

**UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK**

_____, individually and on
behalf of all others similarly situated,

Plaintiff,

v.

CIBC WORLD MARKETS, INC., CIBC
WORLD MARKETS CORP., THE
CANADIAN IMPERIAL BANK OF
COMMERCE, RBC DOMINION
SECURITIES, INC., RBC CAPITAL
MARKETS, LLC, and ROYAL BANK OF
CANADA,

Defendants.

Case No. _____

CLASS ACTION

JURY TRIAL DEMANDED

CLASS ACTION COMPLAINT

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Plaintiff (“Plaintiff”), by and through his undersigned counsel, brings this action under Sections 9, 10(b) and 20(a) of the Securities Exchange Act of 1934 (the “Exchange Act”), and U.S. Securities and Exchange Commission (“SEC”) Rule 10b-5 promulgated thereunder, on behalf of itself and all other similarly situated persons who sold the securities of Quantum Biopharma Ltd., formerly known as FSD Pharma, Inc. (“Quantum” or the “Company”) between January 6, 2021 and October 15, 2025, inclusive (the “Class Period”), and were damaged thereby.

Plaintiff alleges the following based upon personal knowledge as to Plaintiff’s own acts, and upon information and belief as to all other matters based on the investigation conducted by and through Plaintiff’s attorneys, which included, among other things, (i) a review and analysis of publicly available information relating to Quantum; and (ii) statistical and economic analyses of trading data relating to Quantum securities. Plaintiff’s investigation into the factual allegations contained herein is continuing, and many of the facts supporting the allegations contained herein are known only to the Defendants or are exclusively within their custody or control. Plaintiff believes that further substantial evidentiary support will exist for the allegations contained herein after a reasonable opportunity for discovery.

PRELIMINARY STATEMENT

1. This federal securities class action arises from the Defendant broker-dealers’ manipulative and illegal trading in the securities of Quantum,¹ a biotechnology company that develops treatments for multiple-sclerosis. For years, Defendants repeatedly, and on a massive scale, placed and executed manipulative trades that were designed to, and did, artificially deflate

¹ During the Class Period, Quantum was known as FSD Pharma, Inc. and traded on the Nasdaq and CSE exchanges under the ticker symbol, “HUGE.”

the price of Quantum stock. This fraudulent scheme, known as “spoofing,” enriched Defendants while devastating public investors like Plaintiff.

2. As the SEC has explained, “spoofing” is a manipulative and illegal trading practice that involves submitting and then cancelling buy or sell orders without any genuine intent to execute them. The purpose of these “baiting orders” is to mislead other market participants about the level of supply and/or demand for a security and thereby influence market prices for that security. For instance, large baiting orders on the “buy-side” mislead investors into believing that there is significant excess demand for a security (when there is not), thereby raising market prices. Conversely, large baiting order on the “sell-side” mislead investors into believing that there is excess supply for a security (when there is not), thereby lowering market prices.

3. By manipulating the market price in this manner, the spoofer seeks to benefit his preexisting or newly-acquired positions on the opposite side of the order book. For instance, the spoofer may place a large sell-side baiting order that moves the market price down; that downward price movement may benefit the spoofer’s pre-existing short positions, or the spoofer may quickly place a number of new buy orders so that he can acquire the stock at the prices artificially depressed by his manipulative conduct. In either case, once the spoofer reaps this illicit benefit, he cancels the large “baiting” orders, leaving innocent market participants holding the bag.

4. During the Class Period, Defendants repeatedly entered thousands of spoofed sell orders designed to create the false impression in the market that Quantum’s stock price was falling. These manipulative orders were calculated to (and successfully did) deceive or induce other investors to sell their holdings at artificially low prices. After driving the market price down, Defendants purchased shares at these artificially depressed levels and positioned themselves to

profit. Meanwhile, investors, including Plaintiff, were baited into selling their shares at artificially depressed prices.

5. Significantly, even prior to the start of the Class Period, regulators had specifically warned Defendants that the market-access and trading platforms they had developed and operated could be—and in fact had been—used to facilitate unlawful trading activity such as spoofing.

6. Moreover, after the end of the Class Period, the SEC fined Defendants millions of dollars for “widespread and longstanding” violations federal securities laws throughout the Class Period, *specifically finding* that Defendants failed to maintain adequate supervisory systems, recordkeeping, and communications controls—deficiencies that regulators have repeatedly warned create precisely the conditions under which manipulative trading can occur. Among other things, the SEC cited suspicious and “pervasive off-channel communications,” including “at senior levels,” concerning the routing, placement, and execution of trades. The secretive nature of these improper communications, which violated both federal law and Defendants’ own policies, raises a strong inference that Defendants knew the trading under discussion was illicit.

7. As a result of Defendants’ deceptive and manipulative conduct, Plaintiff and the Class have suffered significant damages.

PARTIES

Plaintiff

8. Plaintiff is a shareholder of Quantum. As set forth in the attached certification, Plaintiff sold or otherwise disposed Quantum securities during the Class Period and was damaged by Defendants’ manipulative conduct in violation of federal securities law, as detailed herein.

Broker-Dealer Defendants

9. CIBC World Markets Inc. (“CIBC World Markets”) is a Canadian corporation based in Toronto, Ontario. It is a registered broker-dealer that primarily executes securities

transactions for its customers in Canada, including on the Canadian Securities Exchange (“CSE”), and routes to intermediary broker-dealers in the U.S. orders to be executed for its customers. Although CIBC cannot directly execute an order on a U.S. exchange (because it is not a member of any such exchange), it can and does clear and settle trades for its customers that are executed by intermediary broker-dealers on U.S. exchanges.

10. CIBC World Markets Corp. (“CIBC World Markets USA”), is a Delaware corporation with its principal place of business in New York and is wholly-owned by the Canadian Imperial Bank of Commerce (“CIBC”). CIBC World Markets USA is a registered broker-dealer with the SEC and operates as CIBC’s U.S. brokerage, through which CIBC and its foreign brokerages routed trades to be placed and executed on U.S. exchanges.

11. RBC Dominion Securities Inc. (“RBC Securities”) is a Canadian corporation based in Montreal, Quebec, and Toronto, Ontario. It is a registered broker-dealer that primarily executes securities transactions for its customers in Canada, including on the CSE, and routes to intermediary broker-dealers in the U.S. orders to be executed for its customers. RBC Securities clears and settles trades for its customers that are executed by intermediary broker-dealers on U.S. exchanges.

12. RBC Capital Markets, LLC (“RBC Capital Markets”) is a Minnesota limited liability company, and is owned by the Royal Bank of Canada (“RBC”). RBC Capital Markets is a registered broker-dealer with the SEC and operates as RBC’s U.S. brokerage, through which RBC and its foreign brokerages routed trades to be placed and executed on U.S. exchanges.

13. CIBC World Markets, CIBC World Markets USA, RBC Securities, and RBC Capital Markets are collectively referred to as the “Broker-Dealer Defendants.”

Control Person Defendants

14. CIBC is a chartered bank headquartered in Toronto, Ontario. CIBC is a financial institution that offers retail and business banking, wealth management, and capital-markets services to clients worldwide. Through its capital-markets division, CIBC wholly owns and controls its broker-dealer subsidiary, CIBC World Markets, which executes securities transactions for customers in Canada and routes or coordinates orders with intermediary broker-dealers in the United States. CIBC exercises oversight and control over the operations, compliance, and trading practices of CIBC World Markets, including supervision of its securities and order-routing activities.

15. RBC is a Canadian chartered bank headquartered in Toronto, Ontario. RBC is a financial institution and one of Canada's largest banks by market capitalization and assets. It provides a comprehensive range of financial services through its personal and commercial banking, wealth management, insurance, investor-service, and capital-markets divisions. RBC wholly owns and controls its broker-dealer subsidiaries, RBC Securities in Canada and RBC Capital Markets in the United States. RBC exercises direct and indirect control over the management, compliance, and trading operations of its subsidiaries, including supervision of its securities and order-routing activities.

16. CIBC and RBC are collectively referred to as the "Control Person Defendants."

JURISDICTION AND VENUE

17. The claims asserted herein arise under §§ 10(b), 9(a) and (f), and 20(a) of the Exchange Act, 15 U.S.C. §§ 78j(b) and 78i, and the rules and regulations promulgated thereunder, including SEC Rule 10b-5, 17 C.F.R. §240.10b-5. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. § 1331, and § 27 of the Exchange Act, 15 U.S.C. § 78aa.

18. Venue is proper in this District pursuant to § 27 of the Exchange Act, 15 U.S.C. § 78aa and 28 U.S.C. § 1391(b) because the Company conducts substantial business in this District and a significant portion of the damages due to Defendants' misconduct were suffered within this District. Further, Quantum's securities also trade on the Nasdaq, which is located within this District.

19. Defendants have engaged in cross-border spoofing schemes intended to manipulate Quantum's stock price in the U.S. and Canada, directly affecting the U.S. market.

20. Defendants have conducted continuous activity in New York, directly related to these claims, by employing high-speed algorithmic computer systems to disseminate and/or effect orders and execute trades of Quantum shares throughout the U.S., including in New York, on stock exchanges in the U.S. through intermediary U.S. broker-dealers.

21. In connection with the acts, conduct, and other wrongs alleged in this Complaint, Defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including, but not limited to, the U.S. mails, interstate telephone communications, and facilities of the national securities markets.

SUMMARY OF THE FRAUD

Quantum's Business

22. Quantum is a biopharmaceutical company founded in 1994 that develops innovative biotechnology assets and therapeutic solutions targeting difficult-to-treat neurodegenerative and metabolic disorders, as well as alcohol misuse disorders. Among other products, Quantum developed Lucid-MS, a novel molecular compound aimed at treating multiple sclerosis and other neurodegenerative conditions; Lucid-MS is currently in clinical trials. Quantum also developed "Unbuzzd," a nonprescription product formulated to alleviate the adverse effects of alcohol consumption.

23. Quantum has been a publicly traded company since May 2018. During the Class Period, its shares were listed on both Nasdaq and the CSE and were actively traded on stock exchanges in the U.S. and Canada.

24. Since 2020, Quantum's shares of stock have been interlisted, enabling these shares to be traded on multiple exchanges, including both the Nasdaq and the CSE. Until August 15, 2024, Quantum was known as FSD Pharma, Inc. and traded under the ticker symbol, "HUGE."

25. Trading interlisted securities is done using a unique security identifier known as a CUSIP, which, for Quantum, is 35954B404. Transactions on both the U.S. and Canadian exchanges are executed and settled electronically through this CUSIP number.

26. Quantum shares carry the same CUSIP regardless of where they are traded, thereby making such shares fully fungible across jurisdictions. Thus, a share of Quantum stock traded in the U.S. is identical to a share traded in Canada.

27. Purchasers and sellers of interlisted securities generally have no control over where their broker-dealer routes, executes, or disseminates their orders. Because of the seamless connection between the Canadian and U.S. markets for interlisted securities, and the effects of arbitrage trading,² transactions in one country's market directly and immediately influence the trading price in the other.

Under Federal Securities Regulations, Defendants Had a Duty, as Market "Gate-keepers," To Monitor Order Flow and To Refrain from Facilitating and Executing Illegal Trades

28. Investors cannot place orders on an exchange unless they are members of that exchange. As broker-dealers, Defendants execute trades and place orders in those exchanges on

² Market-makers and arbitrageurs promote market efficiency by trading out any mispricing of securities across markets. For instance, if a security was priced lower than an identical security trading in another market, arbitrageurs would buy the security in the lower-priced market (imposing increased demand, which raises the price) and sell it in the higher-priced market (imposing increased supply, which lowers the price).

behalf of investors without direct exchange access. For U.S. transactions, this occurs through Direct Market Access (“DMA”) pursuant to SEC Rule 15c3-5 (the Market Access Rule), and for Canadian transactions, through Direct Electronic Access (“DEA”) under Universal Market Integrity Rule (“UMIR”) 7.13 governing Direct Electronic Access and Routing Arrangements. Through these mechanisms, Defendants enable their customers to enter orders and trades that Defendants then execute and transmit to the relevant exchanges.

29. As a standard part of their business operations, Defendants provide clients with DMA and DEA access to trading venues and earn transaction-based fees for executed trades. Orders placed by customers through these systems do not appear in the customers’ own names; rather, they are identified publicly as orders placed by Defendants, bearing Defendants’ broker-dealer Market Participant Identifiers (“MPIDs”).

30. Defendants also trade securities, including shares of Quantum stock, on a principal basis for their own proprietary accounts.

31. Both Canadian and U.S. regulators regard broker-dealers, like Defendants, as critical “gate-keepers” of market integrity and financial-system stability. U.S. law and regulation makes broker-dealers responsible for illegal and manipulative trading they facilitate and execute. In particular, the SEC requires broker-dealers to ensure that all order flow they execute on behalf of customers to whom they have supplied DMA or DEA complies with applicable laws, rules, and regulations.

32. For instance, the SEC’s Market Access Rule, 17 C.F.R. § 240.15c3-5, and the Canadian Investment Regulatory Organization’s (“CIRO”) UMIR 7.13, broker-dealers must establish, document, and maintain supervisory and risk-management systems reasonably designed

to identify and control financial, regulatory, and operational risks, and to safeguard the fairness and orderliness of the markets.

33. The Financial Industry Regulatory Authority's ("FINRA"), a self-regulatory organization for broker-dealers that operates under SEC oversight and is responsible under federal law for supervising its members, also requires broker-dealers to ensure that orders they execute on their behalf or on behalf of their customers comply with federal securities laws. For instance, Rule 3110 requires brokerage firms to "establish and maintain a system to supervise the activities of each associated person, (i.e., customers or internal trading desk) that are reasonably designed to achieve compliance with applicable securities laws and regulations[.]"

34. Although Canada does not have a single national securities regulator comparable to the SEC, all Canadian exchanges and Alternative Trading Systems ("ATS") are required to be members of CISO and are bound by UMIR. These rules parallel SEC and FINRA requirements by mandating that broker-dealers adopt and maintain written policies and procedures governing the conduct of their officers, employees, and customers.

35. In particular, UMIR 7.1 requires broker-dealers to oversee all customer trading executed through automated systems such as DMA or DEA. Firms that provide such market access are subject to the highest level of supervisory responsibility and may face CISO or FINRA sanctions for failing to monitor customer trading.

36. Registered broker-dealers such as the Broker-Dealer Defendants are also obligated under FINRA and Nasdaq rules to detect and prevent manipulative or fraudulent trading activity, including algorithmic high-speed trading, conducted under their supervision. Additionally, FINRA requires firms to file an Annual Certification of Compliance and Supervisory Processes confirming that they have: (1) implemented and maintained policies and procedures reasonably designed to

achieve compliance with applicable FINRA, Municipal Securities Rulemaking Board, and federal securities rules; (2) updated those procedures as business, regulatory, or legislative developments require; and (3) tested their effectiveness periodically to ensure continued compliance.

37. Defendants expressly recognized and accepted their role as market “gate-keepers” and their obligation to monitor customer order flow and to prevent, rather than facilitate, unlawful trading schemes such as spoofing executed under Defendants’ MPIDs. Each Defendant maintained written compliance procedures affirming these monitoring obligations. As detailed below, Defendants knowingly disregarded those obligations.

38. Indeed, even prior to the start of the Class Period, regulators had warned Defendants that the market-access and trading platforms they had developed and operated could be—and in fact had been—used to facilitate unlawful trading activity such as spoofing. In October 2019, for instance, the Commodity Futures Trading Commission (“CFTC”) ordered RBC Capital Markets to pay \$5 million for failing to meet its supervisory obligations, which resulted in hundreds of unlawful trades and other violations over the period of at least late 2011 through May 2017.

39. Indeed, in 2022, Canadian regulators specifically found that in 2019 and 2020, CIBC had placed spoofing-type trades through its high-frequency/algorithmic trading platforms and had “failed to comply with its trading supervision obligations.” In particular, CIRO (then “the Investment Industry Regulatory Organization of Canada”) found that CIBC had repeatedly allowed traders to “enter[] order and quickly delet[e] them” (the *sine qua non* of spoofing) in order to engage in “abusive liquidity detection,” a deceptive practice known as “pinging.” Notably, CIBC placed these non-bona fide trades *even after regulators had previously warned* CIBC that traders on its platform were engaged in illegal ping. Regulators concluded that CIBC “did not

take reasonable steps at the time the order entry activity was occurring to ensure that the trades placed [by traders] were bona fide and did not otherwise interfere with fair and orderly markets.”

The SEC Found That, During the Class Period, Defendants Failed to Maintain Adequate Supervisory Systems,

40. Moreover, the SEC has now specifically found that during the Class Period, Defendants failed to maintain adequate supervisory systems, recordkeeping, and communications controls—deficiencies that regulators have repeatedly warned create precisely the conditions under which manipulative trading can occur.

41. In August and September 2024, the SEC issued consent orders finding that both CIBC World Markets USA and RBC Capital Markets had for years, and throughout the duration of the Class Period, repeatedly violated federal securities laws by failing to exercise proper supervision and record-keeping with respect to the “placing and execution of orders to purchase and sell securities.” The SEC found “widespread and longstanding” violations of these duties going back to “at least June 2019” in RBC’s case, and back to “at least August 2020,” with respect to CIBC. The SEC hit both broker-dealers with multi-million-dollar penalties - \$12 million for CIBC World Markets USA and \$45 million for RBC Capital Markets.

42. Notably, the SEC’s consent orders highlighted suspicious and “pervasive off-channel communications,” including off-channel texts on WhatsApp and other encrypted text messaging platforms, “including at senior levels,”³ concerning the routing, placement, and execution of orders. The SEC explained that this conduct not only violated federal securities laws, but also both broker-dealers’ internal company policies. That, in violation of both internal policies and federal law, senior CIBC and RBC personnel discussed placement and execution of certain

³ For instance, the SEC highlighted misconduct by “a CIBC World Markets managing director and head of a group who held a senior leadership role at the firm.”

orders using off-channel communications – channels that would bypass official record-keeping – gives rise to a strong inference that the trading discussed was improper and that CIBC and RBC personnel were well aware of that fact.

Defendants’ Spoofing Trades Materially Distorted Market Perception of Quantum’s Supply and Demand

43. In an efficient market free from manipulation, a security’s price reflects the natural interplay of supply and demand: when demand increases or supply decreases, the price rises; conversely, when demand falls or supply expands, the price declines.

44. The purpose of a spoofing scheme is to manipulate publicly available data regarding a security’s true supply and demand by introducing false and deceptive signals into the market that misrepresent genuine buying or selling interest.

45. A spoofer manipulates market perception by placing deceptive “Baiting Orders” into the Limit Market Order Book to fabricate the appearance of heightened supply or demand.⁴ These Baiting Orders serve no legitimate economic purpose and the spoofers never intend to execute them. Their sole function is to create the illusion of significant market interest, prompting other traders to react to the fictitious buying or selling pressure. Once these false signals influence the market and alter the trading price, the spoofer cancels the Baiting Orders. The spoofer capitalizes on the resulting movement by purchasing shares at artificially depressed prices or selling them at artificially inflated ones; or by pushing the price in a direction that accommodates,

⁴ A “Limit Order Book” is an electronic list of buy and sell orders for specific securities and other financial instruments that is organized by price levels and lists the number of shares being bid or offered at each price point. The Limit Order Book reflects whether the market price for the security is moving upwards or downwards and is visible to every trader on the exchange.

or enhances the value of, a pre-existing position (for instance, pushing the price of a security above or below the strike price of a corresponding put or call option).⁵

46. Spoofing can be used to artificially move a security's price in *either* direction – to increase or decrease its price. When the spoofer's objective is to push the price downward, the spoofer places Baiting Orders to sell that are intended to “bait” or “trick” other investors into submitting their own sell orders in an effort to minimize losses or avoid further decline in a perceived falling market. After the spoofer enters the Baiting Orders to sell and those orders have induced other market participants to sell, the spoofer may capitalize on the price movement by executing buy orders, referred to as “Executing Purchase Orders,” on the opposite side of the order book. These Executing Purchase Orders are meant to be executed at the artificially deflated prices created by the prior Baiting Orders. Once the Executing Purchase Orders to buy have been executed in the Market Order Book, the spoofer cancels the Baiting Orders to sell, thereby completing the spoofing cycle.

47. A hallmark of manipulative spoofing is a rapid reversal in trading direction. For example, a trader may enter numerous sell orders, then place a buy order, and soon thereafter cancel the original sell orders. This sequence of conduct indicates that the initial sell orders were never intended for execution but instead were used as a device to push the share price downward, allowing the spoofer to “buy low.”

48. A spoofing scheme designed to move a security's price upward or downward is often carried out repeatedly within a single trading day and continued over an extended trading period. Although each individual spoofing event may exert only a limited effect on the market,

⁵ Spoofers often use high-frequency trading computer systems that operate algorithmic trading programs to maximize the speed of their market access and the execution of their trading strategies.

the cumulative impact of repeated spoofing over time can be substantial, persistent, and enduring because investors' reaction to a given price movement is also a function of their assessment of prior stock movements. As such, the market's reaction to *seriatim* material declines in a stock's price will be different than its reaction to a single decline.

49. Since going public, Quantum's overall financial performance showed steady growth and increasing success. For instance, burgeoning biotech companies frequently operate for many years at an accelerating loss as they spend significant capital to navigate the costly process for bringing drug products to market. Quantum, however, consistently *reduced* its operating loss, and, during the Class Period, cut its operating losses by more than half.

50. Moreover, prior to and throughout the Class Period, Quantum announced a steady drumbeat of positive news, including achieving critical clinical and regulatory milestones; lucrative licensing deals; and promising acquisitions. Despite this highly-positive news, Quantum's stock price declined dramatically as a direct result of Defendants' manipulative and illegal trading.

51. For instance, on June 3, 2020, at the height of the COVID-19 pandemic, the Company announced that it obtained FDA authorization to submit an Investigational New Drug Application for FSD-201 as a potential treatment for COVID-19. Later that month, on June 22, 2020, the Company reported favorable trial results for the drug. On August 31, 2020, Quantum disclosed that it had formally submitted the Investigational New Drug Application to the FDA, and on September 28, 2020, announced that the FDA had granted approval to proceed with Phase 2 clinical trials. Despite these positive developments, Quantum's share price declined by an astonishing **63%** during that period, from \$7.39 to \$2.76 – a direct result of massive spoofing trades executed by Defendants.

52. Likewise, on March 16, 2021, the Company announced that it had entered into a lucrative licensing agreement to develop veterinary drug products. Subsequently, on May 10, 2021, the Company reported that it had submitted an Investigational New Animal Drug Application to the FDA for those products. Nevertheless, Quantum's share price again declined during this period, falling **24%**, from \$2.07 to \$1.58. This decline was driven by a high volume of spoofing trades placed by Defendants.

53. Similarly, on August 25, 2021, the Company announced that it had reached an agreement to acquire Lucid Psycheceuticals Inc. ("Lucid"), a Canada-based psychedelic pharmaceutical company specializing in therapies for severe neurodegenerative diseases. The acquisition closed on September 21, 2021. In the months that followed, the Company released a series of favorable updates regarding Lucid's development efforts, including announcements on October 19, 2021 (development contract), January 5, 2022 (pre-clinical data), July 13, 2022 (patent application), January 17, 2023 (submission of an application for a Phase 1 clinical trial), February 7, 2023 (receipt of regulatory clearance to commence a clinical trial in Canada), and March 22, 2023 (receipt of regulatory clearance to initiate clinical trials in Australia). Despite this steady flow of positive news, Quantum's share price declined **15%**, from \$1.84 to \$1.56 over the same period – once again, that decline was driven by Defendants' spoofing trades.

54. As yet another example, on February 14, 2023, the Company announced the initiation of a new research and development program targeting unmet medical needs related to alcohol misuse. Subsequently, on June 20, 2023, the Company disclosed that it had entered into an exclusive licensing agreement with Celly Nutrition Inc. covering recreational applications of Quantum's alcohol misuse technology. On August 25, 2023, the Company announced the official

launch of that technology. Despite these announcements, Quantum's share price declined **28%**, from \$1.74 to \$1.25, during this timeframe.

55. These declines in share price were not attributable to negative company developments, adverse industry conditions, or broader market factors. In fact, despite the steady flow of positive information concerning Quantum's business prospects during the Class Period, the Company's stock substantially underperformed both the Nasdaq Index and the Nasdaq Small Cap Biotech Index.

56. As detailed below, the decline in Quantum's share price was the direct result of Defendants' ongoing manipulation of the market for Quantum stock through repeated acts of spoofing.

Defendants Executed a Massive Volume of Illegal Spoofing Trades During the Class Period, Destroying Substantial Investor Value

57. Detecting manipulative trading schemes is challenging when relying solely on publicly available data for at least two reasons. First, participants in such schemes typically use multiple tactics to conceal their unlawful activity. Second, most publicly available order flow data for listed securities is anonymized, making it difficult to trace specific trading behavior to particular actors.⁶

58. However, detailed, order-level market data are available for Canadian exchanges. These data include, among other things, every order and trade along with a unique identifier corresponding to the broker responsible for executing that transaction. An analysis of those data

⁶ In this regard, public investors are very differently situated from Defendants, who have unfettered access to de-anonymized order and execution data, possess sophisticated monitoring tools, indeed, have a duty to track those data in real-time for manipulative trading, as discussed above. Accordingly, while public investors have an exceedingly difficult time uncovering evidence of manipulative trading, Defendants' execution of those trades was severely reckless, at a minimum.

reveal that the Broker-Dealer Defendants engaged in extensive spoofing throughout the Class Period.

59. As described in greater detail below, each Defendant's spoofing activity involved placing and then canceling Baiting Orders on both U.S. and Canadian exchanges, thereby depressing the market price of Quantum stock on those exchanges, as well as submitting Executing Purchase Orders on both U.S. and Canadian trading platforms.

60. Defendants' spoofing activity was carried out either by their own traders through proprietary or principal accounts or by Defendants' customers who accessed the markets using Defendants' DMA or DEA systems to place orders under Defendants' accounts. As "gatekeepers" of market integrity, Defendants were obligated to establish, document, and maintain supervisory controls, policies, and procedures designed to manage risk and prevent fraudulent trading by their customers, as discussed above. In either case, Defendants are liable both for their own traders' actions and for knowingly or recklessly executing, on a massive and widespread scale, manipulative and illegal trades placed by their customers.

61. During the Class Period, Defendants entered thousands of Baiting Orders on both Canadian and U.S. stock exchanges with the purpose of creating the false impression that the market value of Quantum shares was falling due to normal supply-and-demand dynamics.

62. Defendants executed their spoofing schemes through the following three steps:

Acting either for their own account or executing customer trades, Defendants inundated exchange Limit Order Books with a large volume of Baiting Orders to sell. These Baiting Orders to sell were placed solely to deceive and mislead other market participants into believing that the price of Quantum shares was falling due to ordinary market forces of supply and demand;

At nearly the same time as they placed the Baiting Orders, Defendants entered Executing Purchase Orders on the opposite side of the Limit Order Books to buy Quantum shares at the artificially depressed prices created by their own Baiting Orders to sell;

Once the Executing Purchase Orders to buy Quantum shares were completed at those lower prices, Defendants cancelled and removed all outstanding Baiting Orders to sell from the Limit Order Books.

63. The three steps of Defendants' spoofing scheme, which together constitute a "Spoofing Episode" or "Spoofing Cycle," were often executed within mere seconds or even milliseconds and were repeated numerous times each day, continuing throughout the entirety of the Class Period.

64. The ongoing placement and cancellation of thousands of Baiting Orders to sell by Defendants on Canadian and U.S. stock exchanges served no legitimate market function. Instead, this conduct was intended to transmit false and misleading price signals designed to misleadingly bait or induce other market participants into placing their own sell orders. Through this scheme, Defendants perpetrated a fraud on the market and created a "pile-on" effect that further depressed the price of Quantum's shares. This manipulation allowed Defendants to purchase Quantum shares at artificially deflated prices (or benefitted existing positions), whether for their customers' accounts or for their own proprietary trading, and caused Plaintiff to sell shares at prices distorted by Defendants' misconduct.

65. During the Class Period, Defendants placed fictitious Baiting Orders totaling *at least* 11,967,000 shares on Canadian stock exchanges. In addition, although the data from U.S. exchanges is more limited, Defendants placed fictitious Baiting Orders totaling *at least* 2,293,191 shares on U.S. exchanges at the same time as they placed Baiting Orders on Canadian exchanges.⁷

66. It is important to note that these figures are especially conservative with respect to U.S. exchanges because trading data in those markets is anonymized, making spoofing activity

⁷ Notably, these spoofing episodes on U.S. exchanges occurred *within one hour before* large sales of stock by the issuer. There are many spoofing episodes from Defendants on U.S. exchanges that occurred outside of this time window as well.

particularly difficult to detect. Despite this limitation, Plaintiff was able to identify Defendants' trading activity on U.S. exchanges by matching anonymized transactions from those exchanges with Defendants' corresponding trades on Canadian exchanges, where the data is not anonymized. Specifically, Plaintiff infers that orders and trades appearing on U.S. exchanges within ten milliseconds or less of Defendants' orders and trades on Canadian exchanges were also placed by Defendants. This inference is based on the facts that the transactions occurred simultaneously or nearly so, and that the probability of unrelated market participants placing trades within such a narrow time window is extremely low. Indeed, the chance that two order messages sent independently within the same second would also occur within the same ten-millisecond interval purely by random coincidence is approximately 1 in 100,000, or 0.001%. The probability that two such orders would align within any specified ten-millisecond period by random chance is even lower.⁸

67. Moreover, the data demonstrates that Defendants' spoofing activity on U.S. exchanges was far more extensive than Plaintiff has been able to identify to date. First, analysis of Canadian trading data shows that Defendants engaged in spoofing on Canadian exchanges with far greater frequency than any other identifiable market participants. Second, even the very limited data available from U.S. exchanges demonstrates that Defendants also engaged in spoofing in those markets. Third, trading volume on U.S. exchanges is significantly higher than on Canadian exchanges, which makes it likely that the scale of spoofing there was greater as well.

68. Defendants' Baiting Orders created significant sell-side imbalances in their order flow that were designed to, and in fact did, convey false and misleading pricing signals to the

⁸ Several courts have recognized the cogency of this inference. *See, e.g., Mullen Automotive, Inc. v. IMC Financial Markets*, 2025 WL 951501, at *4 (S.D.N.Y. Mar. 28, 2025).

market, thereby disrupting the natural process by which Quantum's share price would otherwise have been set through genuine supply and demand.

69. Defendants disseminated and executed the Baiting Orders on both Canadian and U.S. stock exchanges with knowledge that these orders were components of a spoofing scheme designed to manipulate the market price of Quantum stock.

70. Defendants' Baiting Orders were intentionally structured to produce a "pile-on" effect that generated artificial selling pressure, prompting other market participants to place additional sell orders and causing the price of Quantum shares to fall artificially.

71. At nearly the same time, Defendants made Executing Purchase Orders to buy hundreds of thousands of Quantum shares at the artificially depressed prices. These purchases were made at prices below the prevailing best offer that existed before Defendants placed the Baiting Orders.

72. Shortly after completing these transactions, Defendants cancelled all of the fictitious Baiting Orders.

73. Defendants' Baiting Orders were designed to operate as part of a fraudulent scheme to manipulate the market for Quantum shares, rather than to be executed. The non-bona fide character of these trades is demonstrated by, among other things: (1) the brief intervals between the repeated placement and cancellation of the Baiting Orders; (2) the concentration of cancelled Baiting Orders within the short time frames during which each spoofing event occurred; (3) the average size of the cancelled Baiting Orders compared to the average size of executed bona fide sell orders; (4) the ratio of cancelled Baiting Orders to sell relative to the executed bona fide buy orders; and (5) the repetition of the same trading patterns over an extended period.

74. For example, on March 17, 2021, from 09:40:23.974 to 09:40:27.994, CIBC World Markets placed 38 order to sell Quantum stock above the execution prices, for a total size of 39,800 shares, representing over 5.5 times the average size at the NBBO for that day. Once again, the manipulative Baiting Orders triggered a significant investor reaction and caused a 56.8 basis point drop in the Best Ask price prior to the trades. CIBC World Markets then placed two buy orders for a total of 280 shares, which it consummated at now-lower prices between \$3.49 - \$3.50. *After its buy orders were filled, CIBC canceled every one of its 38 sell orders.* But the damage was done and the market continued to react to CIBC's flood of Baiting Orders.

75. For each named Defendant, Figure 1, below, sets forth the volume of Baiting Orders that were placed and later cancelled, as well as the volume of Executing Purchase Orders that were executed at artificially depressed prices during the Class Period on Canadian exchanges.⁹

Defendant	No. of Episodes	Shares in Baiting Orders	Purchase Volume	Ratio of Baiting Orders to Purchase Volume
CIBC	722	11,780,800	223,637	52.68-to-1
RBC	25	186,200	6,184	30.11-to-1

Figure 1. Defendants' spoofing activity on Canadian exchanges during the Class Period, including number and volume of Baiting Orders; volume of Executing Orders; and the ratio of the former to the latter, evincing the coordinated and manipulative nature of Defendants' trading.

76. As discussed above, Defendants' manipulative trading activity on U.S. exchanges was extensive and a key element of the spoofing scheme. Statistical analysis of U.S. trading data shows that, while Defendants were engaged in spoofing on Canadian exchanges, comparable manipulative trades were being placed on U.S. markets at the same time. While, as discussed, U.S.

⁹ This table reflects only a subset of the Spoofing Episodes that occurred during the Class Period.

trading data is anonymized, those data indicate that Defendants orchestrated thousands of Spoofing Events as part of a coordinated effort to depress the market price of Quantum stock.

77. This conclusion is supported by a comparison of trading patterns in the U.S. during periods when Defendants were engaged in spoofing on Canadian markets with trading patterns in the U.S. during periods when Defendants were not engaged in such activity on the Canadian markets. These comparisons, detailed below, show that U.S. markets behaved quite differently – and in a manner consistent with spoofing – on days when Defendants were engaged in spoofing on Canadian markets.

78. **Net New Size.** Net New Size represents the difference between the total volume of buy orders and the total volume of sell orders placed during a specific period, divided by the average order size for that day. A negative value indicates that sell orders exceeded buy orders in total size. As discussed above, a significant imbalance in buy and sell orders is a hallmark of spoofing because it shows that a participant is flashing significant volume on one side of the order book in order to manipulate investor behavior.

79. This imbalance *flipped direction* (from buy to sell) and grew *by more than eighteen times* in U.S. markets on days when de-anonymized data shows Defendants were engaged in spoofing on Canadian markets. Specifically, when Defendants were engaged in spoofing on Canadian markets, the Net New Size in the U.S. was -41.34, compared with 2.26 when Defendants were not engaged in spoofing on the Canadian markets. This difference is statistically significant.

80. **Pre-Trade Short Order Life Percent.** Pre-Trade Short Order Life Percent measures the proportion of new sell orders whose lifetimes fall within the bottom quartile of time duration – i.e., the orders are exceedingly short-lived. Again, as discussed above, a hallmark of

spoofing is the rapid cancellation of Baiting Orders; accordingly, if spoofing is present on a market, one would expect many orders in that market to have short lives.

81. Again, this is indeed what was observed on U.S. exchanges on days when Defendants were engaged in spoofing on Canadian markets. When Defendants were engaged in spoofing on Canadian markets, the Pre-Trade Short Order Life Percent in the U.S. market was nearly **double** the value as compared with U.S. market activity on days when Defendants were not engaged in spoofing on Canadian exchanges (47.34%, compared to 24.92%). This difference is statistically significant.

82. **Post-Trade Net Cancellation Size.** Post-Trade Net Cancellation Size reflects the difference between the total size of buy order cancellations and sell order cancellations, relative to the average order size for that day. A negative value indicates that the total size of canceled sell orders exceeded that of canceled buy orders. Again, as discussed above, a hallmark of spoofing is the cancellation of large Baiting Orders placed to induce market participant response; in a sell-side spoof as alleged here, one would expect substantially more cancelled sell-side volume than buy-side volume (whereas in a market free from manipulation, there should be no bias either way).

83. Once again, the data show a dramatic imbalance in U.S. markets on days when Defendants were engaged in spoofing on Canadian markets, but no such imbalance in U.S. markets on days when they were not engaged in spoofing in Canada. Specifically, when Defendants were engaged in spoofing on Canadian markets, the Post-Trade Net Cancellation Size in the U.S. market was -37.42, compared to 4.9 when Defendants were not engaged in spoofing. In other words, on days when Defendants were spoofing Canadian markets, the net trade cancellation size **flipped direction** (from buy to sell) and grew **by almost ten-fold**. This difference is statistically significant.

84. Taken together, these data demonstrate that (i) unusually high volumes of new sell orders were generated in the U.S. market while Defendants were engaged in spoofing on Canadian markets, (ii) an abnormally large proportion of those sell orders were cancelled relative to buy orders in the U.S. market during those same periods, and (iii) those sell orders were cancelled at an unusually rapid pace.

85. As these data further demonstrate, Defendants' spoofing of U.S. exchanges was crucial to the success of the manipulative scheme. The effectiveness of Defendants' manipulation on the Canadian market, which is less liquid and therefore more susceptible to distortion, depended on carrying out similar conduct in the U.S. market. Without corresponding activity in the U.S., sellers could have simply chosen to sell their shares at higher prices on the U.S. market rather than at the artificially depressed prices prevailing on the Canadian market.

86. Trading data also show that Defendants CIBC World Markets and RBC Capital Markets participated in other improper trading practices involving Quantum's stock during the Class Period, including "naked short selling." This practice involved selling Quantum shares short without owning, borrowing, or arranging to borrow those shares. Specifically, the data show the unusually high ratio of Quantum's trading volume to its public float,¹⁰ which is generally indicative of substantial short selling;¹¹

87. An analysis of securities lending data alongside the trading data indicates that a significant portion of these short sales were naked. Indeed, the maximum number of shares on-loan overnight from January 6, 2021 to October 2025 was 1,494,650 while the maximum number

¹⁰ In the US for example, the average monthly trading volume was 2.6x the number of outstanding shares, with a maximum of 57x the number of outstanding shares in February 2025.

¹¹ Consistent with this inference, approximately 38.26% of trading volume in Quantum from November 30, 2020 through October 14, 2024, was short—well above the market-wide average of about 25%.

shares short according to FINRA were 1,410,263. In other words, the number shares short *exceeds* the number of borrowed shares – those excess short sales were *not* covered by borrowed shares.

88. The data also show that the number of Quantum shares reflected in Defendants' position reports significantly exceeds the number held in U.S. and Canadian depositories, which further supports the inference that Defendants assumed uncovered positions in Quantum. These imbalances were, on average, 20.4% of the all publicly traded Quantum stock during the period from September 20, 2021, to August 15, 2024.

89. Further, Canadian market data shows an excess of net Quantum shares sold by CIBC World Markets over the corresponding decrease in CIBC World Markets' inventory of Quantum shares during the same period, based on Canadian Depository for Securities ("CDS") data. For example, between December 1, 2022, and February 28, 2023, CIBC sold a net of 1,407,012 shares of Quantum; over that same period, according to CDS data, CIBC's inventory of Quantum's shares decreased by 431,901 shares. This indicates that CIBC World Markets was trading shares it did not actually own.

ADDITIONAL ALLEGATIONS OF SCIENTER

90. Numerous allegations set forth above and summarized below give rise to the strong inference that Defendants knowingly, and at least recklessly engaged in spoofing activity that was designed to, and in fact did, deceive, manipulate, and defraud Quantum investors. These allegations include the following:

91. ***First***, the Broker-Dealer Defendants placed Baiting Orders representing a median of 6,000 sell-side shares for each Executing Purchase, all of which were later cancelled. During the same periods, other market participants submitted sell-side orders with a median size of only 500 shares that were later cancelled. This represents a difference of approximately 1,200%.

92. **Second**, the Broker-Dealer Defendants bought significantly more shares at artificially depressed prices in the minutes following each spoofing window than other market participants. In the five minutes after the spoofing periods, the Broker-Dealer Defendants purchased an average of 2.2 times as many shares as they sold, whereas other traders sold 28.5% more shares than they bought during those same intervals.

93. **Third**, the relative size of the cancelled Baiting Orders compared to the bona fide sell-side orders actually executed by the Broker-Dealer Defendants further supports an inference of scienter. During each Spoofing Episode, the Broker-Dealer Defendants placed and later cancelled a median of 6,000 shares in Baiting Orders (5,700 for CIBC World Markets and 7,000 for RBC Capital Markets) while executing a median of **zero** sell-side orders. This sharp disparity between the volume of Baiting Orders and the absence of executed sell-side orders demonstrates that Defendants used Baiting Orders to manipulate the market and create artificial price movements rather than to sell Quantum shares in good faith. In other words, the ratio of cancelled Baiting Orders to executed sell orders strongly suggests that the Broker-Dealer Defendants never intended to execute their Baiting Offers. Likewise, on U.S. exchanges, during spoofing episodes, the Broker-Dealer Defendants placed and cancelled a median of 8,872 shares in Baiting Orders, while the median NBBO size on those days was only 400 shares.

94. **Fourth**, the relationship between the size of the Broker-Dealer Defendants' executed sell-side orders and their Executing Purchases also supports an inference of scienter. In a typical Spoofing Episode, the Broker-Dealer Defendants acquired 100 shares through Executing Purchases, but executed **no** sell-side orders. The disparity between the volume of Executing Purchases and sell-side activity demonstrates that the Broker-Dealer Defendants used Baiting

Orders to manipulate market prices and to create artificially favorable conditions for their Executing Purchases.

95. *Fifth*, when engaging in spoofing, the Broker-Dealer Defendants generated far greater artificial sell-side order flow before buying shares than during non-spoofed trading periods, as reflected by both the volume of sell-side orders entered and the rate of their cancellation. Specifically, across spoofing episodes on Canadian exchanges, the Broker-Dealer Defendants submitted more than *sixteen times* the number sell-side orders they submitted during non-spoofing periods. In addition, share cancellations were highly imbalanced during spoofing periods. As one would expect, during non-spoofing period, order cancellations were approximately evenly distributed between buys and sells; during spoofing periods, the Broker-Dealer Defendants cancelled *twice* as much sell-side volume as buy-side volume, consistent with the sell-side spoofing scheme alleged herein. The data shows the same dynamic on U.S. exchanges, with the Broker-Dealer Defendants submitting, during spoofing periods, more than *nine times* the number sell-side orders they submitted during non-spoofing periods

96. *Sixth*, each Broker-Dealer Defendant, and/or their customers, developed and deployed algorithmic trading programs that carried out the spoofing schemes. Nearly 75% of all market trades are conducted through algorithmic means, and each Broker-Dealer Defendant is extensively involved in algorithmic trading. The speed at which spoofing transactions occurred makes it clear that they could not have been executed manually. Consistent with this, the Broker-Dealer Defendants placed and cancelled tens of millions of Baiting Orders to sell in rapid succession, none of which were intended to be executed. Furthermore, each Broker-Dealer Defendant, as a sophisticated market participant utilizing advanced technology, continuously monitored, modeled, and analyzed the performance and effects of its algorithmic trading systems

throughout the Class Period, including the spoofing patterns that the algorithms repeatedly executed on Quantum stock with similar results each time.

97. ***Seventh***, and relatedly, the brief duration between the placement and cancellation of the Broker-Dealer Defendants' Baiting Orders further supports an inference of scienter. In each Spoofing Episode, the Broker-Dealer Defendants entered and cancelled their Baiting Orders within seconds or even milliseconds. This pattern, repeated thousands of times throughout the Class Period, demonstrates that the Broker-Dealer Defendants had no intention of executing the Baiting Orders.

98. ***Eighth***, the concentration of Baiting Orders within the short time periods during which each spoofing event occurred also demonstrates scienter. In each Spoofing Episode, the Broker-Dealer Defendants cancelled all of their Baiting Orders, sometimes totaling tens of thousands, within seconds or even milliseconds after placing them only moments earlier.

99. ***Ninth***, as evidenced by, among other things, the SEC consent orders discussed above, the trading activities of each Broker-Dealer Defendant, and/or their customers, were authorized by corporate officials who were sufficiently knowledgeable about the trading practices of their respective firms or clients. As a result, each Defendant, and/or their customers, knew or acted with reckless disregard of the fact that their trading activity constituted illegal spoofing.

100. ***Tenth***, as registered broker-dealers, both U.S. and Canadian law and regulations required the Broker-Dealer Defendants to know that it is unlawful to place Baiting Orders to sell that were never intended for execution, for the purpose of deceiving market participants into selling shares of Quantum stock.

101. ***Eleventh***, under applicable regulations and their own compliance manuals, Defendants were required to maintain internal policies, procedures, and systems designed to detect

and prevent manipulative or fraudulent trading practices. In light of these obligations, Defendants either intentionally engaged in market manipulation through their spoofing schemes or acted with reckless disregard in permitting such conduct to take place.

102. ***Twelfth***, the Broker-Dealer Defendants effectuated hundreds, if not thousands of Spoofing Episodes during the Class Period, often executing several within a single trading day. The repeated pattern of placing fictitious Baiting Orders to create an artificial price, executing purchases at that manipulated price, and then cancelling all of the Baiting Orders is indicative of scienter. Ordinary traders buy when they believe a security's price will rise and sell when they believe it will fall. By contrast, a clear sign of manipulative spoofing is a rapid and unnatural reversal of trading direction, in which a trader places a large number of sell orders, follows them with buy orders, and then cancels the initial sell orders, revealing that those orders were merely intended to push the price down to enable buying at a lower level. Statistically, the Broker-Dealer Defendants displayed this distinctive pattern repeatedly and at a frequency far greater than the average trader, showing that their manipulative trading was deliberate.

103. ***Thirteenth***, the Broker-Dealer Defendants also engaged in naked short selling during the Class Period, as demonstrated by: (i) the unusually high ratio of Quantum's trading volume to its public float, which is generally indicative of extensive short selling; (ii) the fact that securities lending data shows the number shares short *exceeds* the maximum number of borrowed shares; (iii) the number of Quantum shares reported in Defendants' position reports substantially exceeds the number of shares held in U.S. and Canadian depositories; and (iv) CIBC sold more shares of Quantum during the Class Period than it reported in its inventory.¹²

¹² For example, between December 1, 2022, and February 28, 2023, CIBC sold a net of 1,407,012 shares of Quantum; over that same period, according to CDS data, CIBC's inventory of Quantum's shares decreased by 431,901 shares.

104. *Fourteenth*, even prior to the start of the Class Period, regulators had warned Defendants that the market-access and trading platforms they had developed and operated could be—and in fact had been—used to facilitate unlawful trading activity such as spoofing, and had cited Defendants for failure to exercise the required degree of supervision over order flow. Indeed, Canadian regulators specifically cited CIBC for repeatedly allowing traders to “enter[] order and quickly delet[e] them,” conduct the regulators warned was “a manipulative trading practice.” Accordingly, given the scope and breadth of the spoofing activity that occurred during the Class Period, Defendants’ placement and execution of thousands of manipulative trades over the course of several years was, at a minimum, reckless.

105. *Fifteenth*, after the end of the Class Period, the SEC fined Defendants millions of dollars for “widespread and longstanding” violations federal securities laws throughout the Class Period, *specifically finding* that Defendants failed to maintain adequate supervisory systems, recordkeeping, and communications controls—deficiencies that regulators have repeatedly warned create precisely the conditions under which manipulative trading can occur. Among other things, the SEC cited suspicious and “pervasive off-channel communications,” including “at senior levels,” concerning the routing, placement, and execution of trades. The secretive nature of these improper communications, which violated both federal law and Defendants’ own policies, raises a strong inference that Defendants used these channels to discuss trading they knew was illegal.

106. When viewed together, these facts provide strong circumstantial evidence that Defendants either knew, or acted with reckless disregard of the fact, that their own conduct and the conduct of their customers was intended to, and in fact did, unlawfully manipulate the market in violation of federal securities laws, industry regulations, and Defendants’ own compliance policies and procedures.

107. Finally, Defendants had a clear motive to engage in spoofing involving Quantum stock. By placing fictitious Baiting Orders, the Broker-Dealer Defendants were able to acquire hundreds of thousands of Quantum shares at artificially deflated prices rather than purchasing them at the prevailing best offer.

LOSS CAUSATION/ECONOMIC LOSS

108. Plaintiff and other class members were damaged as a result of Defendants' fraudulent conduct as alleged herein. During the Class Period, Defendants engaged in a trading scheme to deceive investors by flashing massive blocks of sell orders of shares of Quantum stock, signaling selling pressure and downward momentum, only to cancel these orders after other market participants have sold their shares.

109. As a direct result of Defendants' scheme, the price of Quantum's stock was artificially deflated at certain times during the Class Period.

110. Each Spoofing Episode was designed to and did have an immediate and significant effect on the market price of Quantum's shares, while the cumulative impact of Defendants' manipulative trading activities persisted for a much longer period.

111. Defendants' manipulative trading practices artificially lowered the prices at which Quantum was able to sell its shares throughout the Class Period.

112. Spoofing activity took place on *at least* 103 of the 926 trading days during the Class Period, representing approximately 11% of all trading days. A summary of these events is provided in Figure 2, below:

Date	Spoofing Events		
January 6, 2021	2	February 9, 2021	24
January 20, 2021	3	February 10, 2021	19
February 1, 2021	1	February 11, 2021	27
February 3, 2021	13	February 16, 2021	4
February 8, 2021	4	February 17, 2021	3
		February 18, 2021	4

February 19, 2021	2
February 22, 2021	2
February 23, 2021	3
February 24, 2021	3
March 1, 2021	1
March 2, 2021	4
March 15, 2021	1
March 16, 2021	7
March 17, 2021	30
March 18, 2021	12
March 19, 2021	8
March 22, 2021	2
March 23, 2021	4
March 24, 2021	3
March 25, 2021	7
March 26, 2021	5
March 29, 2021	2
March 30, 2021	6
April 5, 2021	2
April 6, 2021	3
April 7, 2021	2
April 8, 2021	11
April 19, 2021	3
April 23, 2021	1
April 26, 2021	3
April 28, 2021	7
April 30, 2021	5
May 3, 2021	2
June 9, 2021	3
July 6, 2021	1
August 26, 2021	4
September 2, 2021	4
September 15, 2021	3
September 16, 2021	4
September 20, 2021	9
October 4, 2021	18
October 5, 2021	1
October 6, 2021	11
November 5, 2021	1
November 10, 2021	3
November 16, 2021	2
November 22, 2021	3
November 26, 2021	1
January 6, 2022	1
January 28, 2022	1

February 1, 2022	2
March 28, 2022	4
June 15, 2022	3
June 24, 2022	5
July 15, 2022	1
October 31, 2022	7
November 23, 2022	1
January 20, 2023	1
January 25, 2023	1
February 9, 2023	4
February 13, 2023	1
February 14, 2023	1
February 22, 2023	1
February 23, 2023	2
March 6, 2023	17
March 7, 2023	1
March 15, 2023	1
April 10, 2023	5
April 13, 2023	1
April 18, 2023	2
April 19, 2023	3
June 1, 2023	11
June 15, 2023	3
June 29, 2023	14
August 2, 2023	3
August 3, 2023	1
August 15, 2023	1
September 27, 2023	1
November 2, 2023	11
November 17, 2023	1
December 1, 2023	1
January 9, 2024	1
January 29, 2024	1
February 21, 2024	1
March 11, 2024	1
March 14, 2024	1
April 15, 2024	4
April 26, 2024	4
May 2, 2024	1
May 31, 2024	1
June 7, 2024	5
June 14, 2024	5
August 9, 2024	16
August 19, 2024	4
August 29, 2024	9

August 30, 2024	30
September 17, 2024	1
September 18, 2024	2
September 27, 2024	2
September 30, 2024	1
October 15, 2024	1
October 17, 2024	1
October 21, 2024	4
October 22, 2024	2
October 28, 2024	2
October 29, 2024	1
October 31, 2024	7
November 1, 2024	2
November 5, 2024	1
November 26, 2024	1
November 27, 2024	1
December 18, 2024	6
December 23, 2024	4
December 27, 2024	2
January 7, 2025	1
February 4, 2025	43
February 5, 2025	58
February 6, 2025	156
February 7, 2025	29
February 10, 2025	8
February 11, 2025	4
February 12, 2025	1
February 13, 2025	5
February 18, 2025	2
February 20, 2025	12
February 24, 2025	6
February 26, 2025	4
February 27, 2025	13
March 17, 2025	52
March 18, 2025	5
March 20, 2025	2
March 21, 2025	1
March 26, 2025	1
March 27, 2025	2
March 28, 2025	43
March 31, 2025	3
April 7, 2025	1
April 11, 2025	5
April 16, 2025	1

April 17, 2025	2
April 22, 2025	1
May 16, 2025	19
May 20, 2025	1
May 21, 2025	2
May 23, 2025	2
May 27, 2025	1
May 30, 2025	1
June 2, 2025	6
June 4, 2025	1
June 6, 2025	1
June 10, 2025	2
June 11, 2025	3
June 12, 2025	1
June 13, 2025	1
June 16, 2025	2
June 17, 2025	1
June 18, 2025	3
June 20, 2025	6
June 23, 2025	11
June 24, 2025	4
June 27, 2025	2
July 3, 2025	1
July 10, 2025	3
July 16, 2025	1
July 17, 2025	1
July 21, 2025	1
July 22, 2025	1
August 12, 2025	4
August 13, 2025	1
August 18, 2025	2
August 19, 2025	1
September 2, 2025	1
September 3, 2025	4
September 12, 2025	1
September 19, 2025	1
October 3, 2025	1
October 7, 2025	1
October 8, 2025	2
October 10, 2025	1
TOTAL	1,167

Figure 2. Partial summary of Defendants’ spoofing activity during the Class Period.

113. Plaintiff sold shares of Quantum stock contemporaneously with Defendants' Spoofing Events at prices artificially depressed by Defendants' manipulative trading. For example, Plaintiff sold 10,000 shares of Quantum stock in two transactions on April 26, 2024, when Defendants executed four Spoofing Events. Plaintiff also sold 54,800 shares of Quantum stock over 17 transactions on May 2, 2024, when Defendants likewise executed a Spoofing Event. Because Plaintiff sold these shares on days when Defendants engaged in manipulative trading, and because that manipulative trading artificially depressed the price of Quantum stock, Plaintiff sold its shares for value at artificially depressed prices and was damaged thereby.

114. Defendants' spoofing activity had a sustained impact on the price of Quantum shares, even after accounting for overall market movements. Figure 3, below, illustrates the average cumulative return (percentage price change) across all Spoofing Episodes identified through an analysis of Quantum's price action, covering the period from thirty minutes before each Executing Purchase through the close of trading that same day. The blue line represents Quantum's return, while the orange line depicts, for comparison, the return of the Nasdaq Composite Index.

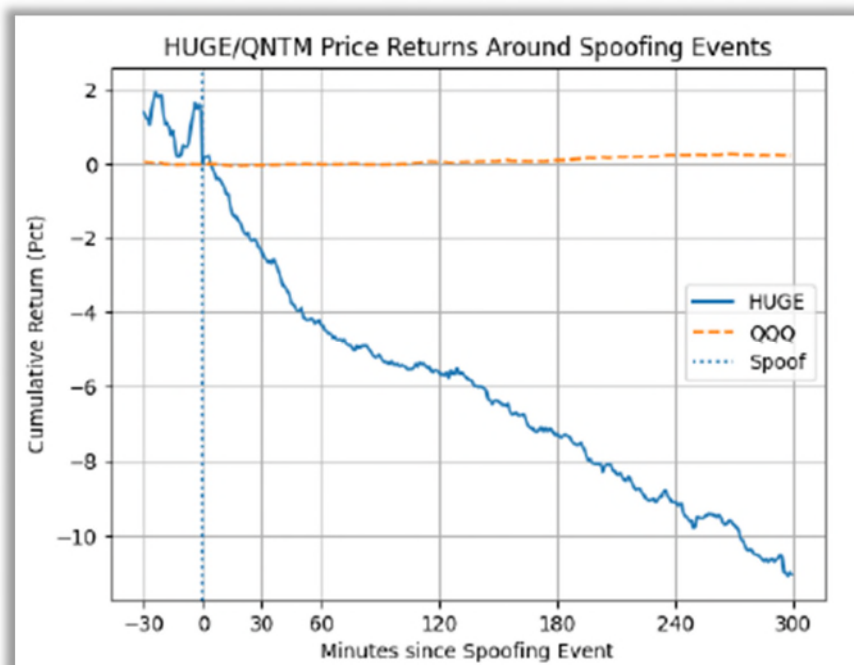


Figure 3. Average cumulative return of Quantum Stock across Spoofing Episodes, in blue, as compared with the average cumulative return for the Nasdaq composite index, in orange. The comparison demonstrates that Defendants’ spoofing artificially depressed the price of Quantum stock throughout, *at least*, the remainder of the trading day on which Defendants executed their spoofs.

115. Moreover, the ongoing, repetitive, and continuous nature of Defendants’ barrages of spoofing activity, including effectuating dozens of spoofs on consecutive trading days on numerous occasions during the Class Period, exerted a prolonged negative effect on the price of Quantum’s shares throughout the Class Period. Figure 4, below, illustrates the average change in Quantum’s share price in the days following each Spoofing Episode, alongside the corresponding average changes in the Nasdaq Composite Index during the same period.

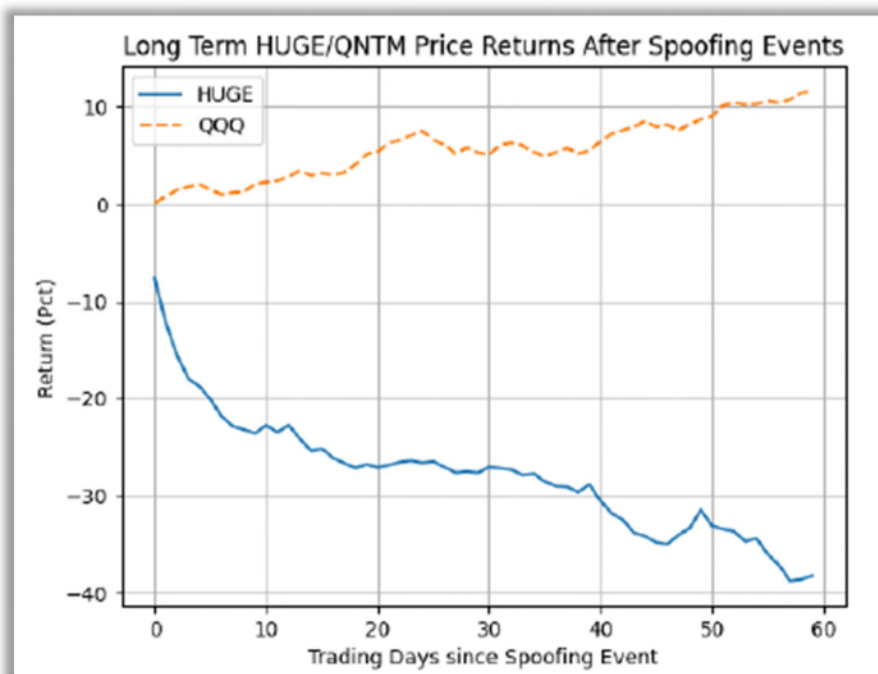


Figure 4. Average change in Quantum share price (in blue) versus average change in the Nasdaq composite index over the days following spoofing events. The comparison demonstrates that, as a result of its ongoing and repetitive nature, Defendants’ barrages of spoofing artificially depressed the price of Quantum stock throughout the Class Period.

116. Consistent with this pattern, steep declines in Quantum’s share price align closely with periods of Defendants’ spoofing activity. For instance, between February 9, 2021, to February 26, 2021, the price declined by more than 29%, coinciding with 136 spoofing episodes. Between March 16, 2021, and April 6, 2021, the price dropped by more than 10% amid 304 spoofing episodes. Similarly, from April 10, 2023, to April 19, 2023, Quantum’s share price fell by nearly 20%, during which 21 spoofing episodes took place.

117. Throughout the Class Period, **at least** 3.97% of all trading in Quantum shares took place at artificially lowered prices. Moreover, on 4.53% of all trading days, more than 10% of the total daily trading volume occurred at these artificially depressed levels. The impact was even greater on certain days—for example, on 23 trading days, over 25% of total volume was executed at manipulated prices.

118. Defendants deliberately concealed their spoofing scheme to accomplish their unlawful objective of driving down the price of Quantum shares. The resulting and sustained decline in Quantum's share price confirms that Defendants' manipulative activity was effectively hidden from the market.

119. Class members unknowingly, and in reliance on Defendants' false signals, sold their shares of Quantum stock at artificially deflated prices on the Nasdaq.

PLAINTIFF IS ENTITLED TO A PRESUMPTION OF RELIANCE

120. At all relevant times, the market for the Quantum stock at issue in this case was an efficient market because, among other things:

- (i) the Quantum stock at issue in this case met the requirements for listing, was actually listed and actively traded on the Nasdaq, a highly efficient and automated market;
- (ii) according to the Company's Form 20-F filed with the SEC on April 2, 2024, Quantum had 39,376,723 outstanding shares of stock as of December 31, 2023, demonstrating a broad market for Quantum stock;
- (iii) as a registered and regulated issuer of securities, Quantum filed periodic reports with the SEC and Nasdaq, in addition to the Company's frequent voluntary dissemination of information;
- (iv) Quantum regularly communicated with investors via established market communication mechanisms, including through regular dissemination of press releases on the national circuits of major newswire services, the Internet, and through other wide-ranging public disclosures, such as communications with the financial press, securities analysts, and other similar reporting services;

121. The market for Quantum shares promptly digested current information regarding Quantum from all publicly available sources and reflected such information in the price of Quantum shares. Under these circumstances, all sellers of Quantum shares during the Class Period who relied upon the integrity of the market price of Quantum shares, including Plaintiff, suffered similar injury through their sale of Quantum shares at artificially deflated prices, and a presumption of reliance under the fraud-on-the-market doctrine applies.

CLASS ACTION ALLEGATIONS

122. Plaintiff brings this action as a class action pursuant to Federal Rule of Civil Procedure 23(a) and (b)(3) individually and on behalf of a Class consisting of all persons and entities that sold, or otherwise disposed, of the publicly traded stock of Quantum between January 6, 2021 and October 15, 2025, and were damaged thereby.

123. Excluded from the Class are: (i) Defendants; (ii) present or former executive officers of Defendants, members of Defendants' Board, and members of their immediate families (as defined in 17 C.F.R. § 229.404, Instructions (1)(a)(iii) and (1)(b)(ii)); (iii) any of the foregoing persons' legal representatives, heirs, successors, or assigns; (iv) any entity in which Defendants have or had a controlling interest; and (v) any affiliate of Defendants.

124. The members of the class are so numerous that joinder of all members is impracticable. Throughout the Class Period, shares Quantum stock were actively traded on the Nasdaq. While the exact number of class members is unknown to Plaintiff at this time and can only be ascertained through appropriate discovery from Defendants, Plaintiff believes that there are at least hundreds, if not thousands, of members in the proposed class. Class members may be identified from corporate records and may be notified of the pendency of this action by mail using a form of notice customarily used in securities class actions.

125. Plaintiff's claims are typical of all other class members' claims, as all class members are similarly affected by Defendants' wrongful conduct in violation of the federal securities laws complained of herein.

126. Plaintiff will fairly and adequately protect the interests of the class members and has retained counsel competent and experienced in class and securities litigation.

127. Common questions of law and fact exist as to all class members and predominate over any questions solely affecting individual class members. Among the questions of law and fact common to the class are:

- (i) whether Defendants' acts as alleged herein violated the federal securities laws;
- (ii) whether trades placed in securities exchanges by Defendants were manipulative or deceptive, in that they sent false pricing signals to other market participants;
- (iii) whether Defendants acted with scienter;
- (iv) whether Defendants' violations of federal securities law caused the Class' losses; and
- (v) the extent to which members of the Class have suffered damages, as well as the proper measure of damages.

128. A class action is superior to all other available methods for the fair and efficient adjudication of this controversy since joinder of all class members is impracticable. Furthermore, as the damages suffered by individual class members may be relatively small, the expense and burden of individual litigation make it impossible for class members to redress individually the wrongs done to them. There will be no difficulty in the management of this action as a class action.

CAUSES OF ACTION

COUNT I Violation of Section 10(b) of the Exchange Act Against the Broker-Dealer Defendants

129. Plaintiff incorporates by reference and realleges all preceding paragraphs as if fully set forth herein. This Count is asserted on behalf of all members of the Class against the Broker-Dealer Defendants for violations of § 10(b) of the Exchange Act, 15 U.S.C. § 78j(b), and Rule 10b-5 promulgated thereunder, 17 C.F.R. § 240.10b-5.

130. During the Class Period, the Broker-Dealer Defendants used the means and instrumentalities of interstate commerce, the U.S. mails, and the facilities of a national securities exchange to engage in the manipulative and deceptive trading scheme alleged herein. Accordingly, Defendants violated Section 10(b) of the Exchange Act and Rule 10b-5 in that they: (i) employed the device, scheme, or artifice to defraud alleged herein; (ii) made materially false or misleading statements and omissions of material fact, including regarding market supply and demand for Quantum securities, alleged herein; (iii) engaged in the acts, practices, and courses of business alleged herein, which operated as a fraud or deceit upon Plaintiff and upon members of the Class. The manipulative and deceptive conduct, and misleading statements and omissions complained of herein, were designed to, and did: (i) deceive the investing public, including Plaintiff; (ii) cause the market price of Quantum shares to trade below its true value; and (iii) cause Plaintiff as well as other class members to sell or otherwise dispose Quantum shares at artificially deflated prices that did not reflect the stock's true value during the Class Period. In furtherance of their unlawful scheme, plan, or course of conduct, the Broker-Dealer Defendants took the actions alleged herein.

131. The Broker-Dealer Defendants acted with knowledge or a reckless disregard for the truth of the trading activities alleged herein in that they failed to monitor and/or prevent these activities even though such activities were readily apparent to them, if not known. The Broker-Dealer Defendants' actions or inactions were made knowingly and/or recklessly for the purpose and effect of concealing the truth regarding Quantum's share price action, the supply and demand for Quantum's shares of stock, thereby supporting the artificially deflated price of Quantum shares of stock.

132. The Broker-Dealer Defendants are liable for (i) placing Baiting Orders on these exchanges that had no legitimate or economic purpose, were never intended to be executed, and were part of a spoofing scheme; and (ii) placing Executing Purchase Orders that completed the Spoofing Episode that operated as a scheme to manipulate the market price of Quantum shares of stock.

133. As set forth more fully above, Defendants' executed their spoofing scheme with scienter, in that they engaged in the conduct complained of herein intentionally or with reckless disregard as to its manipulative and deceptive character.

134. As a direct and proximate result of the Broker-Dealer Defendants' wrongful conduct, Plaintiff suffered damages in that Plaintiff sold and for value Quantum shares at manipulated prices, in reliance on an assumption of an efficient market free of manipulation.

135. As set forth more fully above, the Broker-Dealer Defendants' fraudulent trading activities had artificially depressed the market price of Quantum stock throughout the Class Period.

136. The Broker-Dealer Defendants, individually and in concert, directly or indirectly, by the use of means and instrumentalities of interstate commerce, the U.S. mails, and the facilities of a national securities exchange: (i) employed devices, schemes, and artifices to defraud; and (ii) engaged in acts, practices, and a course of business that operated as a fraud or deceit upon the sellers of the Company's shares in an effort to maintain artificially low market prices for Quantum shares, in violation of § 10(b) and Rule 10b-5. Defendants are alleged as primary participants in the wrongful conduct alleged herein.

137. By virtue of the foregoing, the Broker-Dealer Defendants have violated § 10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder. As a direct and proximate result of the

Broker-Dealer Defendants’ wrongful conduct, Plaintiff and other class members suffered damages in connection with their transactions in the Company’s securities during the Class Period.

COUNT II
Violation of Sections 9(a) and 9(f) of the Exchange Act Against the
Broker-Dealer Defendants

138. Plaintiff incorporates by reference and realleges all preceding paragraphs as if fully set forth herein. This Count is asserted on behalf of all Class members against the Broker-Dealer Defendants pursuant to §§ 9(a) and (f) of the Exchange Act, 15 U.S.C. § 78i.

139. During the Class Period, the Broker-Dealer Defendants used the means and instrumentalities of interstate commerce, the U.S. mails, and the facilities of a national securities exchange to engage in the manipulative and deceptive trading scheme alleged herein. Accordingly, the Broker-Dealer Defendants violated Sections 9(a) and (f) of the Securities exchange Act of 1934, in that they effected “a series of transactions in any security registered on a national securities exchange . . . creating actual or apparent active trading in such security, or raising or depressing the price of such security, for the purpose of inducing the purchase or sale of such security by others.”

140. In their respective roles, the Broker-Dealer Defendants used the mails, or instrumentalities of interstate commerce, or a facility of a national securities exchange, to: effect—alone or with one or more other person—a series of transactions in Quantum shares that created actual or apparent trading in such shares, raising or depressing the price of such shares for the purpose of inducing the sale of such shares by others; and engage in the market manipulation strategy of spoofing which artificially affected the prices of Quantum shares that Plaintiff sold for value.

141. The Broker-Dealer Defendants’ violations artificially affected the market price of Quantum shares that Plaintiff and the Class sold, issued, or disposed of for value during the Class

Period. The Broker-Dealer Defendants' conscious misbehavior or recklessness thus caused injury to Plaintiff and the Class.

142. Plaintiff and the Class seek damages as provided by law, together with interest, reasonable attorneys' fees, and such other and further relief as the Court may deem just and proper.

143. As a direct and proximate result of the Broker-Dealer Defendants' culpable conduct, Plaintiff and other class members suffered damages in connection with their transactions in Quantum's securities during the Class Period.

COUNT III
Violation of Section 20(a) of the Exchange Act Against
the Control Person Defendants

144. Plaintiff repeats and realleges each and every allegation set forth above as if fully set forth herein. This Count is asserted on behalf of all members of the Class against the Control Person Defendants for violations of Section 20(a) of the Exchange Act, 15 U.S.C. § 78t(a).

145. Each Control Person Defendant, by reason of its ownership, management, and supervisory authority, had the power to direct or cause the direction of the management and policies of its respective broker-dealer subsidiary, including with respect to the design, implementation, and supervision of trading and compliance systems through which the manipulative activity occurred. Each Control Person Defendant was able to and did control, directly and indirectly, the trading activity, including the placement and execution of the trading complained of, of its subsidiaries, the Broker-Dealer Defendants.

146. With respect to CIBC, as discussed above, CIBC World Markets and CIBC World Markets USA are wholly-owned subsidiaries of CIBC. Public filings by CIBC World Markets and CIBC World Markets USA, including recent Statements of Financial Condition, explicitly acknowledge that neither Broker-Dealer Defendant is "autonomous" from CIBC. CIBC's governance materials – including its Conduct and Culture Risk Framework, and its Code of

Conduct – impose uniform compliance and supervision standards across CIBC World Markets and CIBC World Markets USA. Governance and risk management for both CIBC World Markets and CIBC World Markets USA is exercised by CIBC’s board of directors and its senior management at the parent level.

147. With respect to RBC, RBC Securities and RBC Capital Markets are wholly-owned subsidiaries of RBC. RBC also shares executive officers with its broker-dealer subsidiaries, including Derek Neldner, CEO and Group Head of RBC Capital Markets, who also serves as a member of RBC’s “Group Executive” and, according to public documents, in that capacity is “responsible for setting the overall strategic direction of RBC.” RBC’s governance materials – including its Enterprise Risk Management Framework – impose uniform compliance and supervision standards across RBC Securities and RBC Capital Markets. Governance and risk management for both RBC Securities and RBC Capital Markets is exercised by RBC’s board of directors and its senior management at the parent level.

148. By reason of the foregoing, CIBC is liable as a “control person” within the meaning of § 20(a) of the Exchange Act for violations of §§ 9 and 10(b) of the Exchange Act by CIBC World Markets and CIBC World Markets USA. And, by reason of the foregoing, RBC is liable as a “control person” within the meaning of § 20(a) of the Exchange Act for violations of §§ 9 and 10(b) of the Exchange Act by RBC Securities and RBC Capital Markets.

149. Moreover, given the sheer scope and magnitude of the fraudulent scheme described herein, the Control Person Defendants either recklessly disregarded the Broker-Dealer Defendants’ manipulative trading activity by, among other things, failing to implement or enforce adequate internal control, risk-management procedures, or supervisory systems; or they knew, but failed to prevent or disclose that manipulative trading activity.

150. By reason of the foregoing, CIBC is liable as a “control person” within the meaning of § 20(a) of the Exchange Act for violations of §§ 9 and 10(b) of the Exchange Act by CIBC World Markets and CIBC World Markets USA. And, by reason of the foregoing, RBC is liable as a “control person” within the meaning of § 20(a) of the Exchange Act for violations of §§ 9 and 10(b) of the Exchange Act by RBC Securities and RBC Capital Markets.

151. Plaintiff and the Class have been damaged as a direct and proximate result of the conduct of the Control Person Defendants’ violations of Section 20(a) of the Exchange Act.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for relief and judgment, including:

Certification of this action as a class action;

Awarding compensatory damages against all Defendants, jointly and severally, for all damages sustained as a result of Defendants’ wrongdoing, in an amount to be proven at trial, including interest thereon, as allowed by law;

Awarding Plaintiff its costs and expenses incurred in this action, including reasonable counsel fees and expert fees; and

Awarding such other and further relief as may be just and proper.

JURY TRIAL DEMANDED

Plaintiff hereby demands a trial by jury.

DATED: December 19, 2025