,387	18,486	47,873
Dividends ($0.24 per share of Class A common stock and participating Restricted Stock Unit and Restricted Stock Awards) and distributions from Virtu Financial to noncontrolling interest	—	—	—	—	—	—	—	—	—	(27,054)	—	(27,054)	(98,751)	(125,805)
Issuance of common stock in connection with employee exchanges	71,641	—	—	—	—	—	—	—	—	—	—	—	—	—
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with employee exchanges	—	—	(71,641)	—	—	—	—	—	—	—	—	—	—	—
Balance at March 31, 2022	132,872,351	$ 1	9,053,155	$ —	60,091,740	$ 1	(27,235,407)	$ (781,286)	$ 1,246,983	$ 897,387	$ 16,019	$ 1,379,105	$ 319,637	$ 1,698,742

(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	Noncontrolling Interest	Total Equity
	Shares	Amounts	Shares	Amounts	Shares	Amounts	Shares	Amounts	Amounts					
Balance at December 31, 2020	125,627,277	$ 1	10,226,939	$ —	60,091,740	$ 1	(3,615,097)	$ (88,923)	$ 1,160,567	$ 422,381	$ (25,487)	$ 1,468,540	$ 386,498	$ 1,855,038
Share based compensation	1,896,407	—	—	—	—	—	—	—	27,450	—	—	27,450	—	27,450
Treasury stock purchases	(615,794)	—	—	—	—	—	(2,277,409)	(63,359)	—	(16,059)	—	(79,418)	—	(79,418)
Stock options exercised	154,372	—	—	—	—	—	—	—	2,933	—	—	2,933	—	2,933
Net income	—	—	—	—	—	—	—	—	—	239,405	—	239,405	169,827	409,232
Foreign exchange translation adjustment	—	—	—	—	—	—	—	—	—	—	(2,165)	(2,165)	(1,511)	(3,676)
Net change in unrealized cash flow hedges gains	—	—	—	—	—	—	—	—	—	—	12,607	12,607	9,299	21,906
Dividends ($0.24 per share of Class A common stock and participating Restricted Stock Units and Restricted Stock Awards) and distributions from Virtu Financial to noncontrolling interest	—	—	—	—	—	—	—	—	—	(30,147)	—	(30,147)	(159,239)	(189,386)
Issuance of common stock in connection with employee exchanges	91,757	—	—	—	—	—	—	—	—	—	—	—	—	—
Repurchase of Virtu Financial Units and corresponding number of Class C common stock in connection with employee exchanges	—	—	(91,757)	—	—	—	—	—	—	—	—	—	—	—
Balance at March 31, 2021	127,154,019	$ 1	10,135,182	$ —	60,091,740	$ 1	(5,892,506)	$ (152,282)	$ 1,190,950	$ 615,580	$ (15,045)	$ 1,639,205	$ 404,874	$ 2,044,079

See accompanying Notes to the Condensed Consolidated Financial Statements (Unaudited).

Virtu Financial, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows (Unaudited)

	Three Months Ended March 31,	
(in thousands)	**2022**	**2021**
Cash flows from operating activities		
Net income	$ 199,925	$ 409,232
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	17,477	16,778
Amortization of purchased intangibles and acquired capitalized software	16,480	18,077
Debt issue cost related to debt refinancing and prepayment	24,316	27
Amortization of debt issuance costs and deferred financing fees	2,644	1,855
Termination of office leases	707	1,221
Share-based compensation	13,712	12,778
Deferred taxes	12,629	10,035
Other	(1,609)	(406)
Changes in operating assets and liabilities:		
Securities borrowed	(350,902)	40,882
Securities purchased under agreements to resell	(40,699)	(13,205)
Receivables from broker-dealers and clearing organizations	(475,141)	27,659
Trading assets, at fair value	(1,713,357)	(790,310)
Receivables from customers	(183,902)	(301,041)
Operating lease right-of-use assets	5,188	16,837
Other assets	25,781	76,694
Securities loaned	126,329	243,359
Securities sold under agreements to repurchase	35,382	(51,071)
Payables to broker-dealers and clearing organizations	411,069	225,268
Payables to customers	106,566	228,358
Trading liabilities, at fair value	1,594,220	61,025
Operating lease liabilities	(8,808)	(16,450)
Accounts payable, accrued expenses and other liabilities	(73,192)	(83,712)
Net cash provided by (used in) operating activities	(255,185)	133,890
Cash flows from investing activities		
Development of capitalized software	(21,689)	(20,048)
Acquisition of property and equipment	(9,958)	(3,488)
Other investing activities	(3,383)	(2,106)
Net cash used in investing activities	(35,030)	(25,642)
Cash flows from financing activities		
Dividends to stockholders and distributions from Virtu Financial to noncontrolling interest	(125,805)	(189,386)
Repurchase of Class C common stock	(8,204)	—
Purchase of treasury stock	(305,565)	(77,093)
Stock options exercised	4,691	2,933
Short-term borrowings, net	78,945	177,920
Proceeds from long-term borrowings	1,800,000	—
Repayment of long term borrowings	(1,599,774)	(1,460)
Tax receivable agreement obligations	(21,343)	—
Debt issuance costs	(35,827)	(2,658)
Net cash provided by (used in) financing activities	(212,882)	(89,744)
Effect of exchange rate changes on cash and cash equivalents	(5,168)	(3,676)
Net increase in cash and cash equivalents	(508,265)	14,828
Cash, cash equivalents, and restricted or segregated cash, beginning of period	1,120,953	1,007,005
Cash, cash equivalents, and restricted or segregated cash, end of period	$ 612,688	$ 1,021,833
Supplementary disclosure of cash flow information		
Cash paid for interest	$ 49,277	$ 36,611

(in thousands)	Three Months Ended March 31, 2022	2021
Cash paid for taxes	13,791	25,714
Non-cash investing activities		
Share-based and accrued incentive compensation to developers relating to capitalized software	4,092	4,387

See accompanying Notes to the Condensed Consolidated Financial Statements (Unaudited).

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

1. Organization and Basis of Presentation

Organization

The accompanying condensed 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 March 31, 2022, VFI owned approximately 61.4% 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, on 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 with 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 in over 50 countries and across multiple asset classes, including global equities, Exchange-Traded Funds ("ETFs"), foreign exchange, futures, fixed income, cryptocurrencies, and 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.

The Company has completed two significant acquisitions over the past five years that have expanded and complemented Virtu Financial's original electronic trading and marking making business. On July 20, 2017, 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 (the “ITG Acquisition”). ITG's business contributes to the Company's Execution Services segment.

Virtu Financial’s principal United States ("U.S.") subsidiary is Virtu Americas LLC (“VAL”), which is a U.S. broker-dealer. 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 ("VFIL") and Virtu ITG Europe Limited ("VIEL"), each formed in Ireland; Virtu ITG UK Limited ("VIUK"), formed in the United Kingdom; 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 20 "Geographic Information and Business Segments" for a further discussion of the Company’s segments.

Basis of Consolidation and Form of Presentation

These condensed 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. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted in accordance with SEC rules and regulations. The condensed consolidated financial statements are unaudited and should be read in conjunction with the audited consolidated financial statements included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2021. The condensed consolidated financial statements of the Company include its equity interests in Virtu Financial and its 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.

2. Summary of Significant Accounting Policies

For a detailed discussion of the Company's significant accounting policies, see Note 2 "Summary of Significant Accounting Policies" in our consolidated financial statements included in Part II, Item 8 of our Annual Report on Form 10-K for the year ended December 31, 2021.

Accounting Pronouncements, Recently Adopted

Convertible Instruments - In August 2020, the FASB issued ASU 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)*. The ASU simplifies accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts in an entity's own equity and updates selected earnings per share ("EPS") guidance. The Company adopted this ASU on January 1, 2022 and it did not have a material impact on its condensed consolidated financial statements.

Accounting Pronouncements, Not Yet Adopted as of March 31, 2022

Reference Rate Reform - In March 2020, the FASB issued ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, which is designed to ease the potential burden in accounting for the transition away from LIBOR. The ASU applies to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued and replaced with alternative reference rates as a result of reference rate reform. The ASU provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met. The ASU is effective for all entities as of March 12, 2020 through December 31, 2022. In January 2021, the FASB issued ASU 2021-01, *Reference Rate Reform (Topic 848): Scope,* which expands the scope of Topic 848 to include derivative instruments that are affected by changes in the interest rates used for margining, discounting or contract price alignment as part of the market transition to new reference rates (the "discounting transition"). The Company is evaluating the impact of these ASUs, but does not expect them to have a material impact on its Condensed Consolidated Financial Statements and related disclosures.

Derivatives and Hedging - In March 2022, the FASB issued ASU 2022-01, *Derivatives and Hedging - Fair Value Hedging - Portfolio Layer Method (Topic 815)*. The ASU expands the scope of permissible hedging, and permits the use of different derivative structures as hedging instruments. The ASU also clarifies the certain terms for partial-term fair value hedges of interest rate risk. This ASU is effective for periods beginning after December 15, 2022. The Company is currently evaluating the impact of this ASU but does not expect it to have a material impact on its condensed consolidated financial statements.

Financial Instruments - Credit Losses - In March 2022, the FASB issued ASU 2022-02, *Financial Instruments - Credit Losses (Topic 326)*. The ASU eliminates the accounting guidance for trouble debt restructurings by creditors in Subtopic 310-40, and enhances the disclosure requirements for modifications of loans to borrowers experiencing financial difficulty. Additionally, the ASU requires disclosure of gross writeoffs of receivables by year of origination for receivables within the scope of Subtopic 326-20, *Financial Instruments - Credit Losses - Measured at Amortized Cost*. This ASU is effective for periods beginning after December 15, 2022. The Company is currently evaluating the impact of this ASU but does not expect it to have a material impact on its condensed consolidated financial statements.

3. Earnings per Share

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

(in thousands)	Three Months Ended March 31, 2022	2021
Income before income taxes and noncontrolling interest	$ 241,711	$ 489,787
Provision for income taxes	41,786	80,555
Net income	199,925	409,232
Noncontrolling interest	(87,668)	(169,827)
Net income available for common stockholders	$ 112,257	$ 239,405

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

(in thousands, except for share or per share data)	Three Months Ended March 31, 2022	2021
Basic earnings per share:		
Net income available for common stockholders	$ 112,257	$ 239,405
Less: Dividends and undistributed earnings allocated to participating securities	(3,859)	(6,312)
Net income available for common stockholders, net of dividends and undistributed earnings allocated to participating securities	108,398	233,093
Weighted average shares of common stock outstanding:		
Class A	109,329,468	122,062,555
Basic earnings per share	$ 0.99	$ 1.91

(in thousands, except for share or per share data)	Three Months Ended March 31, 2022	2021
Diluted earnings per share:		
Net income available for common stockholders, net of dividends and undistributed earnings allocated to participating securities	$ 108,398	$ 233,093
Weighted average shares of common stock outstanding:		
Class A		
Issued and outstanding	109,329,468	122,062,555
Issuable pursuant to Amended and Restated 2015 Management Incentive Plan, Amended and Restated Investment Technology Group, Inc. 2007 Omnibus Equity Compensation Plan, and Warrants issued in connection with the Founder Member Loan	737,173	1,326,772
	110,066,641	123,389,327
Diluted earnings per share	$ 0.98	$ 1.89

4. Tax Receivable Agreements

For a detailed discussion of the Company's tax receivable agreements, see Note 6 "Tax Receivable Agreements" in our consolidated financial statements included in Part II, Item 8 of our Annual Report on Form 10-K for the year ended December 31, 2021.

For the purposes of 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 Condensed Consolidated Statements of Comprehensive Income.

The Company made its first payment of $7.0 million in February 2017, its second payment of $12.4 million in September 2018, its third payment of $13.3 million in March 2020, its fourth payment of $16.5 million in April 2021, and its fifth payment of $21.3 million in March 2022. Tax receivable payments are expected to range from approximately $0.4 million to $22.0 million per year over the next 15 years.

At March 31, 2022 and December 31, 2021, the Company’s remaining deferred tax assets that relate to the matters described above were approximately $175.4 million and $180.4 million, respectively, and the Company’s liabilities over the next 15 years pursuant to the tax receivable agreements were approximately $237.9 million and $259.3 million, respectively. The amounts recorded as of March 31, 2022 and December 31, 2021 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.

5. Goodwill and Intangible Assets

The Company has two operating segments: (i) Market Making; and (ii) Execution Services; and one non-operating segment: Corporate. As of March 31, 2022 and December 31, 2021, the Company’s total amount of goodwill recorded was $1,148.9 million. No goodwill impairment was recognized during the three months ended March 31, 2022 and 2021.

The following table presents the details of goodwill by segment as of March 31, 2022 and December 31, 2021:

(in thousands)	Market Making	Execution Services	Corporate	Total
Balance as of period-end	$ 755,292	$ 393,634	$ —	$ 1,148,926

As of March 31, 2022 and December 31, 2021, the Company's total amount of intangible assets recorded was $369.9 million and $386.3 million, respectively. Acquired intangible assets consisted of the following as of March 31, 2022 and December 31, 2021:

	As of March 31, 2022			
(in thousands)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Useful Lives (Years)
Customer relationships	$ 486,600	$ (154,104)	$ 332,496	10 to 12
Technology	136,000	(106,209)	29,791	1 to 6
Favorable occupancy leases	5,895	(3,829)	2,066	3 to 15
Exchange memberships	3,998	—	3,998	Indefinite
Trade name	3,600	(3,600)	—	3
ETF issuer relationships	950	(950)	—	9
ETF buyer relationships	950	(950)	—	9
Other	$ 1,500	$ —	$ 1,500	Indefinite
	$ 639,493	$ (269,642)	$ 369,851	

(in thousands)	As of December 31, 2021 Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Useful Lives (Years)		
Customer relationships	$ 486,600	$ (142,142)	$ 344,458	10	to	12
Technology	136,000	(102,088)	33,912	1	to	6
Favorable occupancy leases	5,895	(3,631)	2,264	3	to	15
Exchange memberships	3,998	—	3,998		Indefinite	
Trade name	3,600	(3,400)	200		3	
ETF issuer relationships	950	(950)	—		9	
ETF buyer relationships	950	(950)	—		9	
Other	$ 1,500	$ —	$ 1,500		Indefinite	
	$ 639,493	$ (253,161)	$ 386,332			

Amortization expense relating to finite-lived intangible assets was approximately $16.5 million and $18.1 million for the three months ended March 31, 2022 and 2021, respectively. This is included in Amortization of purchased intangibles and acquired capitalized software in the accompanying Condensed Consolidated Statements of Comprehensive Income.

The Company expects to record amortization expense as follows over the next five subsequent years:

(in thousands)	
Remainder of 2022	$ 48,371
2023	63,960
2024	50,845
2025	47,879
2026	47,879
2027	47,879

6. 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 March 31, 2022 and December 31, 2021:

(in thousands)	March 31, 2022	December 31, 2021
Assets		
Due from prime brokers	$ 550,259	$ 287,990
Deposits with clearing organizations	190,696	161,928
Net equity with futures commission merchants	125,496	98,302
Unsettled trades with clearing organizations	181,109	164,195
Securities failed to deliver	427,761	290,207
Commissions and fees	26,626	24,184
Total receivables from broker-dealers and clearing organizations	$ 1,501,948	$ 1,026,807
Liabilities		
Due to prime brokers	$ 728,879	$ 497,972
Net equity with futures commission merchants (1)	(50,048)	(57,226)
Unsettled trades with clearing organizations	41	828
Securities failed to receive	254,455	128,392
Commissions and fees	1,395	1,560
Total payables to broker-dealers and clearing organizations	$ 934,722	$ 571,526

(1) 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.

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 prime brokerage credit facilities (described in Note 8 "Borrowings") of approximately $314.3 million and $177.1 million as of March 31, 2022 and December 31, 2021, 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.

7. 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 March 31, 2022 and December 31, 2021, substantially all of the securities received as collateral have been repledged.

The fair value of the collateralized transactions at March 31, 2022 and December 31, 2021 are summarized as follows:

(in thousands)	March 31, 2022	December 31, 2021
Securities received as collateral:		
Securities borrowed	$ 1,630,036	$ 1,299,270
Securities purchased under agreements to resell	160,152	119,453
	$ 1,790,188	$ 1,418,723

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 March 31, 2022 and December 31, 2021 consisted of the following:

(in thousands)	March 31, 2022	December 31, 2021
Equities	$ 1,126,959	$ 1,012,569
Exchange traded notes	10,175	5,391
	$ 1,137,134	$ 1,017,960

8. Borrowings

Short-term Borrowings, net

The following summarizes the Company's short-term borrowing balances outstanding, net of related debt issuance costs, with each described in further detail below.

	March 31, 2022		
(in thousands)	Borrowing Outstanding	Deferred Debt Issuance Cost	Short-term Borrowings, net
Broker-dealer credit facilities	$ 142,000	$ (1,218)	$ 140,782
Short-term bank loans	—	—	—
	$ 142,000	$ (1,218)	$ 140,782

	December 31, 2021		
(in thousands)	Borrowing Outstanding	Deferred Debt Issuance Cost	Short-term Borrowings, net
Broker-dealer credit facilities	$ 58,000	$ (1,546)	$ 56,454
Short-term bank loans	5,056	—	5,056
	$ 63,056	$ (1,546)	$ 61,510

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 $400 million, and is collateralized by VAL's trading and deposit account maintained at the financial institution. The second credit facility (the “Committed Facility”) with the same financial institution has a borrowing limit of $600 million. 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. Borrowing Base A Loans are available up to $600 million and bear interest at the adjusted LIBOR or base rate plus 1.25% per annum. Borrowing Base B Loans are subject to a sublimit of $200 million and bear 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.

On March 20, 2020, VAL entered into a Loan Agreement (the “Founder Member Loan Facility”) with TJMT Holdings LLC (the “Founder Member”), as lender and administrative agent, providing for unsecured term loans from time to time (the “Founder Member Loans”) in an aggregate original principal amount not to exceed $300 million. The Founder Member Loans were available to be borrowed in one or more borrowings on or after March 20, 2020 and prior to September 20, 2020 (the "Founder Member Loan Term"). The Founder Member Loan Facility Term expired as of September 20, 2020 without VAL having borrowed any Founder Member Loans at any time. The Founder Member is an affiliate of Mr. Vincent Viola, the Company’s founder and Chairman Emeritus. Upon the execution of and in consideration for the Lender’s (as defined in the Founder Member Loan Facility) commitments under the Founder Member Loan Facility, the Company delivered to the Founder Member a warrant to purchase shares of the Company’s Class A Common Stock. Terms of the warrant are set forth in further detail in Note 17 "Capital Structure".

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 Condensed Consolidated Statements of Financial Condition.

	At March 31, 2022				
(in thousands)	Interest Rate	Financing Available	Borrowing Outstanding	Deferred Debt Issuance Cost	Outstanding Borrowings, net
Broker-dealer credit facilities:					
Uncommitted facility	1.50%	$ 400,000	$ 142,000	$ (1,218)	$ 140,782
Committed facility	3.78%	600,000	—	—	—
		$ 1,000,000	$ 142,000	$ (1,218)	$ 140,782

	At December 31, 2021				
(in thousands)	Interest Rate	Financing Available	Borrowing Outstanding	Deferred Debt Issuance Cost	Outstanding Borrowings, net
Broker-dealer credit facilities:					
Uncommitted facility	1.25%	$ 400,000	$ 58,000	$ (1,546)	$ 56,454
Committed facility	3.78%	600,000	—	—	—
		$ 1,000,000	$ 58,000	$ (1,546)	$ 56,454

The following summarizes interest expense for the broker-dealer facilities. Interest expense is included within Interest and dividends expense in the accompanying Condensed Consolidated Statements of Comprehensive Income.

	Three Months Ended March 31,	
(in thousands)	2022	2021
Broker-dealer credit facilities:		
Uncommitted facility	$ 504	$ 625
Committed facility	15	57
	$ 519	$ 682

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 March 31, 2022, there was no balance associated with international settlement activities outstanding under these facilities. At December 31, 2021, there was $5.1 million associated with international settlement activities outstanding under these facilities at a weighted average interest rate of approximately 4.2%. These short-term bank loan balances are included within Short-term borrowings on the Condensed Consolidated Statements of Financial Condition.

Prime Brokerage 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 March 31, 2022		
(in thousands)	**Weighted Average Interest Rate**	**Financing Available**	**Borrowing Outstanding**
Prime Brokerage Credit Facilities:			
Prime brokerage credit facilities (1)	3.40%	$ 616,000	$ 314,339
		$ 616,000	$ 314,339

	At December 31, 2021		
(in thousands)	**Weighted Average Interest Rate**	**Financing Available**	**Borrowing Outstanding**
Prime Brokerage Credit Facilities:			
Prime brokerage credit facilities (1)	2.91%	$ 616,000	$ 177,080
		$ 616,000	$ 177,080

(1) Outstanding borrowings are included with Receivables from/Payables to broker-dealers and clearing organizations within the Condensed Consolidated Statements of Financial Condition.

Interest expense in relation to the facilities was $1.6 million and $1.0 million for the three months ended March 31, 2022 and 2021, respectively.

Long-Term Borrowings

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

		At March 31, 2022				
(in thousands)	**Maturity Date**	**Interest Rate**	**Outstanding Principal**	**Discount**	**Deferred Debt Issuance Cost**	**Outstanding Borrowings, net**
Long-term borrowings:						
First Lien Term Loan Facility	January 2029	3.50%	$ 1,800,000	$ (4,364)	$ (30,179)	$ 1,765,457
SBI bonds	January 2023	5.00%	28,759	—	(16)	28,743
			$ 1,828,759	$ (4,364)	$ (30,195)	$ 1,794,200

		At December 31, 2021				
(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	3.10%	$ 1,599,774	$ (3,723)	$ (21,620)	$ 1,574,431
SBI bonds	January 2023	5.00%	30,722	—	(21)	30,701
			$ 1,630,496	$ (3,723)	$ (21,641)	$ 1,605,132

Credit Agreements

In connection with the ITG Acquisition, Virtu Financial, VFH, and Impala Borrower LLC (the "Acquisition Borrower") entered into a 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 "Acquisition Credit Agreement").

The Acquisition Credit Agreement provided (i) a senior secured first lien term loan (together with the Acquisition Incremental Term Loans, as defined below; the “Acquisition First Lien Term Loan Facility”) in an aggregate principal amount of $1,500 million, drawn in its entirety on the ITG Closing Date, of which amount approximately $404.5 million was borrowed by VFH to repay all amounts outstanding under a previous term loan facility and the remaining approximately $1,095 million was borrowed by Impala Borrower LLC (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 ITG Closing Date, VFH assumed the obligations of the Acquisition Borrower in respect of the acquisition term loans. On October 9, 2019, VFH entered into an amendment, which amended the Acquisition Credit Agreement dated as of March 1, 2019 to, among other things, provide for $525.0 million in aggregate principal amount of incremental term loans (the “Acquisition Incremental Term Loans”), and amend the related collateral agreement. On March 2, 2020, VFH entered into a second amendment, which further amended the Acquisition Credit Agreement to, among other things, reduce the interest rate spread over adjusted LIBOR or the alternate base rate by 0.50% per annum and eliminated any step-down in the spread based on VFH's first lien leverage ratio. There were no outstanding borrowings under the Acquisition Credit Agreement as of March 31, 2022.

On January 13, 2022 (the “Credit Agreement Closing Date”), Virtu Financial, VFH Parent LLC, a Delaware limited liability company and a subsidiary of Virtu Financial (“VFH”), entered into the Credit Agreement, with the lenders party thereto, JPMorgan Chase Bank, N.A. as administrative agent and JPMorgan Chase bank, N.A., Goldman Sachs Bank USA, RBC Capital Markets, Barclays Bank plc, Jefferies Finance LLC, BMO Capital Markets Corp., and CIBC World Markets Corp., as joint lead arrangers and bookrunners (the “Credit Agreement”). The Credit Agreement provides (i) a senior secured first lien term loan in an aggregate principal amount of $1,800.0 million, drawn in its entirety on the Credit Agreement Closing Date, the proceeds of which were used by VFH to repay all amounts outstanding under the Acquisition Credit Agreement (as defined below), to pay fees and expenses in connection therewith, to fund share repurchases under the Company’s repurchase program and for general corporate purposes, and (ii) a $250.0 million senior secured first lien revolving facility to VFH, with a $20.0 million letter of credit subfacility and a $20.0 million swingline subfacility.

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 0.50%, (c) an adjusted term SOFR rate with an interest period of one month plus 1.00% and (d)(1) in the case of term loan borrowings, 1.50% and (2) in the case of revolver borrowings, 1.00%, plus, (x) in the case of term loan borrowings, 2.00% and (y) in the case of revolver borrowings, 1.50%, or (ii) the greater of (a) an adjusted term SOFR rate for the interest period in effect and (b) (1) in the case of term loan borrowings, 0.50% and (2) in the case of revolver borrowings, 0.00%, plus, (x) in the case of term loan borrowings, 3.00% and (y) in the case of revolver borrowings, 2.50%. In addition, a commitment fee accrues at a rate of 0.50% per annum on the average daily unused amount of the revolving facility, with step-downs to 0.375% and 0.25% per annum based on VFH’s first lien leverage ratio, and is payable quarterly in arrears.

The 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.

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.

Under the Credit Agreement, the term loans will mature on January 13, 2029. 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 January 13, 2025. As of March 31, 2022, $1,800 million was outstanding under the term loans.

In October 2019, the Company entered into a five-year $525 million floating-to-fixed interest rate swap agreement. In January 2020, the Company also entered into a five-year $1,000 million floating-to-fixed interest rate swap agreement. These two interest rate swaps met the criteria to be considered and were designated qualifying cash flow hedges under ASC 815 in the first quarter of 2020, and they effectively fixed interest payment obligations on $525.0 million and $1,000 million of principal under the Acquisition First Lien Term Loan Facility at rates of 4.3% and 4.4% through September 2024 and January 2025, respectively, based on the interest rates set forth in the Acquisition Credit Agreement. In April 2021, each of the swap agreements described above was novated to another counterparty and amended in connection with such novation. The amendments included certain changes to collateral posting obligations, and also had the effect of increasing the effective fixed interest payment obligations to rates of 4.5%, with respect to the earlier maturing swap arrangement, and 4.6% with respect to the later maturing swap arrangement. In January 2022, in order to align the swap agreements with the Credit Agreement, the Company amended each of the swap agreements to align the floating rate term of such swap agreements to SOFR. The effective fixed interest payment obligations remained at 4.5%, with respect to the earlier maturing swap arrangement, and 4.6% with respect to the later maturing swap arrangement.

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 Japannext Co., Ltd. (as described in Note 9 "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 Condensed 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 ($28.8 million) as of March 31, 2022 and ¥3.5 billion ($30.7 million) as of December 31, 2021. The Company had a gain of $2.0 million, and a gain of $2.3 million, during the three months ended March 31, 2022 and 2021, respectively, due to changes in foreign currency rates.

As of March 31, 2022, aggregate future required minimum principal payments based on the terms of the long-term borrowings were as follows:

(in thousands)	**March 31, 2022**
2022	—
2023	28,759
2024	—
2025	—
2026	—
Thereafter	1,800,000
Total principal of long-term borrowings	$ 1,828,759

9. 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.

Fair value measurements for those items measured on a recurring basis are summarized below as of March 31, 2022:

	March 31, 2022				
(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	$ 842,802	$ 2,879,989	$ —	$ —	$ 3,722,791
U.S. and Non-U.S. government obligations	432,338	21,688	—	—	454,026
Corporate Bonds	—	613,885	—	—	613,885
Exchange traded notes	17	4,688	—	—	4,705
Currency forwards	—	382,092	—	(363,676)	18,416
Options	19,355	—	—	—	19,355
	$ 1,294,512	$ 3,902,342	$ —	$ (363,676)	$ 4,833,178
Financial instruments owned, pledged as collateral:					
Equity securities	$ 721,493	$ 405,466	$ —	$ —	$ 1,126,959
Exchange traded notes	—	10,175	—	—	10,175
	$ 721,493	$ 415,641	$ —	$ —	$ 1,137,134
Other Assets					
Equity investment	$ —	$ —	$ 84,482	$ —	$ 84,482
Exchange stock	3,002	—	—	—	3,002
	$ 3,002	$ —	$ 84,482	$ —	$ 87,484
Receivables from broker dealers and clearing organizations:					
Interest rate swap	$ —	$ 34,927	$ —	$ —	$ 34,927
Liabilities					
Financial instruments sold, not yet purchased, at fair value:					
Equity securities	$ 1,682,042	$ 1,636,883	$ —	$ —	$ 3,318,925
U.S. and Non-U.S. government obligations	574,472	22,764	—	—	597,236
Corporate Bonds	—	1,160,940	—	—	1,160,940
Exchange traded notes	63	6,947	—	—	7,010
Currency forwards	—	344,241	—	(344,241)	—
Options	20,888	—	—	—	20,888
	$ 2,277,465	$ 3,171,775	$ —	$ (344,241)	$ 5,104,999

Fair value measurements for those items measured on a recurring basis are summarized below as of December 31, 2021:

(in thousands)	December 31, 2021 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	$ 572,567	$ 1,700,470	$ —	$ —	$ 2,273,037
U.S. and Non-U.S. government obligations	337,350	18,519	—	—	355,869
Corporate Bonds	—	598,944	—	—	598,944
Exchange traded notes	10	2,459	—	—	2,469
Currency forwards	—	206,258	—	(206,125)	133
Options	8,543	—	—	—	8,543
	$ 918,470	$ 2,526,650	$ —	$ (206,125)	$ 3,238,995
Financial instruments owned, pledged as collateral:					
Equity securities	$ 670,277	$ 342,292	$ —	$ —	$ 1,012,569
Exchange traded notes	—	5,391	—	—	5,391
	$ 670,277	$ 347,683	$ —	$ —	$ 1,017,960
Other Assets					
Equity investment	$ —	$ —	$ 81,358	$ —	$ 81,358
Exchange stock	3,020	—	—	—	3,020
	$ 3,020	$ —	$ 81,358	$ —	$ 84,378
Liabilities					
Financial instruments sold, not yet purchased, at fair value:					
Equity securities	$ 1,482,386	$ 807,631	$ —	$ —	$ 2,290,017
U.S. and Non-U.S. government obligations	330,765	9,955	—	—	340,720
Corporate Bonds	—	851,871	—	—	851,871
Exchange traded notes	—	22,962	—	—	22,962
Currency forwards	—	208,357	—	(208,356)	1
Options	5,208	—	—	—	5,208
	$ 1,818,359	$ 1,900,776	$ —	$ (208,356)	$ 3,510,779
Payables to broker dealers and clearing organizations:					
Interest rate swap	$ —	$ 21,037	$ —	$ —	$ 21,037

JNX Investment

The Company has a minority investment (the “JNX Investment”) in Japannext Co., Ltd. (“JNX”), formerly known as SBI Japannext Co., Ltd., a proprietary trading system based in Tokyo. In connection with the JNX Investment, the Company issued the SBI Bonds (as described in Note 8 "Borrowings") and used the proceeds to partially finance the transaction. The JNX Investment is included within Level 3 of the fair value hierarchy. As of March 31, 2021 and 2022, the fair value of the JNX Investment was determined using a weighted average of valuations using 1) the discounted cash flow method, an income approach; 2) a market approach based on average enterprise value/EBITDA ratios of comparable companies; and to a lesser extent 3) a transaction approach based on transaction values of comparable companies. 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 enterprise value/EBITDA multiples would result in a significantly lower (higher) fair value measurement.

The table below presents information on the valuation techniques, significant unobservable inputs and their ranges for the JNX Investment:

	March 31, 2022				
(in thousands)	Fair Value	Valuation Technique	Significant Unobservable Input	Range	Weighted Average
Equity investment	$ 84,482	Discounted cash flow	Estimated revenue growth	2.5% - 36.6%	11.5 %
			Discount rate	14.4% - 14.4%	14.4 %
		Market	Future enterprise value/ EBIDTA ratio	7.7x - 22.0x	15.8x

	December 31, 2021				
(in thousands)	Fair Value	Valuation Technique	Significant Unobservable Input	Range	Weighted Average
Equity investment	$ 81,358	Discounted cash flow	Estimated revenue growth	2.5% - 32.6%	10.6 %
			Discount rate	14.4% - 14.4%	14.4 %
		Market	Future enterprise value/ EBIDTA ratio	8.7x - 21.1x	14.0x

Changes in the fair value of the JNX Investment are included within Other, net in the Condensed Consolidated Statements of Comprehensive Income.

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

	Three Months Ended March 31, 2022						
(in thousands)	Balance at December 31, 2021	Purchases	Total Realized and Unrealized Gains / (Losses) (1)	Net Transfers into (out of) Level 3	Settlement	Balance at March 31, 2022	Change in Net Unrealized Gains / (Losses) on Investments still held at March 31, 2022
Assets							
Other assets:							
Equity investment	$ 81,358	$ —	$ 3,124	$ —	$ —	$ 84,482	$ 3,124
Total	$ 81,358	$ —	$ 3,124	$ —	$ —	$ 84,482	$ 3,124

(1) Total realized and unrealized gains/(losses) includes gains and losses realized on the SBI Bonds (see Note 8 "Borrowings" for more details) due to fluctuations in currency rates as well as gains and losses recognized on changes in the fair value of the JNX Investment.

	Three Months Ended March 31, 2021						
(in thousands)	Balance at December 31, 2020	Purchases	Total Realized and Unrealized Gains / (Losses) (1)	Net Transfers into (out of) Level 3	Settlement	Balance at March 31, 2021	Change in Net Unrealized Gains / (Losses) on Investments still held at March 31, 2021
Assets							
Other assets:							
Equity investment	$ 66,030	$ —	$ 162	$ —	$ —	$ 66,192	$ 162
Total	$ 66,030	$ —	$ 162	$ —	$ —	$ 66,192	$ 162

(1) Total realized and unrealized gains/(losses) includes gains and losses realized on the SBI Bonds (see Note 8 "Borrowings" for more details) due to fluctuations in currency rates as well as gains and losses recognized on changes in the fair value of the JNX Investment.

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 Condensed Consolidated Statements 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 March 31, 2022:

	March 31, 2022				
(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	$ 564,900	$ 564,900	$ 564,900	$ —	$ —
Cash restricted or segregated under regulations and other	47,788	47,788	47,788	—	—
Securities borrowed	1,700,224	1,700,224	—	1,700,224	—
Securities purchased under agreements to resell	160,152	160,152	—	160,152	—
Receivables from broker-dealers and clearing organizations (2)	1,501,948	1,501,948	(14,374)	1,516,322	—
Receivables from customers	330,378	330,378	—	330,378	—
Other assets (1)	23,025	23,025	—	23,025	—
Total Assets	$ 4,328,415	$ 4,328,415	$ 598,314	$ 3,730,101	$ —
Liabilities					
Short-term borrowings	$ 140,782	$ 142,000	$ —	$ 142,000	$ —
Long-term borrowings	1,794,200	1,800,643	—	1,800,643	—
Securities loaned	1,268,377	1,268,377	—	1,268,377	—
Securities sold under agreements to repurchase	549,707	549,707	—	549,707	—
Payables to broker-dealers and clearing organizations	934,722	934,722	(902)	935,624	—
Payables to customers	161,565	161,565	—	161,565	—
Other liabilities (3)	14,717	14,717	—	14,717	—
Total Liabilities	$ 4,864,070	$ 4,871,731	$ (902)	$ 4,872,633	$ —

(1) Includes cash collateral and deposits, and interest and dividends receivables.
(2) Receivables from broker-dealers and clearing organizations include interest rate swaps carried at fair value.
(3) Includes deposits, interest and dividends payable.

The table below summarizes financial assets and liabilities not carried at fair value on a recurring basis as of December 31, 2021:

	December 31, 2021				
(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	$ 1,071,463	$ 1,071,463	$ 1,071,463	$ —	$ —
Cash restricted or segregated under regulations and other	49,490	49,490	49,490	—	—
Securities borrowed	1,349,322	1,349,322	—	1,349,322	—
Securities purchased under agreements to resell	119,453	119,453	—	119,453	—
Receivables from broker-dealers and clearing organizations	1,026,807	1,026,807	(24,037)	1,050,844	—
Receivables from customers	146,476	146,476	—	146,476	—
Other assets (1)	20,266	20,266	—	20,266	—
Total Assets	$ 3,783,277	$ 3,783,277	$ 1,096,916	$ 2,686,361	$ —
Liabilities					
Short-term borrowings	61,510	63,046	—	63,046	—
Long-term borrowings	1,605,132	1,628,497	—	1,628,497	—
Securities loaned	1,142,048	1,142,048	—	1,142,048	—
Securities sold under agreements to repurchase	514,325	514,325	—	514,325	—
Payables to broker dealer and clearing organizations (2)	571,526	571,526	235	571,291	—
Payables to customers	54,999	54,999	—	54,999	—
Other liabilities (3)	9,414	9,414	—	9,414	—
Total Liabilities	$ 3,958,954	$ 3,983,855	$ 235	$ 3,983,620	$ —

(1) Includes cash collateral and deposits, and interest and dividends receivables.
(2) Payables to broker-dealers and clearing organizations include interest rate swaps carried at fair value.
(3) Includes deposits, interest and dividends payable.

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 Condensed Consolidated Statements of Financial Condition. In the tables below, the amounts of financial instruments owned that are not offset in the Condensed 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 March 31, 2022 and December 31, 2021:

	March 31, 2022					
				Amounts Not Offset in the Condensed Consolidated Statements of Financial Condition		
(in thousands)	Gross Amounts of Recognized Assets	Amounts Offset in the Condensed Consolidated Statement of Financial Condition	Net Amounts of Assets Presented in the Condensed Consolidated Statements of Financial Condition	Financial Instrument Collateral	Counterparty Netting/ Cash Collateral	Net Amount
Offsetting of Financial Assets:						
Securities borrowed	$ 1,700,224	$ —	$ 1,700,224	$ (1,630,036)	$ (20,619)	$ 49,569
Securities purchased under agreements to resell	160,152	—	160,152	(160,152)	—	—
Trading assets, at fair value:						
Currency forwards	382,092	(363,676)	18,416	—	—	18,416
Options	19,355	—	19,355	—	(19,355)	—
Total	$ 2,261,823	$ (363,676)	$ 1,898,147	$ (1,790,188)	$ (39,974)	$ 67,985

				Amounts Not Offset in the Condensed Consolidated Statements of Financial Condition		
(in thousands)	Gross Amounts of Recognized Liabilities	Amounts Offset in the Condensed Consolidated Statement of Financial Condition	Net Amounts of Liabilities Presented in the Consolidated Statement of Financial Condition	Financial Instruments	Counterparty Netting/ Cash Collateral	Net Amount
Offsetting of Financial Liabilities:						
Securities loaned	$ 1,268,377	$ —	$ 1,268,377	$ (1,228,770)	$ (20,619)	$ 18,988
Securities sold under agreements to repurchase	549,707	—	549,707	(549,707)	—	—
Payable to broker-dealers and clearing organizations						
Interest rate swaps	—	—	—	—	—	—
Trading liabilities, at fair value:						
Currency forwards	344,241	(344,241)	—	—	—	—
Options	20,888	—	20,888	—	(19,355)	1,533
Total	$ 2,183,213	$ (344,241)	$ 1,838,972	$ (1,778,477)	$ (39,974)	$ 20,521

	December 31, 2021					
				Amounts Not Offset in the Condensed Consolidated Statements of Financial Condition		
(in thousands)	Gross Amounts of Recognized Assets	Amounts Offset in the Condensed Consolidated Statement of Financial Condition	Net Amounts of Assets Presented in the Condensed Consolidated Statements of Financial Condition	Financial Instrument Collateral	Counterparty Netting/ Cash Collateral	Net Amount
Offsetting of Financial Assets:						
Securities borrowed	$ 1,349,322	$ —	$ 1,349,322	$ (1,299,270)	$ (5,054)	$ 44,998
Securities purchased under agreements to resell	119,453	—	119,453	(119,453)	—	—
Trading assets, at fair value:						
Currency forwards	206,258	(206,125)	133	—	—	133
Options	8,543	—	8,543	—	(5,208)	3,335
Total	$ 1,683,576	$ (206,125)	$ 1,477,451	$ (1,418,723)	$ (10,262)	$ 48,466

(in thousands)	Gross Amounts of Recognized Assets	Amounts Offset in the Condensed Consolidated Statement of Financial Condition	Net Amounts of Assets Presented in the Condensed Consolidated Statements of Financial Condition	Amounts Not Offset in the Condensed Consolidated Statements of Financial Condition: Financial Instrument Collateral	Amounts Not Offset in the Condensed Consolidated Statements of Financial Condition: Counterparty Netting/ Cash Collateral	Net Amount
Offsetting of Financial Liabilities:						
Securities loaned	$ 1,142,048	$ —	$ 1,142,048	$ (1,107,688)	$ (17,272)	$ 17,088
Securities sold under agreements to repurchase	514,325	—	514,325	(514,325)	—	—
Interest rate swaps	21,037	—	21,037	—	—	21,037
Trading liabilities, at fair value:						
Currency forwards	208,357	(208,356)	1	—	—	1
Options	5,208	—	5,208	—	(5,208)	—
Total	$ 1,890,975	$ (208,356)	$ 1,682,619	$ (1,622,013)	$ (22,480)	$ 38,126

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:

	March 31, 2022					
	Remaining Contractual Maturity					
(in thousands)	Overnight and Continuous	Less than 30 days	30 - 60 days	61 - 90 Days	Greater than 90 days	Total
Securities sold under agreements to repurchase:						
Equity securities	$ —	$ 140,000	$ 50,000	$ 160,000	$ 50,000	$ 400,000
U.S. and Non-U.S. government obligations	149,707	—	—	—		149,707
Total	$ 149,707	$ 140,000	$ 50,000	$ 160,000	$ 50,000	$ 549,707
Securities loaned:						
Equity securities	$ 1,268,377	$ —	$ —	$ —	$ —	$ 1,268,377
Total	$ 1,268,377	$ —	$ —	$ —	$ —	$ 1,268,377

	December 31, 2021					
	Remaining Contractual Maturity					
(in thousands)	Overnight and Continuous	Less than 30 days	30 - 60 days	61 - 90 Days	Greater than 90 days	Total
Securities sold under agreements to repurchase:						
Equity securities	$ —	$ 140,000	$ 50,000	$ 210,000	$ —	$ 400,000
U.S. and Non-U.S. government obligations	114,325	—	—	—	—	114,325
Total	$ 114,325	$ 140,000	$ 50,000	$ 210,000	$ —	$ 514,325
Securities loaned:						
Equity securities	1,142,048	—	—	—	—	1,142,048
Total	$ 1,142,048	$ —	$ —	$ —	$ —	$ 1,142,048

10. Derivative Instruments

The fair value of the Company's derivative instruments on a gross basis consisted of the following at March 31, 2022 and December 31, 2021:

(in thousands)		March 31, 2022		December 31, 2021	
Derivatives Assets	**Financial Statement Location**	**Fair Value**	**Notional**	**Fair Value**	**Notional**
Derivative instruments not designated as hedging instruments:					
Equities futures	Receivables from broker-dealers and clearing organizations	$ (2,672)	$ 633,156	$ 1,619	$ 406,420
Commodity futures	Receivables from broker-dealers and clearing organizations	(12,811)	8,324,178	(24,405)	5,285,216
Currency futures	Receivables from broker-dealers and clearing organizations	1,975	5,225,802	(8,205)	4,760,173
Fixed income futures	Receivables from broker-dealers and clearing organizations	—	242	147	8,489
Options	Financial instruments owned	19,355	2,426,511	8,543	1,063,686
Currency forwards	Financial instruments owned	382,092	29,334,379	206,258	21,445,374
Derivative instruments designated as hedging instruments:					
Interest rate swap	Receivables from broker-dealers and clearing organizations	34,927	1,525,000	—	—

Derivatives Liabilities	**Financial Statement Location**	**Fair Value**	**Notional**	**Fair Value**	**Notional**
Derivative instruments not designated as hedging instruments:					
Equities futures	Payables to broker-dealers and clearing organizations	$ (958)	$ 2,674,190	$ 791	$ 1,362,684
Commodity futures	Payables to broker-dealers and clearing organizations	(10)	127,855	(49)	27,224
Currency futures	Payables to broker-dealers and clearing organizations	243	362,623	1,671	725,162
Fixed income futures	Payables to broker-dealers and clearing organizations	—	109,718	(161)	120,212
Options	Financial instruments sold, not yet purchased	20,888	2,434,080	5,208	1,066,801
Currency forwards	Financial instruments sold, not yet purchased	344,241	29,315,454	208,357	21,446,422
Derivative instruments designated as hedging instruments:					
Interest rate swaps	Payables to broker-dealers and clearing organizations	—	—	21,037	1,525,000

Amounts included in receivables from and payables to broker-dealers and clearing organizations represent net variation margin on long and short futures contracts as well as amounts receivable or payable on interest rate swaps.

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 initially recorded in other comprehensive income in the accompanying Condensed Consolidated Statements of Comprehensive Income for the three months ended March 31, 2022, and 2021.

(in thousands)	Financial Statements Location	Three Months Ended March 31, 2022	2021
Derivative instruments not designated as hedging instruments:			
Futures	Trading income, net	$ 77,346	$ 47,222
Currency forwards	Trading income, net	8,910	109,389
Options	Trading income, net	(1,095)	48,736
Interest rate swap on term loan	Other, net	(463)	(472)
		$ 84,698	$ 204,875
Derivative instruments designated as hedging instruments:			
Interest rate swaps (1)	Other comprehensive income	$ 56,145	$ 25,826
		$ 56,145	$ 25,826

(1) The Company entered into a five-year $1,000 million floating-to-fixed interest rate swap agreement in the first quarter of 2020 and a five-year $525 million floating-to-fixed interest rate swap agreement in the fourth quarter of 2019. These two interest rate swaps met the criteria to be considered qualifying cash flow hedges under ASC 815 in the first quarter of 2020, and as such, the mark-to-market gains (losses) on the instruments were deferred within Other comprehensive income on the Condensed Consolidated Statements of Comprehensive Income beginning in the first quarter of 2020.

11. 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.

The Company has interests in two joint ventures (“JV”) that 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. As of March 31, 2022, the Company held noncontrolling interests of 10.0% and 50.0%, respectively, in these JVs.

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 March 31, 2022, the Company held approximately a 9.8% noncontrolling interest in this JV.

The Company has an interest in a JV that operates 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 U.S. As of March 31, 2022, the Company held approximately a 15.0% noncontrolling interest in this JV.

The Company's four JVs meet the criteria to be considered VIEs, which it does not consolidate. 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 applicable JVs within Accounts payable, accrued expenses and other liabilities on the 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 Condensed 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 March 31, 2022:

(in thousands)	Carrying Amount Asset		Carrying Amount Liability		Maximum Exposure to Loss		VIEs' assets	
Equity investment	$	36,080	$	—	$	36,080	$	175,168

The following table presents the Company's nonconsolidated VIEs at December 31, 2021:

(in thousands)	Carrying Amount Asset		Carrying Amount Liability		Maximum Exposure to Loss		VIEs' assets	
Equity investment	$	38,319	$	—	$	38,319	$	136,378

12. Revenues from Contracts with Customers

For more information on revenue recognition and the nature of services provided, see Note 2 "Summary of Significant Accounting Policies" and Note 14 "Revenues from Contracts with Customers" to the Consolidated Financial Statements of the Company's 2021 Annual Report on Form 10-K.

Disaggregation of Revenues

The following tables present the Company's revenue from contracts with customers disaggregated by service, by timing of revenue recognition, reconciled to the Company's segments, for the three months ended March 31, 2022, and 2021:

	Three Months Ended March 31, 2022							
(in thousands)	Market Making		Execution Services		Corporate		Total	
Revenues from contracts with customers:								
Commissions, net	$	9,048	$	108,668	$	—	$	117,716
Workflow technology		—		26,445		—		26,445
Analytics		—		10,494		—		10,494
Total revenue from contracts with customers		9,048		145,607		—		154,655
Other sources of revenue		537,513		6,138		2,956		546,607
Total revenues	$	546,561	$	151,745	$	2,956	$	701,262
Timing of revenue recognition:								
Services transferred at a point in time	$	546,561	$	133,301	$	2,956	$	682,818
Services transferred over time		—		18,444		—		18,444
Total revenues	$	546,561	$	151,745	$	2,956	$	701,262

(in thousands)	Three Months Ended March 31, 2021 Market Making	Execution Services	Corporate	Total
Revenues from contracts with customers:				
Commissions, net	$ 14,130	$ 140,450	$ —	$ 154,580
Workflow technology	—	26,573	—	26,573
Analytics	—	10,496		10,496
Total revenue from contracts with customers	14,130	177,519	—	191,649
Other sources of revenue	809,594	11,720	(391)	820,923
Total revenues	$ 823,724	$ 189,239	$ (391)	$ 1,012,572
Timing of revenue recognition:				
Services transferred at a point in time	$ 823,724	$ 170,538	$ (391)	$ 993,871
Services transferred over time	—	18,701	—	18,701
Total revenues	$ 823,724	$ 189,239	$ (391)	$ 1,012,572

Remaining Performance Obligations and Revenue Recognized from Past Performance Obligations

As of March 31, 2022 and 2021, the aggregate amount of the transaction price allocated to the performance obligations relating to 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 $56.8 million and $51.5 million as of March 31, 2022 and December 31, 2021, respectively. The Company did not identify any contract assets. There were no impairment losses on receivables as of March 31, 2022.

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 $11.0 million and $9.2 million as of March 31, 2022 and December 31, 2021, respectively. The Company recognized revenue of $7.5 million and $7.9 million during the three months ended March 31, 2022 and 2021, that had been recorded as deferred revenue in the respective prior year.

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

13. Income Taxes

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 three months ended March 31, 2022 and 2021, the income attributable to these noncontrolling interests was reported in the Condensed Consolidated Statements of Comprehensive Income, but the related U.S. income tax expense attributable to these noncontrolling interests was not reported by the Company as it is the obligation of the individual partners. The Company's provisions for income taxes and effective tax rates were $41.8 million, 17.3%, and $80.6 million, 16.4% for the three months ended March 31, 2022 and 2021, respectively. 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 Condensed Consolidated Statements of Financial Condition at March 31, 2022 and December 31, 2021 are current income tax receivables of $12.7 million and $37.2 million, respectively. The balances at March 31, 2022 and December 31, 2021 primarily comprised income tax benefits due to the Company from federal, state, local, and foreign tax jurisdictions based on income before taxes. Included in Accounts payable, accrued expenses and other liabilities on the Condensed Consolidated Statements of Financial Condition at March 31, 2022 and December 31, 2021 are current tax liabilities of $14.4 million and $16.8 million, respectively. The balances at March 31, 2022 and December 31, 2021 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 4 "Tax Receivable Agreements"), the Acquisition of KCG and the 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 March 31, 2022 and December 31, 2021, the Company did not have any U.S. federal net operating loss carryforwards and therefore the Company did not record a deferred tax asset related to federal net operating loss carryforwards. At March 31, 2022 and December 31, 2021, the Company recorded deferred income taxes related to state and local net operating losses of $0.4 million. These net operating losses will begin to expire in 2039. The Company did not record a valuation allowance against this deferred tax asset.

As a result of the ITG Acquisition, the Company had non-U.S. net operating losses at March 31, 2022 and December 31, 2021 of $67.2 million and $67.2 million, respectively, and recorded a related deferred tax asset of $13.3 million and $13.4 million, respectively. A valuation allowance of $13.3 million was recorded against this deferred tax asset both at March 31, 2022 and December 31, 2021, as it is more likely than not that a substantial portion of this deferred tax asset will not be realized. As a result of the Acquisition of KCG, the Company had non-U.S. net operating losses at March 31, 2022 and December 31, 2021 of $239.3 million, and recorded a related deferred tax asset of $44.9 million in both years. A full valuation allowance was also recorded against this deferred tax asset at March 31, 2022 and December 31, 2021 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 March 31, 2022 and December 31, 2021 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 March 31, 2022, the Company's tax years for 2015 through 2019 and 2016 through 2019 were 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 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 2019. The final outcome of these examinations is not yet determinable. However, the Company anticipates that adjustments related to these examinations, if any, will not result in a material change to its 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 Condensed Consolidated Statements of Comprehensive Income, respectively.

The Company had $6.3 million of unrecognized tax benefits as of March 31, 2022, 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 March 31, 2022.

14. 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.

On November 30, 2020, the Company was named as a defendant in *In re United States Oil Fund, LP Securities Litigation*, No. 20-cv-4740. The consolidated amended 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 United States Oil Fund, LP, a crude oil ETF. The complaint also names the ETF, its sponsor, and related individuals as defendants. The complaint did not specify the amount of alleged damages. Defendants moved to dismiss the consolidated amended complaint on January 29, 2021 and plaintiffs subsequently filed their opposition to the motion on March 30, 2021. The Company believes that the claims are without merit and is defending itself vigorously.

On August 31, 2021, the Company was named as a defendant in *Alers v. Robinhood Financial, LLC et al* No. 21-cv-61848. The complaint was filed in federal district court in Florida on behalf of a putative class, and asserts claims against the Company and numerous other financial institutions alleging a breach of fiduciary duty by Robinhood and aiding and abetting thereof by the Company and other market making firms. The complaint did not specify the amount of alleged damages. On December 31, 2021, plaintiffs filed an amended complaint, after which, on January 21, 2022, Robinhood and the market-maker defendants moved to transfer the case to the Northern District of California, or in the alternative, to dismiss the amended complaint. The Company believes that the claims are without merit and is defending itself vigorously.

On March 7, 2022, the Company was named as a defendant in *Iron Workers Local No. 55 Pension Fund v. Virtu Financial, Inc.*, No. 2022-0211-PAF pending in the Court of Chancery of the State of Delaware. The complaint, filed by a purported stockholder, seeks to compel the inspection of certain Company books and records pursuant to Section 220 of the Delaware General Corporation Law. The complaint alleges that the stockholder seeks Company information to investigate (a) whether wrongdoing or mismanagement occurred in connection with distributions made to the partners of Virtu Financial pursuant to the Company’s Up-C corporate structure; (b) the independence and disinterestedness of the Company’s directors and/or officers and whether the directors breached their fiduciary duties; and (c) potential damages relating thereto. The Company believes that the claims are without merit and is defending itself vigorously.

Other Legal and Regulatory Matters

The Company owns subsidiaries including regulated entities that are subject to extensive oversight under federal, state and applicable international laws as well as self-regulatory organization (“SRO”) rules. Changes in market structure and the need to remain competitive require constant changes to the Company's systems, order routing and order handling procedures. The Company makes these changes while continuously endeavoring to comply with many complex laws and rules. Compliance, surveillance and trading issues common in the securities industry are monitored by, reported to, and/or reviewed in the ordinary course of business by the Company's regulators in the U.S. and abroad. As a major order flow execution destination, the Company is named from time to time in, or is asked to respond to a number of regulatory matters brought by U.S. regulators, foreign regulators, SROs, as well as actions brought by private plaintiffs, which arise from its business activities. There has recently been an increased focus by regulators on Anti-Money Laundering and sanctions compliance by broker-dealers and similar entities, as well as an enhanced interest on suspicious activity reporting and transactions involving microcap and low-priced securities. In addition, there has been increased regulatory, congressional and media scrutiny of U.S. equities market structure, the retail trading environment in the U.S., wholesale market making and the relationships between retail broker-dealers and market making firms, including but not limited to payment for order flow arrangements, other remuneration arrangements such as profit-sharing relationships and exchange fee and rebate structures, alternative trading systems and off-exchange trading more generally, high frequency trading, short selling, market fragmentation, colocation, and access to market data feeds. From time to time, the Company is the subject of requests for information and documents from the SEC, the Financial Industry Regulatory Authority ("FINRA"), state attorneys general, and other regulators and governmental authorities. 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 state, federal and foreign regulators and SROs, including the SEC and FINRA. In some instances, these matters may result in a disciplinary action and/or a civil or administrative action.

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, including indemnification obligations in connection with the Acquisition of KCG and the ITG Acquisition. 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.

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.

15. Leases

The Company primarily enters into lessee arrangements for corporate office space, data centers, and technology equipment. For more information on lease accounting, see Note 2 "Summary of Significant Accounting Policies" and Note 17 "Leases" to the Consolidated Financial Statements of the Company's 2021 Annual Report on Form 10-K.

Lease assets and liabilities are summarized as follows:

(in thousands)	Financial Statement Location	March 31, 2022	December 31, 2021
Operating leases			
Operating lease right-of-use assets	Operating lease right-of-use assets	$ 220,140	$ 225,328
Operating lease liabilities	Operating lease liabilities	269,937	278,745
Finance leases			
Property and equipment, at cost	Property, equipment, and capitalized software, net	27,692	18,965
Accumulated depreciation	Property, equipment, and capitalized software, net	(14,373)	(12,465)
Finance lease liabilities	Accounts payable, accrued expenses, and other liabilities	13,434	6,612

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

	March 31, 2022	December 31, 2021
Weighted average remaining lease term		
Operating leases	6.59 years	6.68 years
Finance leases	2.28 years	1.62 years
Weighted average discount rate		
Operating leases	5.43 %	5.47 %
Finance leases	2.60 %	2.38 %

The components of lease expense are as follows:

	Three Months Ended March 31,	
(in thousands)	2022	2021
Operating lease cost:		
Fixed	$ 18,068	$ 19,101
Variable	1,886	1,445
Impairment of ROU Asset	—	1,198
Total Operating lease cost	$ 19,954	$ 21,744
Sublease income	4,923	4,443
Finance lease cost:		
Amortization of ROU Asset	$ 1,908	$ 2,133
Interest on lease liabilities	78	74
Total Finance lease cost	$ 1,986	$ 2,207

Future minimum lease payments under operating and finance leases with non-cancelable lease terms, as of March 31, 2022, are as follows:

(in thousands)	Operating Leases	Finance Leases
2022	$ 52,574	$ 7,470
2023	64,289	4,909
2024	61,840	3,298
2025	33,486	240
2026	29,470	—
2027 and thereafter	98,456	—
Total lease payments	$ 340,116	$ 15,917
Less imputed interest	(70,179)	(2,483)
Total lease liability	$ 269,937	$ 13,434

16. Cash

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

(in thousands)	March 31, 2022	December 31, 2021
Cash and cash equivalents	$ 564,900	$ 1,071,463
Cash restricted or segregated under regulations and other	47,788	49,490
Total cash, cash equivalents and restricted cash shown in the statement of cash flows	$ 612,688	$ 1,120,953

17. 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. The Founder Member controls approximately 84.4% of the combined voting power of our common stock as a result of its ownership of our Class A, Class C and Class D Common Stock. The Company holds approximately a 61.4% interest in Virtu Financial at March 31, 2022.

During the period prior to certain 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 these reorganization transactions, all Class A-2 profits interests and Class B interests were reclassified into Virtu Financial Units. As of March 31, 2022 and December 31, 2021, there were 4,485,929 and 4,791,839 Virtu Financial Units outstanding held by Employee Holdco (as defined below), respectively, and 305,910 and 91,757 of such Virtu Financial Units and corresponding Class C Common Stock were exchanged into Class A Common Stock, forfeited or repurchased during the three months ended March 31, 2022 and 2021 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 and June 5, 2020. 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 21,000,000 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.

On November 13, 2020, the Company amended its form award agreement for the issuance of RSUs to provide for the continued vesting of outstanding RSU awards upon the occurrence of a qualified retirement (the "RSU Amendment"). A qualified retirement generally means a voluntary resignation by the participant (i) after five years of service, (ii) the participant attaining the age of 50 and (iii) the sum of the participant's age and service at the time of termination equaling or exceeding 65. Continued vesting is subject to the participant entering into a 2 year non-compete. The RSU Amendment was authorized and approved by the Compensation Committee of the Company's Board of Directors. As a result of the RSU Amendment, currently issued and outstanding RSUs held by the Company's employees, including its executive officers, shall be deemed to be subject to the amended terms of the form award agreement, and any future RSU awards shall also be governed by such amended terms.

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.

Share Repurchase Program

On November 6, 2020, the Company's Board of Directors authorized a new share repurchase program of up to $100.0 million in Class A common stock and Virtu Financial Units by December 31, 2021. On February 11, 2021, the

Company's Board of Directors authorized the expansion of the program by an additional $70 million in Class A Common Stock and Virtu Financial Units. On May 4, 2021, the Company's Board of Directors authorized the expansion of the Company's share repurchase program, increasing the total authorized amount by $300 million to $470 million in Class A Common Stock and Virtu Financial Units and extending the duration of the program through May 4, 2022. Additionally, on November 3, 2021 the Company's Board of Directors authorized the expansion of the program by an additional $750 million to $1,220 million and extending the duration of the program through November 3, 2023. The share repurchase program authorizes the Company to repurchase shares from time to time in open market transactions, privately negotiated transactions or by other means. Repurchases are also permitted to be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions are determined by the Company's management based on its evaluation of market conditions, share price, cash sources, legal requirements and other factors. From the inception of the program through March 31, 2022, the Company repurchased approximately 25.1 million shares of Class A Common Stock and Virtu Financial Units for approximately $726.3 million. As of March 31, 2022, the Company has approximately $493.7 million remaining capacity for future purchases of shares of Class A Common Stock and Virtu Financial Units under the program.

Employee Exchanges

During the three months ended March 31, 2022, and 2021, 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 71,641, and 91,757 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.

Warrant Issuance

On March 20, 2020, in connection with and in consideration of the Founder Member’s commitments under the Founder Member Loan Facility (as described in Note 8 "Borrowings"), the Company delivered to the Founder Member a warrant (the “Warrant”) to purchase shares of the Company’s Class A Common Stock. Pursuant to the Warrant, the Founder Member was entitled to purchase up to 3,000,000 shares of Class A Common Stock on or after May 22, 2020 up to and including January 15, 2022. If at any time during the term of the Founder Member Loan Facility, the Founder Member Loans equal to or greater than $100 million had remained outstanding for a certain period of time specified in the Warrant, the number of shares would have increased to 10,000,000. The Founder Member Loan Facility Term expired on September 20, 2020 without the Company having borrowed any Founder Member Loans thereunder (as described in Note 8 "Borrowings"). The exercise price per share of the Class A Common Stock issuable pursuant to the Warrant was $22.98, which in accordance with the terms of the Warrant, is equal to the average of the volume weighted average prices of the Class A Common Stock for the ten (10) trading days following May 7, 2020, the date on which the Company publicly announced its earnings results for the first quarter of 2020. On December 17, 2021, the Founder Member exercised in full the Warrant to purchase 3,000,000 shares of the Company's Class A Common Stock. The Warrant and Class A Common Stock issued pursuant to the Warrant were offered, issued and sold, in reliance on the exemption from the registration requirements of the Securities Act of 1933, as amended (the "Securities Act"), set forth under Section 4(a)(2) of the Securities Act relating to sales by an issuer not involving any public offering.

Upon issuance, the fair value of the Warrant was determined using a Black-Scholes-Merton model, and was recorded as a debt issuance cost within Other Assets on the Condensed Consolidated Statements of Financial Condition and as an increase to Additional paid-in capital on the Condensed Consolidated Statements of Changes in Equity. The balance was amortized on a straight-line basis from March 20, 2020 through September 20, 2020, the date on which the Founder Member Loan Facility expired, and recorded as expense within Debt issue cost related to debt refinancing, prepayment and commitment fees in the Condensed Consolidated Statements of Comprehensive Income.

Accumulated Other Comprehensive Income

The following table presents the changes in Other Comprehensive Income for the three months ended March 31, 2022, and 2021:

(in thousands)	AOCI Beginning Balance	Amounts recorded in AOCI	Amounts reclassified from AOCI to income	AOCI Ending Balance
	Three Months Ended March 31, 2022			
Net change in unrealized cash flow hedges gains (losses) (1)	$ (10,481)	$ 26,390	$ 2,997	$ 18,906
Foreign exchange translation adjustment	285	(3,172)	—	(2,887)
Total	$ (10,196)	$ 23,218	$ 2,997	$ 16,019

(1) Amounts reclassified from AOCI to income are included within Financing interest expense on long-term borrowings on the Consolidated Statements of Comprehensive Income. As of March 31, 2022, the Company expects approximately $12.0 million to be reclassified from AOCI into earnings over the next 12 months. The timing of the reclassification is based on the interest payment schedule of the long-term borrowings.

(in thousands)	AOCI Beginning Balance	Amounts recorded in AOCI	Amounts reclassified from AOCI to income	AOCI Ending Balance
	Three Months Ended March 31, 2021			
Net change in unrealized cash flow hedges gains (losses)	$ (33,444)	$ 9,273	$ 3,334	$ (20,837)
Foreign exchange translation adjustment	7,957	(2,165)	—	5,792
Total	$ (25,487)	$ 7,108	$ 3,334	$ (15,045)

(1) Amounts reclassified from AOCI to income are included within Financing interest expense on long-term borrowings on the Consolidated Statements of Comprehensive Income.

18. Share-based Compensation

Pursuant to the Amended and Restated 2015 Management Incentive Plan as described in Note 17 "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 three months ended March 31, 2022, and 2021:

	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, 2020	2,324,152	$ 19.00	4.24	2,324,152	$ 19.00
Granted	—	—	—	—	—
Exercised	(154,372)	19.00	—	(154,372)	19.00
Forfeited or expired	—	—	—	—	—
At March 31, 2021	2,169,780	$ 19.00	4.24	2,169,780	$ 19.00
At December 31, 2021	1,795,655	$ 19.00	3.24	1,795,655	$ 19.00
Granted	—	—	—	—	—
Exercised	(246,879)	19.00	—	(246,879)	19.00
Forfeited or expired	(5,000)	—	—	(5,000)	—
At March 31, 2022	1,543,776	$ 19.00	2.99	1,543,776	$ 19.00

The expected life was 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.

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, Restricted Stock Units and Restricted Stock Awards

Pursuant to the Amended and Restated 2015 Management Incentive Plan as described in Note 17 "Capital Structure", subsequent to the IPO, shares of immediately vested Class A Common Stock, RSUs and RSAs were granted, with RSUs and RSAs 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 the expense is recognized on a straight-line basis over the vesting period. The fair value of the RSAs was determined based on the closing price as of the date of grant and the expense is recognized from the date that achievement of the performance target becomes probable through the remainder of the vesting period. Performance targets are based on the Company's adjusted EBITDA for certain future periods. For the three months ended March 31, 2022, and 2021, respectively, there were 580,710, and 633,938 shares of immediately vested Class A Common Stock granted as part of year-end compensation. In addition, the Company accrued compensation expense of $6.0 million, and $5.0 million for the three months ended March 31, 2022, and 2021, 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 Condensed Consolidated Statements of Comprehensive Income and Accounts payable, accrued expenses and other liabilities on the Condensed Consolidated Statements of Financial Condition.

The following table summarizes activity related to RSUs (including the Assumed Awards) and RSAs for the three months ended March 31, 2022, and 2021:

	Number of RSUs and RSAs	Weighted Average Fair Value
At December 31, 2020	3,393,084	$ 21.35
Granted	2,105,988	27.35
Forfeited	(87,658)	23.38
Vested	(1,896,407)	23.22
At March 31, 2021	3,515,007	$ 23.89
At December 31, 2021	3,224,447	$ 24.30
Granted (1)	2,484,363	29.92
Forfeited	(220,849)	24.92
Vested	(1,669,030)	25.07
At March 31, 2022	3,818,931	$ 27.60

(1) Excluded in the number of RSUs and RSAs are 462,500 participating RSAs where the grant date has not been achieved because the performance conditions have not been met.

The Company recognized $8.6 million, and $7.8 million for the three months ended March 31, 2022, and 2021, respectively, of compensation expense in relation to RSUs. As of March 31, 2022 and December 31, 2021, total unrecognized share-based compensation expense related to unvested RSUs was $79.8 million and $41.9 million, respectively, and this amount is to be recognized over a weighted average period of 1.5 years and 0.9 years, respectively. Awards in which the specific performance conditions have not been met are not included in unrecognized share-based compensation expense.

On November 13, 2020, the Company adopted the Virtu Financial, Inc. Deferred Compensation Plan (the "DCP"). The DCP permits eligible executive officers and other employees to defer cash or equity-based compensation beginning in the calendar year ending December 31, 2021, subject to certain limitations and restrictions. Deferrals of cash compensation may also be directed to notional investments in certain of the employee investment opportunities. The Company recognized $5.6 million as compensation cost under the DCP as of March 31, 2022.

19. Regulatory Requirement

U.S. Subsidiary

The Company's U.S. broker-dealer subsidiary, VAL, is subject to the SEC Uniform Net Capital Rule 15c3-1, which requires the maintenance of minimum net capital as detailed in the table below. Pursuant to New York Stock Exchange ("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 March 31, 2022. 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.

VAL's regulatory capital and regulatory capital requirements as of March 31, 2022 was as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Virtu Americas LLC	$ 506,028	$ 2,535	$ 503,493

As of March 31, 2022, VAL had $41.3 million 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 $5.8 million 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 Condensed Consolidated Statements of Financial Condition.

VAL's regulatory capital and regulatory capital requirements as of December 31, 2021 was as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Virtu Americas LLC	$ 536,647	$ 1,194	$ 535,453

As of December 31, 2021, VAL had $43.0 million 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 $5.8 million of cash in reserve bank accounts for the benefit of proprietary accounts of brokers.

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 ("CBI"), the Financial Conduct Authority ("FCA") in the United Kingdom, the Australian Securities and Investments Commission ("ASIC"), the Securities and Futures Commission in Hong Kong ("SFC"), and the Monetary Authority of Singapore ("MAS").

The regulatory net capital balances and regulatory capital requirements applicable to the Company's foreign subsidiaries as of March 31, 2022 were as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Canada			
Virtu ITG Canada Corp	$ 14,522	$ 200	$ 14,322
Virtu Financial Canada ULC	202	200	2
Ireland			
Virtu ITG Europe Limited (1)	76,980	38,283	38,697
Virtu Financial Ireland Limited (1)	104,433	46,596	57,837
United Kingdom			
Virtu ITG UK Limited (1)	1,109	806	303
Asia Pacific			
Virtu ITG Australia Limited	35,645	10,360	25,285
Virtu ITG Hong Kong Limited	4,659	480	4,179
Virtu ITG Singapore Pte Limited	903	74	829
(1) Preliminary			

As of March 31, 2022, Virtu ITG Europe Limited and Virtu ITG Canada Corp had $0.1 million and $0.4 million, respectively, of segregated 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.

The regulatory net capital balances and regulatory capital requirements applicable to the Company's foreign subsidiaries as of December 31, 2021 were as follows:

(in thousands)	Regulatory Capital	Regulatory Capital Requirement	Excess Regulatory Capital
Canada			
Virtu ITG Canada Corp	$ 15,482	$ 198	$ 15,284
Virtu Financial Canada ULC	200	198	2
Ireland			
Virtu ITG Europe Limited	79,087	39,331	39,756
Virtu Financial Ireland Limited	107,293	47,872	59,421
United Kingdom			
Virtu ITG UK Limited	1,142	830	312
Asia Pacific			
Virtu ITG Australia Limited	32,186	7,164	25,022
Virtu ITG Hong Kong Limited	4,514	529	3,985
Virtu ITG Singapore Pte Limited	897	74	823

As of December 31, 2021, Virtu ITG Europe Limited and Virtu ITG Canada Corp had $0.1 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.

20. Geographic Information and Business Segments

The Company operates its business in the U.S. and internationally, primarily in Europe, Asia and Canada. 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 three months ended March 31, 2022, and 2021:

	Three Months Ended March 31,	
(in thousands)	2022	2021
Revenues:		
United States	$ 549,449	$ 816,054
Ireland	77,958	121,369
Singapore	46,277	42,848
Canada	17,197	17,030
Australia	8,921	12,667
United Kingdom	(1)	1,184
Others	1,461	1,420
Total revenues	$ 701,262	$ 1,012,572

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, 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, Electronic Communications Networks ("ECNs") and alternative trading systems ("ATSs"). The Company is an active participant on all major global equity and futures exchanges and also trades on substantially all domestic electronic options exchanges. As a complement to electronic market making, the cash trading business handles specialized orders and also transacts on the OTC Link ATS operated by OTC Markets Group Inc.

The Execution Services segment comprises client-based trading and trading venues, offering execution services in global equities, options, futures and fixed income on behalf of institutions, banks and broker-dealers. 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. Client-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 client orders in the Company's ATSs, including Virtu MatchIt, and POSIT. 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 segment also includes the results of the Company's capital markets business, in which the Company acts as an agent for issuers in connection with at-the-market offerings and buyback programs.

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 three months ended March 31, 2022 and 2021 and are summarized in the following table:

The Company's Pre-tax earnings by segment for the three months ended March 31, 2022, and 2021 are summarized in the following table:

(in thousands)	Market Making	Execution Services	Corporate	Consolidated Total
2022				
Total revenue	$ 546,561	$ 151,745	$ 2,956	$ 701,262
Income before income taxes and noncontrolling interest	224,220	15,126	2,365	241,711
2021				
Total revenue	823,724	189,239	(391)	1,012,572
Income before income taxes and noncontrolling interest	453,277	40,351	(3,841)	489,787

21. Related Party Transactions

The Company incurs expenses and maintains balances with its affiliates in the ordinary course of business. As of March 31, 2022, and December 31, 2021 the Company had net payables to its affiliates of $4.2 million and net receivables from its affiliates of $2.2 million, respectively.

The Company has held a minority interest in JNX since 2016 (see Note 9 "Financial Assets and Liabilities"). The Company pays exchange fees to JNX for the trading activities conducted on its proprietary trading system. The Company paid $3.8 million and $2.9 million for the three months ended March 31, 2022 and 2021, respectively, to JNX for these trading activities.

The Company makes payments to two JVs (see Note 11 "Variable Interest Entities") 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 Condensed Consolidated Statements of Comprehensive Income. The Company made payments of $5.5 million and $4.7 million for the three months ended March 31, 2022 and 2021, respectively, to these JVs.

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 $0.2 million and $0.5 million for the three months ended March 31, 2022 and 2021, respectively, to Level 3 for these services.

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. Payments made for the three months ended March 31, 2022 and 2021 were immaterial.

The Company has an interest in Members Exchange, a member-owned equities exchange. The Company pays regulatory and transaction fees and receives rebates from trading activities. The Company received rebates of $6.7 million and $3.6 million for the three months ended March 31, 2022 and 2021.

22. Subsequent Events

The Company has evaluated subsequent events for adjustment to or disclosure in its condensed consolidated financial statements through the date of this report, and has not identified any recordable or disclosable events, not otherwise reported in these condensed consolidated financial statements or the notes thereto, except for the following:

On April 22, 2022, the Company’s Board of Directors adopted an amendment to the Company’s Amended and Restated 2015 Management Incentive Plan in order to increase the number of shares of the Company’s Class A Common Stock reserved for issuance, and in respect of which awards may be granted under the Amended and Restated 2015 Plan from
21,000,000 shares of Class A Common Stock to an aggregate of 26,000,000 shares of Class A Common Stock, and the amendment is subject to the approval of the Company’s shareholders at the Company's annual meeting of stockholders on June 2, 2022.

On April 28, 2022, 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 and Restricted Stock Award that will be paid on June 15, 2022 to holders of record as of June 1, 2022.

On May 2, 2022, the Company sold its strategic minority investment in Eris Digital Holdings, LLC ("ErisX"), an operator of a U.S. based digital asset spot market, a regulated futures exchange and a regulated clearinghouse to Cboe Global Markets, Inc. ("CBOE") in connection with CBOE's acquisition of ErisX.

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following management’s discussion and analysis covers the three months ended March 31, 2022 and 2021 and should be read in conjunction with the condensed consolidated financial statements of Virtu Financial, Inc. (the Company") for the period ended March 31, 2022, which are in Part 1, Item 1 of this Quarterly Report on Form 10-Q, and the audited consolidated financial statements and accompanying notes and MD&A for the year ended December 31, 2021, which are included in Items 8 and 7 respectively, of the Company's Annual Report on Form 10-K for the year ended December 31, 2021. 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 Quarterly Report on Form 10-Q 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 Quarterly Report on Form 10-Q, 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 Quarterly Report on Form 10-Q. By their nature, forward-looking statements involve known and unknown risks and uncertainties, including those described under the heading “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2021, as filed with the Securities and Exchange Commission ("SEC") on February 18, 2022 (the "2021 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 Quarterly Report on Form 10-Q are based on reasonable assumptions, you should be aware that many factors, including those described under the heading “Risk Factors” in our 2021 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:

- the continuing impacts of COVID-19 and the governmental and other responses thereto, including but not limited to the risk of employees and executives contracting COVID-19 and the deployment of our business continuity plan pursuant to which a significant number of our employees may work remotely and our return to office plan, each of which may increase operational risk, as well as increases in market, counterparty and other forms of operational risk;
- volatility in 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;
- enhanced regulatory, congressional, and media scrutiny, including attention to electronic trading, wholesale market making and off-exchange trading, payment for order flow, and other market structure topics and both the impact of potential changes in regulation or law which could have an adverse effect on our business as well as the potential impact upon public perception of us or of companies in our industry;
- 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, including but limited to risks related to funding and liquidity;
- obligations to comply with applicable regulatory capital requirements;
- litigation or other legal and regulatory-based liabilities;

- changes in laws, rules or regulations, including proposed legislation that would impose taxes on certain financial transactions in the European Union, the U.S. (and certain states therein) and other jurisdictions and other potential changes which could increase our corporate or other tax obligations in one or more jurisdictions;
- obligations to comply with laws and regulations applicable to our operations in the U.S. and abroad;
- need to maintain and continue developing proprietary technologies;
- the effect of the Acquisition of KCG and the ITG Acquisition (as defined below) on ongoing business operations generally, including the assumption of potential liabilities and risks relating to these historical acquisitions;
- 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, monetary payment demands 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, geopolitical conflicts, 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 Quarterly Report on Form 10-Q. 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 Quarterly Report on Form 10-Q.

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.

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, cryptocurrencies 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 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.

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 other financial instruments, 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 client 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. Client-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 and POSIT. 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. The segment also includes the results of our capital markets business, in which we act as an agent for issuers in connection with at-the-market offerings and buyback programs.

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 ITG

On March 1, 2019, the "ITG Closing Date", we announced the completion of Investment Technology Group, Inc. and its subsidiaries ("ITG") in an all-cash transaction (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 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 "Acquisition Credit Agreement"). The Acquisition Credit Agreement provided (i) a senior secured first lien term loan (together with the Acquisition Incremental Term Loans, as defined below; the "Acquisition First Lien Term Loan Facility") in an aggregate principal amount of $1,500.0 million, drawn in its entirety on the ITG Closing Date, of which approximately $404.5 million was borrowed by VFH to repay all amounts outstanding under a previous 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 (the "Acquisition 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, VFH entered into an amendment (“Amendment No. 1”), which amended the Acquisition Credit Agreement dated as of March 1, 2019, to, among other things, provide for $525.0 million in aggregate principal amount of incremental term loans (the “Acquisition Incremental Term Loans”), and amend the related collateral agreement. On March 2, 2020, VFH entered into a second amendment (“Amendment No. 2”), which further amended the Acquisition Credit Agreement to, among other things, reduce the interest rate spread over adjusted LIBOR or the alternate base rate by 0.50% per annum and eliminated any step-down in the spread based on VFH's first lien leverage ratio. There were no outstanding borrowings under the Acquisition Credit Agreement as of March 31, 2022.

On January 13, 2022 (the "Credit Agreement Closing Date"), VFH and Virtu Financial entered into the Credit Agreement, with the lenders party thereto, JPMorgan Chase Bank, N.A. as administrative agent and JPMorgan Chase bank, N.A., Goldman Sachs Bank USA, RBC Capital Markets, Barclays Bank plc, Jefferies Finance LLC, BMO Capital Markets Corp., and CIBC World Markets Corp., as joint lead arrangers and bookrunners (the “Credit Agreement”). The Credit Agreement provides (i) a senior secured first lien term loan in an aggregate principal amount of $1,800.0 million, drawn in its entirety on the Credit Agreement Closing Date, the proceeds of which were used by VFH to repay all amounts outstanding under the Acquisition Credit Agreement, to pay fees and expenses in connection therewith, to fund share repurchases under the Company’s repurchase program and for general corporate purposes, and (ii) a $250.0 million senior secured first lien revolving facility to VFH, with a $20.0 million letter of credit subfacility and a $20.0 million swingline subfacility.

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, par value $0.00001 per share (the “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. On April 23, 2020, the Company’s Board of Directors adopted an amendment to the Company’s Amended and Restated 2015 Management Incentive Plan in order to increase the number of shares of the Company’s Class A Common Stock reserved for issuance, and in respect of which awards may be granted under the Amended and Restated 2015 Plan from 16,000,000 shares of Class A Common Stock to an aggregate of 21,000,000 shares of Class A Common Stock and the amendment was approved by the Company’s shareholders at the Company’s annual meeting of shareholders on June 5, 2020. On April 22, 2022, the Company’s Board of Directors adopted another amendment to the Company’s Amended and Restated 2015 Management Incentive Plan in order to increase the number of shares of the Company’s Class A Common Stock reserved for issuance, and in respect of which awards may be granted under the Amended and Restated 2015 Plan from 21,000,000 shares of Class A Common Stock to an aggregate of 26,000,000 shares of Class A Common Stock and the amendment is subject to the approval of the Company’s shareholders at the Company’s annual meeting of shareholders on June 2, 2022.

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 March 31, 2022, options to purchase 1,633,750 shares in the aggregate were forfeited and 6,050,474 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.

Parent Company Financial Information

There are no material differences between our condensed consolidated financial statements and the financial statements of Virtu Financial except as follows: (i) cash and cash equivalents reflected on our Condensed Consolidated Statements of Financial Condition as of March 31, 2022 in the amount of $30.0 million; (ii) deferred tax assets reflected on our Condensed Consolidated Statements of Financial Condition as of March 31, 2022 in the amount of $137.4 million and tax receivable agreement obligation in the amount of $237.9 million, in each case as described in greater detail in Note 4 "Tax Receivable Agreements" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q; (iii) a portion of the member's equity of Virtu Financial is represented as noncontrolling interest on our Condensed Consolidated Statements of Financial Condition as of March 31, 2022; and (iv) provision for corporate income tax in the amount of $27.1 million reflected on our Condensed Consolidated Statements of Comprehensive Income for the three months ended March 31, 2022.

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 three months ended March 31, 2022, and 2021:

(in thousands)	Three Months Ended March 31,	
Market Making	**2022**	**2021**
Total revenue	$ 546,561	$ 823,724
Total operating expenses	322,341	370,447
Income before income taxes and noncontrolling interest	224,220	453,277
Execution Services		
Total revenue	151,745	189,239
Total operating expenses	136,619	148,888
Income before income taxes and noncontrolling interest	15,126	40,351
Corporate		
Total revenue	2,956	(391)
Total operating expenses	591	3,450
Income before income taxes and noncontrolling interest	2,365	(3,841)
Consolidated		
Total revenue	701,262	1,012,572
Total operating expenses	459,551	522,785
Income before income taxes and noncontrolling interest	$ 241,711	$ 489,787

The following table shows our results of operations for the three months ended March 31, 2022, and 2021:

	Three Months Ended March 31,	
(in thousands)	**2022**	**2021**
Revenues:		
Trading income, net	$ 522,307	$ 812,743
Interest and dividends income	21,011	6,997
Commissions, net and technology services	154,655	191,649
Other, net	3,289	1,183
Total revenue	701,262	1,012,572
Operating Expenses:		
Brokerage, exchange, clearance fees and payments for order flow, net	150,380	259,332
Communication and data processing	55,835	51,690
Employee compensation and payroll taxes	103,480	104,771
Interest and dividends expense	42,538	24,028
Operations and administrative	25,215	25,655
Depreciation and amortization	17,477	16,778
Amortization of purchased intangibles and acquired capitalized software	16,480	18,077
Termination of office leases	707	1,221
Debt issue cost related to debt refinancing, prepayment and commitment fees	25,684	1,755
Transaction advisory fees and expenses	422	(14)
Financing interest expense on long-term borrowings	21,333	19,492
Total operating expenses	459,551	522,785
Income before income taxes and noncontrolling interest	241,711	489,787
Provision for income taxes	41,786	80,555
Net income	$ 199,925	$ 409,232

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 client 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, and bid/ask spreads in the asset classes we serve. Our trading income is highly diversified by asset class and geography and is comprised of small amounts earned on millions of trades on various exchanges. 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 74% and 80% of our total revenues for the three months ended March 31, 2022 and 2021, 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. Client commission fees are charged for client 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.

We have a noncontrolling investment (the “JNX Investment”) in Japannext Co., Ltd. (“JNX”), a proprietary trading system based in Tokyo. In connection with the investment, we issued bonds to certain affiliates of JNX 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.

Other, net can also include gains on sales of businesses, revenues from service agreements related to the sale of businesses.

Operating Expenses

Brokerage, exchange, clearance fees and payments for order flow, net. Brokerage, exchange, clearance fees and payments for order flow 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, clearance fees and payments for order flow 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. 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. Rebates based on volume discounts, credits or payments received from exchanges or other marketplaces are netted against brokerage, exchange, clearance fees and payments for order flow.

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 restricted stock units and restricted stock awards granted in connection with and subsequent to the IPO pursuant to the Amended and Restated 2015 Management Incentive Plan and Class A Common Stock underlying certain awards assumed 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. 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 cost related to debt refinancing, prepayment and commitment fees. As a result of the refinancing or early termination of our long-term borrowings, we accelerate the capitalized debt issue cost 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, and commitment fees paid for lines of credit are 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 one or more acquisitions or dispositions.

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 13 "Income Taxes" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q for additional information.

Non-GAAP Financial Measures and Other Items

To supplement our condensed 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, clearance fees and payments for order flow, net, 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, prepayment, and commitment fees, 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, reserves for legal matters, transaction advisory fees and expenses, termination of office leases, charges related to share-based compensation and other expenses, which includes COVID-19 one-time costs and donations and Other, net.
- “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 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 approximately 24%.
- 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. In addition, the Company's Non-GAAP 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 the Company's 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 consolidated 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 Condensed Consolidated Statements of Comprehensive Income to arrive at Adjusted Net Trading Income, EBITDA, Adjusted EBITDA, and Operating Margins for the three months ended March 31, 2022, and 2021.

	Three Months Ended March 31,	
(in thousands)	**2022**	**2021**
Reconciliation of Trading income, net to Adjusted Net Trading Income		
Trading income, net	$ 522,307	$ 812,743
Interest and dividends income	21,011	6,997
Commissions, net and technology services	154,655	191,649
Brokerage, exchange, clearance fees and payments for order flow, net	(150,380)	(259,332)
Interest and dividends expense	(42,538)	(24,028)
Adjusted Net Trading Income	$ 505,055	$ 728,029
Reconciliation of Net Income to EBITDA and Adjusted EBITDA		
Net income	$ 199,925	$ 409,232
Financing interest expense on long-term borrowings	21,333	19,492
Debt issue cost related to debt refinancing, prepayment, and commitment fees	25,684	1,755
Depreciation and amortization	17,477	16,778
Amortization of purchased intangibles and acquired capitalized software	16,480	18,077
Provision for income taxes	41,786	80,555
EBITDA	$ 322,685	$ 545,889
Severance	2,001	2,020
Reserve for legal matters	7,379	3,907
Transaction advisory fees and expenses	422	(14)
Termination of office leases	707	1,221
Other	(3,117)	(1,076)
Share based compensation	13,712	12,778
Adjusted EBITDA	$ 343,789	$ 564,725
Selected Operating Margins		
Net Income Margin (1)	39.6 %	56.2 %
EBITDA Margin (2)	63.9 %	75.0 %
Adjusted EBITDA Margin (3)	68.1 %	77.6 %

(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 three months ended March 31, 2022, and 2021:

(in thousands, except share and per share data)	**Three Months Ended March 31, 2022**	**2021**
Reconciliation of Net Income to Normalized Adjusted Net Income		
Net income (loss)	$ 199,925	$ 409,232
Provision for income taxes	41,786	80,555
Income (loss) before income taxes	241,711	489,787
Amortization of purchased intangibles and acquired capitalized software	16,480	18,077
Debt issue cost related to debt refinancing, prepayment, and commitment fees	25,684	1,755
Reserve for legal matters	7,379	3,907
Severance	2,001	2,020
Transaction advisory fees and expenses	422	(14)
Termination of office leases	707	1,221
Other	(3,117)	(1,076)
Share based compensation	13,712	12,778
Normalized Adjusted Net Income before income taxes	304,979	528,455
Normalized provision for income taxes (1)	73,195	126,829
Normalized Adjusted Net Income	$ 231,784	$ 401,626
Weighted Average Adjusted shares outstanding (2)	183,172,671	196,951,685
Normalized Adjusted EPS	$ 1.27	$ 2.04

(1) Reflects U.S. federal, state, and local income tax rate applicable to corporations of approximately 24% for all periods presented.
(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, par value $0.00001 per share (the "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, par value $0.00001 per share (the "Class D Common Stock")) have exercised their right to exchange such Virtu Financial Units for shares of the Company's Class B common stock, par value $0.00001 per share (the "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, restricted stock units and restricted stock awards outstanding under the Amended and Restated 2015 Management Incentive Plan and the Amended and Restated ITG 2007 Equity Plan during the three months ended March 31, 2022, and 2021.

The following tables reconcile Trading income, net to Adjusted Net Trading Income by segment for the three months ended March 31, 2022, and 2021:

	Three Months Ended March 31, 2022			
(in thousands)	Market Making	Execution Services	Corporate	Total
Trading income, net	$ 516,358	$ 5,949	$ —	$ 522,307
Commissions, net and technology services	9,048	145,607	—	154,655
Interest and dividends income	20,982	29	—	21,011
Brokerage, exchange, clearance fees and payments for order flow, net	(123,515)	(26,865)	—	(150,380)
Interest and dividends expense	(41,027)	(1,511)	—	(42,538)
Adjusted Net Trading Income	$ 381,846	$ 123,209	$ —	$ 505,055

	Three Months Ended March 31, 2021			
(in thousands)	Market Making	Execution Services	Corporate	Total
Trading income, net	$ 801,281	$ 11,462	$ —	$ 812,743
Commissions, net and technology services	14,130	177,519	—	191,649
Interest and dividends income	6,901	96	—	6,997
Brokerage, exchange, clearance fees and payments for order flow, net	(223,195)	(36,137)	—	(259,332)
Interest and dividends expense	(23,994)	(34)	—	(24,028)
Adjusted Net Trading Income	$ 575,123	$ 152,906	$ —	$ 728,029

The following table shows our Adjusted Net Trading Income and average daily Adjusted Net Trading Income by segment for the three months ended March 31, 2022, and 2021:

(in thousands, except %)	2022			2021		
Adjusted Net Trading Income by Segment:	Total	Average Daily	%	Total	Average Daily	%
Market Making	$ 381,846	$ 6,159	75.6 %	$ 575,123	$ 9,428	79.0 %
Execution Services	123,209	1,987	24.4 %	152,906	2,507	21.0 %
Adjusted Net Trading Income	$ 505,055	$ 8,146	100.0 %	$ 728,029	$ 11,935	100.0 %

Three Months Ended March 31, 2022 Compared to Three Months Ended March 31, 2021

Total Revenues

Our total revenues decreased $311.3 million, or 30.7%, to $701.3 million for the three months ended March 31, 2022, compared to $1,012.6 million for the three months ended March 31, 2021. The decrease was primarily driven by a decrease of $290.4 million in Trading income, net, which was driven by lower market volumes across global markets and major asset categories as well as a decrease of $37.0 million in Commissions, net and technology services driven lower by decreased market volumes during the three months ended March 31, 2022 compared to the same period in 2021, which experienced elevated levels of market volatility and trading volumes largely due to the impacts of the COVID-19 pandemic and the governmental and other responses thereto.

The following table shows total revenues by segment for the three months ended March 31, 2022 and 2021.

	Three Months Ended March 31,		
(in thousands, except for percentage)	2022	2021	% Change
Market Making			
Trading income, net	$ 516,358	$ 801,281	(35.6)%
Interest and dividends income	20,982	6,901	204.0%
Commissions, net and technology services	9,048	14,130	(36.0)%
Other, net	173	1,412	(87.7)%
Total revenues from Market Making	$ 546,561	$ 823,724	(33.6)%
Execution Services			
Trading income, net	$ 5,949	$ 11,462	(48.1)%
Interest and dividends income	29	96	(69.8)%
Commissions, net and technology services	145,607	177,519	(18.0)%
Other, net	160	162	(1.2)%
Total revenues from Execution Services	$ 151,745	$ 189,239	(19.8)%
Corporate			
Other, net	$ 2,956	$ (391)	NM
Total revenues from Corporate	$ 2,956	$ (391)	NM
Consolidated			
Trading income, net	$ 522,307	$ 812,743	(35.7)%
Interest and dividends income	21,011	6,997	200.3%
Commissions, net and technology services	154,655	191,649	(19.3)%
Other, net	3,289	1,183	178.0
Total revenues	$ 701,262	$ 1,012,572	(30.7)%

Trading income, net. Trading income, net was primarily earned by our Market Making segment. Trading income, net decreased $290.4 million, or 35.7%, to $522.3 million for the three months ended March 31, 2022, compared to $812.7 million for the three months ended March 31, 2021. The decrease was primarily driven by the lower market volumes across global markets and major asset categories during the three months ended March 31, 2022 compared to the same period in 2021, which experienced elevated levels of market volumes and volatility due to the impacts of COVID-19 and the governmental and other responses thereto. Average daily U.S. equity consolidated volumes decreased 12.1% in the period compared to the prior period. 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 and Brokerage, exchange, clearance fees and payments for order flow, net, each of which is described below.

Interest and dividends income. Interest and dividends income was primarily earned by our Market Making segment. Interest and dividends income increased $14.0 million, or 200.3%, to $21.0 million for the three months ended March 31, 2022, compared to $7.0 million for the three months ended March 31, 2021. This increase was primarily attributable to the higher interest income earned on cash collateral posted as part of securities borrowing transactions for the period compared to the same period during the prior year. 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 decreased $37.0 million, or 19.3%, to $154.7 million for the three months ended March 31, 2022, compared to $191.6 million for the three months ended March 31, 2021. The decrease was primarily driven by lower market volumes during the three months ended March 31, 2022 compared to the same period in 2021. The average daily U.S. equity consolidated volume decreased 12.1% during the period compared to the prior period.

Other, net. Other, net increased $2.1 million, or 178.0%, to $3.3 million for the three months ended March 31, 2022, compared to $1.2 million for the three months ended March 31, 2021. The increase was primarily due to a $5.2 million unrealized gain on the minority investment in JNX (see Note 9 "Financial Assets and Liabilities" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q for details on the JNX Investment).

Adjusted Net Trading Income

Adjusted Net Trading Income decreased $223.0 million, or 30.6%, to $505.1 million for the three months ended March 31, 2022, compared to $728.0 million for the three months ended March 31, 2021. This decrease was primarily attributable to lower Trading income, net in the Market Making segment driven by lower market volumes across major asset categories during the three months ended March 31, 2022 compared to the same period in 2021. Average daily U.S. equity consolidated volumes decreased 12.1%. Adjusted Net Trading Income per day decreased $3.8 million, or 31.7%, to $8.1 million for the three months ended March 31, 2022, compared to $11.9 million for the three months ended March 31, 2021. There were 62 trading days for the three months ended March 31, 2022 and 61 trading days for the three months ended March 31, 2021. 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 2. “Management's Discussion and Analysis of Financial Condition and Results of Operations”.

Operating Expenses

Our operating expenses decreased $63.2 million, or 12.1%, to $459.6 million for the three months ended March 31, 2022, compared to $522.8 million for the three months ended March 31, 2021. The decrease in operating expenses is primarily due to a decrease in Brokerage, exchange, clearance fees and payments for order flow, net, partially offset by an increase in Interest and dividends expense, and Debt issue cost related to debt refinancing, prepayment and commitment fees described in more detail below.

Brokerage, exchange, clearance fees and payments for order flow, net. Brokerage exchange, clearance fees and payments for order flow, net, decreased $109.0 million, or 42.0%, to $150.4 million for the three months ended March 31, 2022, compared to $259.3 million for the three months ended March 31, 2021. This decrease was primarily attributable to the decrease in market volumes during the three months ended March 31, 2022 compared to the same period in 2021. We evaluate this category representing direct costs associated with transacting business, in the broader context of our Adjusted Net Trading Income.

Communication and data processing. Communication and data processing expense increased $4.1 million, or 8.0%, to $55.8 million for the three months ended March 31, 2022, compared to $51.7 million for the three months ended March 31, 2021. This increase was primarily due to increased connectivity spending on colocation, subscriber connections and trading membership fees.

Employee compensation and payroll taxes. Employee compensation and payroll taxes decreased $1.3 million, or 1.2%, to $103.5 million for the three months ended March 31, 2022, compared to $104.8 million for the three months ended March 31, 2021. The decrease in compensation levels was primarily attributable to a decrease in accrued incentive compensation, which is recorded at management’s discretion and is generally accrued in connection with the overall level of profitability on a year-to-date basis, as well as the anticipated mix of cash and stock-based awards.

We have capitalized and therefore excluded employee compensation and benefits related to software development of $8.5 million and $9.2 million for the three months ended March 31, 2022, and 2021, respectively.

Interest and dividends expense. Interest and dividends expense increased $18.5 million or 77.0% to $42.5 million for the three months ended March 31, 2022, compared to $24.0 million for the three months ended March 31, 2021. This increase was primarily attributable to higher interest expense incurred on cash collateral received as part of securities lending transactions. As indicated above, rather than analyzing interest and dividends expense in isolation, we evaluate it in the broader context of our Adjusted Net Trading Income.

Operations and administrative. Operations and administrative expense remained consistent at $25.2 million for the three months ended March 31, 2022, compared to $25.7 million for the three months ended March 31, 2021.

Depreciation and amortization. Depreciation and amortization remained consistent at $17.5 million for the three months ended March 31, 2022, compared to $16.8 million for the three months ended March 31, 2021.

Amortization of purchased intangibles and acquired capitalized software. Amortization of purchased intangibles and acquired capitalized software decreased $1.6 million, or 8.8%, to $16.5 million for the three months ended March 31, 2022, compared to $18.1 million for the three months ended March 31, 2021. This decrease was due to certain intangible assets being fully amortized.

Termination of office leases. Termination of office leases remained consistent at $0.7 million for the three months ended March 31, 2022, compared to $1.2 million for the three months ended March 31, 2021. These expenses are related to the impairment of leasehold improvements and fixed assets for certain abandoned office space.

Debt issue cost related to debt refinancing, prepayment and commitment fees. Expense from debt issue cost related to debt refinancing, prepayment and commitment fees increased $23.9 million, or 1,363.5%, to $25.7 million for the three months ended March 31, 2022, compared to $1.8 million for the three months ended March 31, 2021. The increase was primarily driven by the acceleration of deferred debt issuance costs as a result of refinancing our long-term debt transaction in January 2022, as described in further detail below.

Transaction advisory fees and expenses. Transaction advisory fees and expenses remained consistent at $0.4 million for the three months ended March 31, 2022, compared to immaterial amounts incurred during the three months ended March 31, 2021. These expenses were primarily incurred in relation to our strategic investment portfolio.

Financing interest expense on long-term borrowings. Financing interest expense on long-term borrowings remained consistent at $21.3 million for the three months ended March 31, 2022, compared to $19.5 million for the three months ended March 31, 2021.

Provision for 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 provision for income taxes and effective tax rates were $41.8 million and 17.3% for the three months ended March 31, 2022, compared to $80.6 million and 16.4% for the three months ended March 31, 2021.

Liquidity and Capital Resources

General

As of March 31, 2022, we had $564.9 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 March 31, 2022, we had borrowings under our prime brokerage credit facilities of approximately $314.3 million, borrowings under our broker dealer facilities of $142.0 million, and long-term debt outstanding in an aggregate principal amount of approximately $1,828.8 million.

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 subsidiary, as discussed in Note 8 "Borrowings" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q.

Short-term Liquidity and Capital Resources

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 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.

Long-term Liquidity and Capital Resources

Our principal demand for funds beyond the next twelve months will be payments on our long-term debt, operating lease payments, common stock repurchases under our share repurchase program, and dividend payments. Based on our current level of operations, we believe our cash flow from operations, and ability to raise funding, notably the refinancing of our term loan in January 2022, will be sufficient to fund capital demands. Our long-term debt was rated Ba3, B+, and BB- by Moody's Investors Service, S&P Global Ratings, and Fitch Ratings, respectively, with all firms giving an outlook of Stable.

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 4 "Tax Receivable Agreements" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q are expected to range from approximately $0.4 million to $22.0 million per year over the next 15 years. Such payments will occur only after we have filed our U.S. federal and state income tax returns and realized the cash tax savings from the favorable tax attributes. We made our first payment of $7.0 million in February 2017, our second payment of $12.4 million in September 2018, our third payment of $13.3 million in March 2020, our fourth payment of $16.5 million in April 2021, and our fifth payment of $21.3 million in March 2022. 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

Our principal U.S. subsidiary, Virtu Americas LLC ("VAL") is subject to separate regulation and capital requirements in the U.S. and other jurisdictions. VAL is a registered U.S. broker-dealer, and its primary regulators include the SEC and the Financial Industry Regulatory Authority ("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 and FINRA for certain capital withdrawals. VAL 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. 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. Our Irish subsidiaries, Virtu Financial Ireland Limited ("VFIL") and Virtu ITG Europe Limited ("VIEL") 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, VFIL and VIEL 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 and Investments Commission, the Securities and Futures Commission of Hong Kong, and the Monetary Authority of Singapore, respectively.

See Note 19 "Regulatory Requirement" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q for a discussion of regulatory capital requirements of our regulated subsidiaries.

Broker Dealer Credit Facilities, Short-Term Bank Loans, and Prime Brokerage Credit Facilities

We maintain various broker-dealer facilities and short-term credit facilities as part of our daily trading operations. See Note 8 "Borrowings" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q for details on our various credit facilities. As of March 31, 2022, the outstanding principal balance on our broker-dealer facilities was $142.0 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 $314.3 million, which was netted within Receivables from broker-dealers and clearing organizations on the Condensed Consolidated Statements of Financial Condition of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q.

On March 20, 2020, a broker-dealer subsidiary of the Company entered into a loan agreement (the “Founder Member Loan Facility”) with TJMT Holdings LLC (the “Founder Member”), as lender and administrative agent, providing for unsecured term loans from time to time (the “Founder Member Loans”) in an aggregate original principal amount not to exceed $300 million. The Founder Member Loans were available to be borrowed in one or more borrowings on or after March 20, 2020 and prior to September 20, 2020, though no borrowings were made during such period, which is now expired. The Founder Member is an affiliate of Mr. Vincent Viola, the Company’s founder and Chairman Emeritus. Upon the execution of and in consideration for the Lender’s commitments under the Founder Member Loan Facility, the Company delivered to the Founder Member a warrant to purchase shares of the Company’s Class A Common Stock, as described below.

On March 20, 2020, in connection with and in consideration of the Founder Member’s commitments under the Founder Member Loan Facility, the Company delivered to the Founder Member a warrant (the “Warrant”) to purchase shares of the Company’s Class A Common Stock. Pursuant to the Warrant, the Founder Member was entitled to purchase up to 3,000,000 shares of Class A Common Stock on or after May 22, 2020 up to and including January 15, 2022. If at any time during the term of the Founder Member Loan Facility, the Founder Member Loans equal to or greater than $100 million had remained outstanding for a certain period of time specified in the Warrant, the number of shares would have increased to 10,000,000. The exercise price per share of the Class A Common Stock issuable pursuant to the Warrant was $22.98. The Warrant was exercised on December 17, 2021 for the full 3,000,000 shares of the Company's Class A Common Stock. The Warrant and Class A Common Stock issued pursuant to the Warrant were offered, issued and sold, in reliance on the exemption from the registration requirements of the Securities Act, set forth under Section 4(a)(2) of the Securities Act relating to sales by an issuer not involving any public offering.

Credit Agreement

On January 13, 2022 (the “Credit Agreement Closing Date”), Virtu Financial, VFH Parent LLC, a Delaware limited liability company and a subsidiary of Virtu Financial (“VFH”), entered into the Credit Agreement, with the lenders party thereto, JPMorgan Chase Bank, N.A. as administrative agent and JPMorgan Chase bank, N.A., Goldman Sachs Bank USA, RBC Capital Markets, Barclays Bank plc, Jefferies Finance LLC, BMO Capital Markets Corp., and CIBC World Markets Corp., as joint lead arrangers and bookrunners (the “Credit Agreement”). On the Credit Agreement Closing Date, VFH and Virtu Financial entered into the Credit Agreement. The Credit Agreement provides (i) a senior secured first lien term loan in an aggregate principal amount of $1,800.0 million, drawn in its entirety on the Credit Agreement Closing Date, the proceeds of which were used by VFH to repay all amounts outstanding under the Acquisition Credit Agreement, to pay fees and expenses in connection therewith, to fund share repurchases under the Company’s repurchase program and for general corporate purposes, and (ii) a $250.0 million senior secured first lien revolving facility to VFH, with a $20.0 million letter of credit subfacility and a $20.0 million swingline subfacility.

In connection with the ITG Acquisition, Virtu Financial, VFH and the Acquisition Borrower entered into the Acquisition 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 Acquisition Credit Agreement provided (i) the Acquisition First Lien Term Loan Facility in an aggregate principal amount of $1,500.0 million, drawn in its entirety on the ITG Closing Date, of which approximately $404.5 million was borrowed by VFH to repay all amounts outstanding under a previous term loan facility and the remaining approximately $1,095 million was borrowed by the Acquisition Borrower to finance the consideration and fees and expenses paid in connection with the ITG Acquisition, and (ii) a the Acquisition First Lien Revolving Facility, with a $5.0 million letter of credit subfacility and a $5.0 million swing-line 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, VFH entered into Amendment No. 1, which amended the Acquisition Credit Agreement dated as of March 1, 2019, to, among other things, provide for $525.0 million in aggregate principal amount of the Acquisition Incremental Term Loans, and amend the related collateral agreement. On March 2, 2020, VFH entered into Amendment No. 2, which further amended the Acquisition Credit Agreement to, among other things, reduce the interest rate spread over adjusted LIBOR or the alternate base rate by 0.50% per annum and eliminated any step-down in the spread based on VFH's first lien leverage ratio. There were no outstanding borrowings under the Acquisition Credit Agreement as of March 31, 2022

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 0.50%, (c) an adjusted term SOFR rate with an interest period of one month plus 1.00% and (d)(1) in the case of term loan borrowings, 1.50% and (2) in the case of revolver borrowings, 1.00%, plus, (x) in the case of term loan borrowings, 2.00% and (y) in the case of revolver borrowings, 1.50% or (ii) the greater of (a) an adjusted term SOFR rate for the interest period in effect and (b) (1) in the case of term loan borrowings, 0.50% and (2) in the case of revolver borrowings, 0.00%, plus, (x) in the case of term loan borrowings, 3.00% and (y) in the case of revolver borrowings, 2.50%. In addition, a commitment fee accrues at a rate of 0.50% per annum on the average daily unused amount of the revolving facility, with step-downs to 0.375% and 0.25% per annum based on VFH's first lien leverage ratio, and is payable quarterly in arrears.

The 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.

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.

Under the Credit Agreement, the term loans will mature on January 13, 2029. 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 January 13, 2025. As of March 31, 2022, $1,800.0 million was outstanding under the term loans. We were in compliance with all applicable covenants under the Credit Agreement as of March 31, 2022.

In October 2019, the Company entered into a five-year $525.0 million floating-to-fixed interest rate swap agreement. In January 2020, the Company entered into a five-year $1,000.0 million floating-to-fixed interest rate swap agreement. These two interest rate swaps met the criteria to be considered and were designated as qualifying cash flow hedges under ASC 815 in the first quarter of 2020, and they effectively fixed interest payment obligations on $525.0 million and $1,000.0 million of principal under the Acquisition First Lien Term Loan Facility at rates of 4.3% and 4.4% through September 2024 and January 2025, respectively, based on the interest rates set forth in the Acquisition Credit Agreement. In April 2021, each of the swap agreements described above was novated to another counterparty and amended in connection with such novation. The amendments included certain changes to collateral posting obligations and also had the effect of increasing the effective fixed interest payment obligations to rates of 4.5%, with respect to the earlier maturing swap arrangement, and 4.6% with respect to the later maturing swap arrangement. In January 2022, in order to align the swap agreements with the Credit Agreement, the Company amended each of the swap agreements to align the floating rate term of such swap agreements to SOFR. The effective fixed interest payment obligations remained at 4.5%, with respect to the earlier maturing swap arrangement, and 4.6% with respect to the later maturing swap arrangement.

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 three months ended March 31, 2022, and 2021 and 2020.

	Three Months Ended March 31,	
Net cash provided by (used in):	**2022**	**2021**
Operating activities	$ (255,185)	$ 133,890
Investing activities	(35,030)	(25,642)
Financing activities	(212,882)	(89,744)
Effect of exchange rate changes on cash and cash equivalents	(5,168)	(3,676)
Net increase in cash and cash equivalents	$ (508,265)	$ 14,828

Operating Activities

Net cash used in operating activities was $255.2 million for the three months ended March 31, 2022, compared to net cash provided by operating activities of $133.9 million for the three months ended March 31, 2021. The decrease in net cash provided by operating activities was primarily attributable to an increase in Securities borrowed, an increase in Receivables from broker dealers and clearing organizations, and an increase in Trading assets, at fair value partially offset by an increase in Trading liabilities, at fair value for the three months ended March 31, 2022 compared to the prior period.

Investing Activities

Net cash used in investing activities was $35.0 million for the three months ended March 31, 2022, compared to net cash used in investing activities of $25.6 million for the three months ended March 31, 2021. The increase in cash used in investing activities for the three months ended March 31, 2022 was primarily attributable to an increase in Acquisition of property and equipment during the three months ended March 31, 2022 as compared to the prior period.

Financing Activities

Net cash used in financing activities was $212.9 million for the three months ended March 31, 2022, while net cash used in financing activities was $89.7 million for the three months ended March 31, 2021. The cash used in financing activities for the three months ended March 31, 2022 was primarily attributable to $125.8 million in dividends to stockholders and distributions made to noncontrolling interests and $305.6 million in purchases of treasury stock, partially offset by the net proceeds of $202.2 million from the issuance of the new term loan and repayment of the existing term loan in January 2022. The cash used in financing activities of $89.7 million during the same period of 2020 primarily reflects net dividends to stockholders and distributions to noncontrolling interests, and purchase of treasury stock, partially offset by an increase in short-term borrowings.

Share Repurchase Program

On February 8, 2018, the Company’s Board of Directors authorized a share repurchase program of up to $50.0 million in Class A Common Stock and Virtu Financial Units, which was expanded to $100.0 million on July 27, 2018. The Company repurchased approximately 2.6 million shares of Class A Common Stock and Virtu Financial Units for approximately $65.9 million under this program, which expired on September 30, 2019.

On November 6, 2020, the Company's Board of Directors authorized a new share repurchase program of up to $100.0 million in Class A common stock and Virtu Financial Units by December 31, 2021.

On February 11, 2021, the Company's Board of Directors authorized the expansion of the Company's share repurchase program, increasing the total authorized amount by $70.0 million to $170.0 million in Class A Common Stock and Virtu Financial Units up to December 31, 2021.

On May 4, 2021, the Company's Board of Directors authorized the expansion of the Company's share repurchase program, increasing the total authorized amount by $300 million to $470 million in Class A Common Stock and Virtu Financial Units and extending the duration of the program through May 4, 2022.

On November 3, 2021, the Company's Board of Directors authorized the expansion of the Company's current share repurchase program, increasing the total authorized amount by $750 million to $1,220 million and extended the duration through November 3, 2023.

The share repurchase program authorizes the Company to repurchase shares from time to time in open market transactions, privately negotiated transactions or by other means. Repurchases are also permitted to be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions are determined by the Company's management based on its evaluation of market conditions, share price, cash sources, legal requirements and other factors. From the inception of the program through March 31, 2022, the Company repurchased approximately 25.1 million shares of Class A Common Stock and Virtu Financial Units for approximately $726.3 million. As of March 31, 2022, the Company has approximately of $493.7 million remaining capacity for future purchases of shares of Class A Common Stock and Virtu Financial Units under the program.

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 condensed 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. Due to the relative immateriality of our financial instruments classified as level 3, we do not believe that a significant change to the inputs underlying the fair value of our level 3 financial instruments would have a material impact on our consolidated financial statements See Note 9 "Financial Assets and Liabilities" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q 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 Condensed Consolidated Statements of Comprehensive Income.

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 assumed pursuant to the Amended and Restated ITG 2007 Equity Plan, were in the form of stock options, Class A Common Stock, restricted stock awards ("RSAs") and restricted stock units ("RSUs"). The fair value of the stock option grants is determined through the application of the Black-Scholes-Merton model. The fair value of the Class A Common Stock and RSUs is determined based on the volume weighted average price for the three days preceding the grant. With respect to the RSUs, we account for forfeitures as they occur. The fair value of RSAs is determined based on the closing price as of the date of grant. 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, or, in the case of RSAs subject to performance conditions, from the date that achievement becomes probable through the remainder of the vesting period. The assessment of the performance condition becomes certain within the year of grant. 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 RSUs 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 condensed 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. We believe the judgments and estimates discussed above are reasonable. However, if actual results are not consistent with our estimates or assumptions, we may be exposed to losses or gains that could be material.

Tax Receivable Agreements

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. 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, we estimate the cumulative tax receivable agreement obligations to be reported on the consolidated financial statements. The tax attributes are computed as the difference between our basis in the partnership interest ("outside basis") as compared to our share of the adjusted tax basis of partnership property ("inside basis"), at the time of each Exchange. The computation of inside basis requires judgments in estimating the components included in the inside basis as of the date of the Exchange (such as, cash received on hypothetical sale of assets, allocation of gain/loss at the time of the Exchange taking into account complex partnership tax rules). In addition, we estimate the period of time that may generate cash tax savings of such tax attributes and the realizability of the tax attributes.

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). Our estimate of goodwill impairment, if indicated based on results of the qualitative assessment, is highly dependent on our estimate of a reporting unit's fair value.

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, 2021, we performed a qualitative assessment as described above for each reporting unit. No impairment of goodwill was identified.

Valuation of intangible assets involves 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. We amortize finite-lived intangible assets over their estimated useful lives. Our largest finite-lived intangible asset is customer relationships, which is being amortized over an estimated useful life of ten years. Had we used a shorter estimated useful life of seven years, the Company would have recorded an additional $4.1 million of amortization expense for the for the three months ended March 31, 2022 and 2021. 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 condensed consolidated financial statements, see Note 2 "Summary of Significant Accounting Policies" of Part I Item 1 “Financial Statements” of this Quarterly Report on Form 10-Q.

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 Condensed 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 Condensed 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 March 31, 2022 and December 31, 2021 was $6.0 billion and $4.3 billion, respectively, in long positions and $5.1 billion and $3.5 billion, respectively, in short positions. We also enter into futures contracts, which are recorded on our Condensed 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 carry our trading derivative instruments at fair value with gains and losses included in Trading income, net, in the accompanying Condensed 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.

We also use derivative instruments for risk management purposes, including cash flow hedges used to manage interest rate risk on long-term borrowings and net investment hedges used to manage foreign exchange risk. We have entered into floating-to-fixed interest rate swap agreements in order to manage interest rate risk associated with our long-term debt obligations. Additionally, we may seek to reduce the impact of fluctuations in foreign exchange rates on our net investment in certain non-U.S. operations through the use of foreign currency forward contracts. For interest rate swap agreements and foreign currency forward contracts designated as hedges, we assess our 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 interest rate swaps or forward contracts. For instruments that meet the criteria to be considered hedging instruments under ASC 815, any gains or losses, to the extent effective, are included in Accumulated other comprehensive income on the Condensed Consolidated Statements of Financial Condition and Other comprehensive income on the Condensed Consolidated Statements of Comprehensive Income. The ineffective portion, if any, is recorded in Other, net on the Condensed Consolidated Statements of Comprehensive Income.

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 21.6% and 19.4% of our total revenues for the three months ended March 31, 2022 and 2021, 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 total revenues of $15.2 million and $19.7 million for the three months ended March 31, 2022 and 2021, 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 Condensed Consolidated Statements of Comprehensive Income and Condensed 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 Condensed 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 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 March 31, 2022. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of March 31, 2022, 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.

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 March 31, 2022 that has or is reasonably likely to materially affect, our internal control over financial reporting.

PART II

ITEM 1. LEGAL PROCEEDINGS

The information required by this item is set forth in the "Legal Proceedings" section in Note 14 "Commitments, Contingencies and Guarantees" to the Company's condensed consolidated financial statements included in Part I Item 1 "Financial Statements", which is incorporated by reference herein.

ITEM 1A. RISK FACTORS

There have been no material changes to the Risk Factors described in Part I Item 1A. "Risk Factors" in our 2021 Form 10-K.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

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.

Total share repurchases for the three months ended March 31, 2022 were as follows:

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
January 1, 2022 - January 31, 2022				
Class A Common Stock / Virtu Financial Units repurchases	1,763,130	$ 29.21	1,491,584	$737,219,447
February 1, 2022 - February 28, 2022				
Class A Common Stock / Virtu Financial Units repurchases	4,716,705	$ 31.19	438,603	600,320,210
Class C Common Stock/ Virtu Financial Units repurchases	234,269	35.69	—	
March 1, 2022 - March 31, 2022				
Class A Common Stock / Virtu Financial Units repurchases	3,041,553	$ 35.16	3,030,927	493,720
Total Common Stock / Virtu Financial Unit repurchases	9,755,657	$ 32.18	4,961,114	$493,720

(1) Includes the repurchase of 612,844 shares from employees in order to satisfy statutory tax withholding requirements upon the net settlement of equity awards for the three months ended March 31, 2022.

On November 6, 2020, the Company's Board of Directors authorized a new share repurchase program of up to $100.0 million in Class A common stock and Virtu Financial Units by December 31, 2021. On February 11, 2021, the Company's Board of Directors authorized the expansion of the program by an additional $70 million in Class A Common Stock and Virtu Financial Units. On May 4, 2021, the Company's Board of Directors authorized the expansion of the Company's share repurchase program, increasing the total authorized amount by $300 million to $470 million in Class A Common Stock and Virtu Financial Units and extending the duration of the program through May 4, 2022. Additionally, on November 3, 2021 the Company's Board of Directors authorized the expansion of the program by an additional $750 million to $1,220 million and extending the duration of the program through November 3, 2023. The share repurchase program authorizes the Company to repurchase shares from time to time in open market transactions, privately negotiated transactions or by other means. Repurchases are also permitted to be made under Rule 10b5-1 plans. The timing and amount of repurchase transactions are determined by the Company's management based on its evaluation of market conditions, share price, cash sources, legal requirements and other factors. From the inception of the program through March 31, 2022, the Company repurchased approximately 25.1 million shares of Class A Common Stock and Virtu Financial Units for approximately $726.3 million. As of March 31, 2022, the Company has approximately $493.7 million remaining capacity for future purchases of shares of Class A Common Stock and Virtu Financial Units under the program.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

None.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Description
10.1*†	Virtu Financial, Inc. Amended and Restated 2015 Management Incentive Plan Employee Restricted Stock Unit Award Agreement, dated as of March 1, 2022, by and between Virtu Financial, Inc. and Douglas A. Cifu.
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 the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Virtu Financial, Inc.

DATE:	May 3, 2022	By:	/s/ Douglas A. Cifu Douglas A. Cifu Chief Executive Officer
DATE:	May 3, 2022	By:	/s/ Sean P. Galvin Sean P. Galvin Chief Financial Officer

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

THIS RESTRICTED STOCK UNIT AWARD AGREEMENT (the "Agreement"), is entered into as of March 1, 2022 (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 Units (the "RSUs") 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);

WHEREAS, the Company has adopted that certain Deferred Compensation Plan, effective November 13, 2020 and as amended from time to time (the "Deferred Compensation Plan") pursuant to which eligible employees may elect to defer certain compensation in accordance with the terms thereof and any other applicable requirements or conditions;

WHEREAS, the Participant made a deferral election in accordance with the Deferred Compensation Plan on or prior to December 31, 2021 pursuant to which the Participant elected to defer all equity compensation awarded in consideration of services rendered in the fiscal year ended December 31, 2022 (the "Cifu 2022 Deferral Election");

WHEREAS, the Compensation Committee of the Board of Directors of the Company has previously determined that it is in the best interests of the Company and its stockholders to grant the annual award in accordance with the terms of Participant's Employment Agreement;

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 Stock Units.

(a) Grant. The Company hereby grants to the Participant 150,000 RSUs on the terms and conditions set forth in this Agreement and as otherwise provided in the Plan. The RSUs shall be credited to a separate book-entry account maintained for the Participant on the books of the Company, which may be maintained by a third party.

(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; Settlement of Restricted Stock Units.

(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 RSUs earned pursuant to Section 2(b) hereof shall vest in two (2) equal installments on each of December 31, 2022 and December 31, 2023 (each such date, a "Vesting Date"). Upon each Vesting Date, such portion of the RSUs 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 RSUs resulting from the application of the vesting schedule shall be aggregated and the RSUs resulting from such aggregation shall vest on the final Vesting Date.

(b) The number of RSUs 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 2021 in accordance with the table below.

Percentage of Budgeted EBITDA Achieved	**Number of RSUs 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 RSUs in the table above will be determined based on linear interpolation.

(c) Vested RSUs shall be settled in shares of Class A Common Stock, or cash, as determined by the Committee in its sole discretion, at the time(s) specified pursuant to the Cifu 2022 Deferral Election, a copy of which is attached and incorporated herein.

3. Dividends Equivalents. 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 RSU 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 RSUs shall be accelerated, remain eligible to be earned or cancelled in accordance with the terms of the Employment Agreement.

5. Rights as a Stockholder. The Participant shall not be deemed for any purpose to be the owner of any shares of Class A Common Stock underlying the RSUs unless, until and to the extent that (i) the Company shall have issued and delivered to the Participant the shares of Class A Common Stock underlying the RSUs and (ii) the Participant's name shall have been entered as a stockholder of record with respect to such shares of Class A Common Stock on the books of the Company. The Company shall cause the actions described in clauses (i) and (ii) of the preceding sentence to occur promptly following settlement as contemplated by this Agreement, subject to compliance with applicable laws.

6. Compliance with Legal Requirements.

(a) Generally. The granting and settlement of the RSUs, 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 and settlement of the RSUs 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 RSUs, settlement of the RSUs, or any payment or transfer of the RSUs, 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 settlement of the RSUs with a Fair Market Value equal to such withholding liability.

7. 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 7, in addition to any other remedy which may be available at law or in equity, the RSUs 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.

8. Miscellaneous.

(a) Transferability. The RSUs 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 RSUs contrary to the provisions hereof, and the levy of any execution, attachment or similar process upon the RSUs, 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 RSUs 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 8(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 RSUs will not be subject to interest and penalties under Section 409A.

(d) General Assets. All amounts credited in respect of the RSUs to the book-entry account under this Agreement shall continue for all purposes to be part of the general assets of the Company. The Executive's interest in such account shall make the Executive only a general, unsecured creditor of the Company.

(e) 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.

(f) 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.

(g) 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.

(h) Fractional Shares. In lieu of issuing a fraction of a share of Class A Common Stock resulting from adjustment of the RSUs 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.

(i) 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.

(j) 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.

(k) 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, except as set forth in Section 7 hereof. 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. Furthermore, this Agreement hereby rescinds and supersedes the 2021 Restricted Stock Award.

(l) 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 RSUs 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.

(m) 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.

(a) 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.

(b) 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).

(c) 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: /s/ Robert Greifeld
Name: Robert Greifeld
Title: Chairman

/s/ Douglas A. Cifu
Douglas A. Cifu

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 Quarterly Report on Form 10-Q for the period ending March 31, 2022 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: May 3, 2022

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, Sean Galvin, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q for the period ending March 31, 2022 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: May 3, 2022

By: /s/ Sean P. Galvin
Sean Galvin
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 Quarterly Report on Form 10-Q of Virtu Financial, Inc. (the "Company") for the period ended March 31, 2022 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: May 3, 2022

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 Quarterly Report on Form 10-Q of Virtu Financial, Inc. (the “Company”) for the period ended March 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Sean P. Galvin, 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/ Sean P. Galvin
Sean Galvin
Chief Financial Officer

Date: May 3, 2022