U.S. HOUSE COMMITTEE ON

FINANCIAL SERVICES

GAME STOPPED: HOW THE MEME STOCK MARKET EVENT EXPOSED TROUBLING BUSINESS PRACTICES, INADEQUATE RISK MANAGEMENT, AND THE NEED FOR LEGISLATIVE AND REGULATORY REFORM

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This report has not been officially adopted by the Committee on Financial Services and may not necessarily reflect the views of its Members.

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I. EXECUTIVE SUMMARY

1. Overview

GameStop Corporation (GME), AMC Entertainment Holdings, Inc. (AMC), and other "meme stocks" became extraordinarily popular on social media leading into January 2021. Institutional investors bet against these stocks, predicting they would fall in price, while retail traders took the other side of that bet, purchasing the stocks *en masse*.[1] This trading frenzy, collectively referred to in this report as the "Meme Stock Market Event," drove historic market volatility, which reached a crescendo on January 28, 2021, when the gross market value of GME cleared in the stock market was 21,318% greater as compared to January 4, 2021.[2]

At the height of the Meme Stock Market Event, several stock trading platforms restricted trading on meme stocks as an emergency risk management tactic. Others suffered outages in their technology systems due to the order volume in their trading systems. These restrictions and outages placed downward pressure on meme stocks. The total dollar amount of GME held by Robinhood Markets, Inc. (Robinhood)[3] customers decreased from a peak of $2.6 billion before the firm enacted trading restrictions on January 28, 2021, down to $1.2 billion the next day. The total dollar amount of AMC held by Robinhood customers decreased from $1.3 billion to $411 million in the same time frame.[4] Ultimately, these trading restrictions and outages limited market access for ordinary retail investors and undermined confidence in market integrity.

The House Financial Services Committee (Committee) held a full Committee hearing shortly after the Meme Stock Market Event with key industry players, including the CEOs of Robinhood and Citadel Securities, and followed up with two more full Committee hearings, multiple pieces of legislation, and a full investigation of the Meme Stock Market Event.[5] The Committee's thorough response to the Meme Stock Market Event uncovered structural

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[1] As used in this report, the term "meme stocks" refers to several stocks that surged in popularity due to social media discourse (*See* Appendix I: Glossary for terms highlighted in this report).

[2] In this report, we refer to the volatility experienced in the pricing and trading of meme stocks during January and February of 2021, and the related actions taken by various broker-dealers, as the "Meme Stock Market Event." DTCC, NSCC Equity Clearing & Settlement Overview: Presentation to House Staff, at slide 7 (Jun. 17, 2021) (on file with the Committee).

[3] Robinhood Markets is the parent company of Robinhood Financial, Robinhood Securities, and Robinhood Crypto. As used in this report, "Robinhood" most often refers to Robinhood Markets. Occasionally, taken in context, "Robinhood" refers to Robinhood Markets and / or its affiliates in a collective sense.

[4] Email and attachments to email from Counsel for Robinhood to Committee staff (May 20, 2021) (on file with the Committee).

[5] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021); House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021); House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).

deficiencies exploited by a new generation of "superbroker" retail trading platforms that have grown in popularity amidst a surge in retail trading.

The stock market has changed significantly in recent years. Robinhood pioneered a new business model marked by commission-free trading supported by payment for order flow (PFOF), in which trading platforms route their customers' orders to market making firms like Citadel Securities for a fee.[6] In this business model, brokers can profit from volatility in the stock market as increased trading activity generates more PFOF rebates. Accordingly, Robinhood and other retail-oriented brokers are incentivized to push their customers to make as many trades as possible through digital engagement features that include "game-like features and celebratory animations," lenient extension of margin trading to their customers, and increased access to fractional shares, enabling retail traders to purchase dollar increments of expensive stocks like Amazon and Berkshire Hathaway.[7] This "superbroker" business model has proliferated quickly.

The Meme Stock Market Event raises questions about how retail trading market infrastructure currently operates and whether it is appropriately designed and regulated to accommodate new developments. The events of January 28, 2021 exposed inadequacies in the risk management practices of broker-dealers, concerns about the ways in which PFOF increases complexity and potential fragility in the securities markets, and the ability of the regulators charged by Congress to oversee financial markets to assess and correct for liquidity and operational risks.

2. Summary of Committee Staff Findings

Key Finding #1: Robinhood exhibited troubling business practices, inadequate risk management, and a culture that prioritized growth above stability during the Meme Stock Market Event. Examples of the firm's problematic response to the Meme Stock Market Event include:

- Robinhood's disproportionately high order flow and unique formula for calculating PFOF rebates strained several market makers and introduced risk to the stock market. Robinhood's PFOF formula became a point of contention between Robinhood and Citadel Securities during the Meme Stock Market Event.

- Robinhood asserted to the public and testified to the Committee that the company was "always comfortable with [its] liquidity" leading up to its historic trading restrictions, despite the actions undertaken by Robinhood's executive leadership to respond to liquidity issues it faced in the days leading up to the Meme Stock Market Event.

- Robinhood relied on incomplete statistical models for calculating its collateral obligations leading into the Meme Stock Market Event. The company did not incorporate "best practices" observations from the Financial Industry Regulatory Authority (FINRA) for

[6] In this report, unless otherwise specified, references to "Robinhood" are to Robinhood Markets, Inc., and its consolidated subsidiaries.
[7] SEC, *Staff Report on Equity and Options Market Structure Conditions in Early 2021* (Oct. 14, 2021).

improving its stress tests nor did it utilize publicly available guidance from the Depository Trust and Clearing Corporation (DTCC) for calculating collateral obligations.

- Robinhood received a waiver of the largest component of its deposit requirement from the DTCC. Without this waiver, which Robinhood had no control over, the company would have defaulted on its regulatory collateral obligations. Robinhood's Chief Legal Officer notified senior officials at the DTCC that Robinhood could not meet its collateral obligations before the market opened on January 28, 2021.

Key Finding #2: Broker-dealers facing the greatest operational and liquidity concerns took the most extensive trading restrictions, although multiple broker-dealers introduced trading restrictions for a variety of risk management reasons during the Meme Stock Market Event.

Key Finding #3: Most of the firms the Committee spoke to do not have explicit plans to change their policies for how they will meet their collateral requirements during extreme market volatility or adopt trading restrictions when market volatility may warrant their introduction.

Key Finding #4: The Depository Trust & Clearing Corporation (DTCC) waived $9.7 billion of collateral deposit requirements on January 28, 2021. The DTCC lacks detailed, written policies and procedures for waiver or modification of a "disincentive" charge it calculates for brokers that are deemed to be undercapitalized and has regularly waived such charges during periods of acute volatility in the two years before the Meme Stock Market Event.

3. Broader Implications

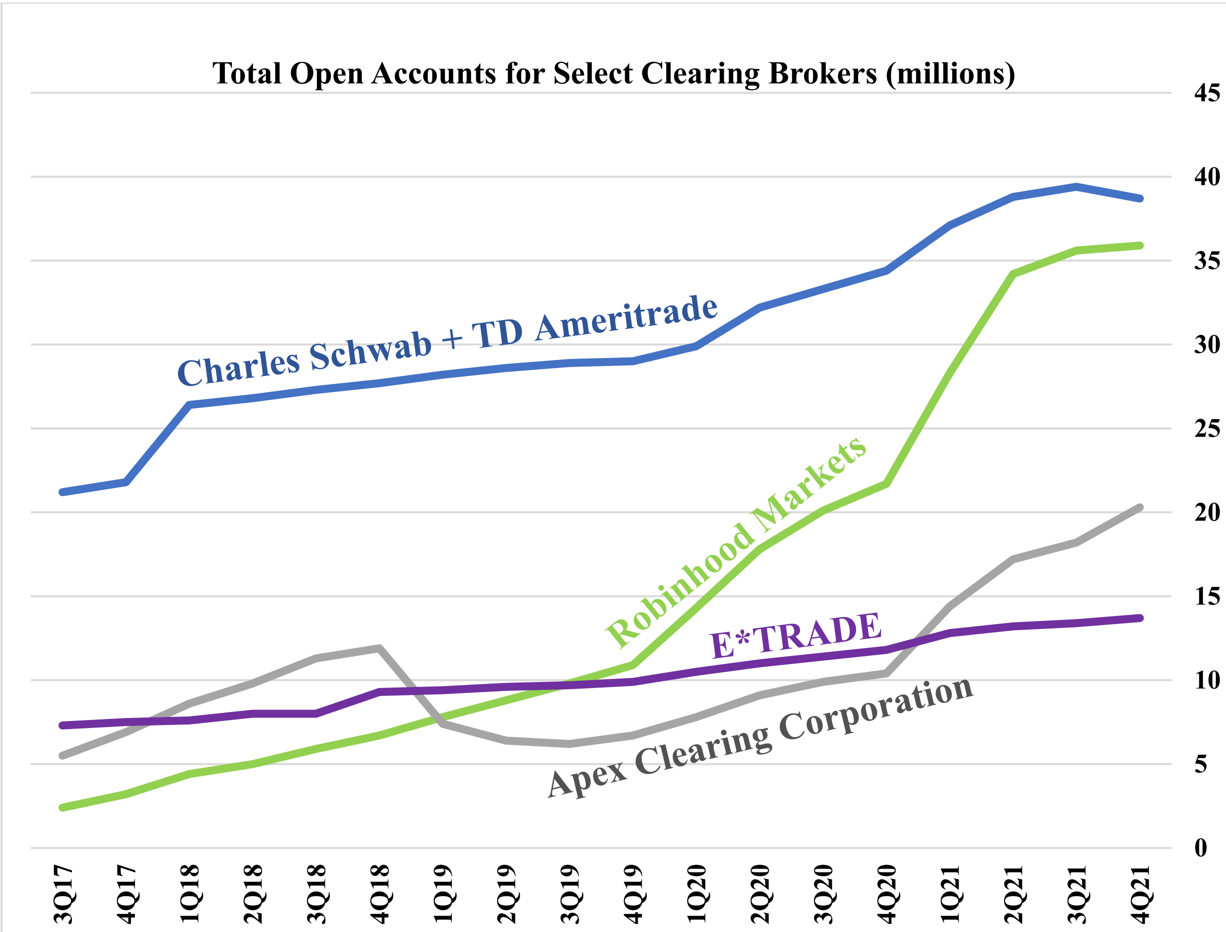
a. The Meme Stock Market Event revealed how rapid growth and innovation in retail trading presents novel issues for market stability and orderliness that neither the industry nor regulators have satisfactorily anticipated or addressed.

By some estimates, retail investors accounted for roughly 20% of stock market activity on average through the first half of 2021 and up to 25% on peak trading volume days, up from 10% over the prior year.[8] A significant proportion of this market activity was generated by first-time investors.[9] In recent years, the number of total trading accounts has risen sharply at retail trading focused trading platforms such as Robinhood and Apex Clearing Corporation.

[8] Bloomberg Markets: European Open, *Citadel Securities' Mecane Says Volatility Behind Rise in Retail Investing*, Bloomberg (July 9, 2021).

[9] Between January 1, 2015 and March 31, 2021, over half of the customers who funded accounts on Robinhood said that it was their first broker-dealers account. A June 2021 survey from Charles Schwab found that 15% of all retail investors who were active in 2021 began trading in 2020. A February 2021 FINRA report found that new investors––those who did not own a taxable investment account prior to 2020––were younger, more racially diverse, and had lower incomes than the established stock market investors. FINRA reported that nearly two-thirds of the new investors were under 45, and approximately one-third of this same group held account balances of $500 or less. Among the top

Figure 1: Total Open Accounts for Select Clearing Brokers[10]



reasons new investors cited for opening investor accounts in 2020 were to save for retirement and the ability to invest with a small amount of money. SEC, Form S-1 for Robinhood Markets Inc. (July 01, 2021); Charles Schwab, The Rise of the Investor Generation:15% of U.S. Stock Market Investors got their start in 2020, Schwab Study shows (accessed Jun. 30, 2021); FINRA, *Investing 2020: New Accounts and the People Who Opened Them* (Feb. 2021); Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Sept. 20, 2021). According to Robinhood as of September 20, 2021 27% of its customers are "racially and ethnically diverse"; FINRA, *Investing 2020: New Accounts and the People Who Opened Them* (Feb. 2021).

[10] Total open account information compiled from email correspondence and various attachment with counsels for Apex Clearing Corporation, E*TRADE, Charles Schwab / TD Ameritrade, and Robinhood Markets. Data is non-public information compiled specifically for the Committee and is not kept in the ordinary course of business. In this instance, the Committee uses total open accounts rather than active accounts because different companies use different methodologies to calculate the number of "active accounts" they list publicly. Charles Schwab and TD Ameritrade merged in October 2020 and began integrating their customer base shortly thereafter. The number of accounts shown here reflect the pro forma combined number of total open accounts for these companies for the periods shown. Apex Clearing Corporation clears for hundreds of firms, primarily stock trading apps which focus on retail investors. The

This surge in retail trading has provided retail investors with greater access to the market. But it also carries risks. The "superbroker" business model pioneered by Robinhood—marked by commission-free trading, fractional investing,[11] gamification,[12] and the ability to create an account and start trading within minutes—makes it easier than ever to participate in the stock market for entertainment value, akin to a "high-stakes multiplayer game."[13] The trends developing with new generations of investors will most likely continue. Apex Clearing estimates that within the next 25 years, $70 trillion of wealth is expected to transfer from Baby Boomers to younger generations, including Millennials and Generation Z, who are more likely to favor stocks that are popular on social media.[14]

When asked about the Meme Stock Market Event in early 2021, Apex Clearing Corporation's CEO, Bill Capuzzi commented to Committee staff, "We've lowered the barriers to entry. There's great content. We're helping people invest in their future. And we see it. There's millions more people that are able to invest that never had a chance to before. That is great. And that's going to continue and, frankly, accelerate, right? I think the impact of social media, I think, is going to continue to evolve. And so, if the question is, do I think it's going to happen again, the answer is, yes, for

AND SO, IF THE QUESTION IS, DO I THINK IT'S GOING TO HAPPEN AGAIN, THE ANSWER IS, YES, FOR SURE. NO DOUBT ABOUT IT. HOW IT'S GOING TO MANIFEST ITSELF, I'M NOT SURE, BUT FOR SURE IT'S GOING TO HAPPEN AGAIN.

- BILL CAPUZZI,

CEO, APEX CLEARING CORPORATION

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dip in Apex Clearing accounts shown beginning in early 2019 occurred after Robinhood Securities came online and began migrating customer accounts from Apex to its own clearing broker subsidiary. Robinhood had previously contracted with Apex to clear its trades. Total open account numbers for Charles Schwab dropped in 4Q 2021 when its subsidiary, TD Ameritrade closed approximately 1 million accounts deemed to be inactive based upon having a $0 account balance and no transfers for 12 months prior to closing (briefing with counsel for Schwab/TDA (Feb. 14, 2022)).

[11] Modern stock trading platforms have popularized the ability of retail investors to portion a fractional share. A fractional share is any portion of a stock less than a complete share. Offering investing in fractional shares has allowed retail investors to purchase a modest dollar figure in stocks like Berkshire Hathaway and Amazon, which can cost thousands of dollars per share.

[12] Many modern stock trading platforms such as Robinhood, Webull, and others use app designs intended to increase consumer engagement, time spent on an investment platform, and number of trades through gamification. The amalgamation of these features has led to criticism that gamified online trading platforms promote user engagement by encouraging trading behavior similar to a gambling addiction. Cyrus Farivar, *Gambling addiction experts see familiar aspects in Robinhood app*, NBC (Jan. 30, 2021).

[13] Farhad Manjoo, *Can We Please Stop Talking About Stocks, Please?*, The New York Times (Feb. 3, 2021).

[14] Apex Clearing, Apex Next Investor Outlook: Q2 2021 Top 100 Stocks (accessed on Jun. 21, 2022).

sure. No doubt about it. How it's going to manifest itself, I'm not sure, but for sure it's going to happen again."[15]

Retail investor trends, like stocks gaining popularity on social media, increasingly affect the price and trading volume of securities.[16] This has implications for market activity, trading infrastructure, and regulation. The full range of market participants, infrastructure providers, and regulators that Committee staff spoke with during its investigation acknowledged this new reality.

Financial services companies that introduce new practices and innovations must carefully assess and prepare for the potential impact and risk that such innovations pose to market integrity and stability. Specifically, firms must rigorously evaluate how innovations will affect their ability to meet existing regulatory requirements before introducing them and be mindful of new problems that such innovations may cause so that they can engage in adequate and proactive risk management.

Moreover, regulators must ensure broker-dealers properly assess and prepare for the full implications of such new innovations. The Meme Stock Market Event demonstrated the need for the modernization of our retail market regulatory architecture and the ways in which it anticipates, detects, and corrects for capital, liquidity, and operational risks associated with the rapid growth of retail trading and the technological and business model innovations facilitating such growth. This report highlights some of these shortcomings to ensure that regulators and market participants can address regulatory gaps and better hold individual firms to account.

b. The Meme Stock Market Event demonstrates the need for modernization of certain key aspects of the self-regulatory framework for retail facing "superbrokers."

The regime of Self-Regulatory Organizations (SROs), overseen by the Securities and Exchange Commission (SEC), will need to further evolve to fully address the risks generated by a new generation of retail-facing, self-directed broker-dealers referred to throughout this report as "superbrokers." Based on the Committee's investigation, FINRA could more adequately respond to current market dynamics with a modernized liquidity rule. In addition, the Committee's investigation revealed that DTCC's subsidiary, the National Securities Clearing Corporation (NSCC)—which sets and enforces rules for clearing equities—engaged in insufficient monitoring of its membership and has regularly waived certain clearing fund obligations prior to the Meme Stock Market Event. Collectively, these regulatory shortcomings may have contributed to the lack

[15] Interview with W. Capuzzi (Apex Clearing Corporation), at 31 (Jun. 24, 2021) (emphasis added).
[16] Erin Gobler, *What Is a Meme Stock?*, The Balance (Oct. 13, 2021).

of preparedness that certain retail broker-dealers exhibited in their ability to navigate the capital and liquidity challenges of the Meme Stock Market Event.[17]

The Committee's investigation found that FINRA and the SEC have limited rules focused on liquidity management practices of retail customer-focused broker-dealers. While FINRA has previously issued guidance on this topic, its guidance is non-binding and does not require systematic liquidity reviews of broker-dealers. Liquidity and capitalization issues are assessed regularly by FINRA for broker-dealers through risk monitoring policies and procedures that inform exam planning. However, FINRA's routine cycle examinations review capitalization and liquidity on a case-by-case basis for individual broker-dealers and are not mandatory.

Neither FINRA nor the SEC have a standalone liquidity rule. FINRA can only require compliance with the SEC's net capital rule during cycle examinations, which many industry experts whom the Committee spoke to during its investigation considered outdated. Outside of requiring compliance with SEC rules, FINRA issues nonbinding observations relating to liquidity during examinations. Without an updated liquidity rule from the SEC, and because FINRA does not have its own capital and liquidity rule, FINRA lacks an adequate foundation to more fully police the liquidity of its member firms.

Similarly, there are opportunities for the NSCC to modernize and improve how it oversees member firms. While the NSCC maintains a system to assess the credit risk posed by its members, including both a "Watch List" and an "Enhanced Surveillance List," the latter category is not clearly defined and member firms that are placed on Enhanced Surveillance are not notified of

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[17] FINRA has recognized shortcomings in this regard, including in testimony provided to the Committee by FINRA's CEO and President. FINRA has made preliminary efforts to address such liquidity risk management concerns by proposing new liquidity related reporting and has indicated to Committee staff that it is considering further potential reforms. FINRA, Proposed Rule Change to Adopt a Supplemental Liquidity Schedule, and Instructions Thereto, Pursuant to FINRA Rule 4524 (Supplemental FOCUS Information) (accessed on Jan. 27, 2020); FINRA briefing with the Committee (Jan. 26, 2021); House Committee on Financial Services, Testimony of Robert W. Cook, *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III*, 117th Cong. (May 06, 2021).

their inclusion on the list.[18] This lack of transparency misses an opportunity for the NSCC to communicate to relevant member firms the need to adopt remedial measures.[19]

Furthermore, the Committee's investigation revealed how the NSCC has regularly waived certain clearing fund requirements in the two years before the Meme Stock Market Event. The NSCC regularly waives or reduces its Excess Capital Premium charges, which are the component of a broker's collateral charge intended to incentivize member firms to maintain an adequate capital cushion. Excess Capital Premium charges rise exponentially the less capitalized a broker is relative to how risky its uncleared portfolio is. The NSCC's regular waiver and/or modification of Excess Capital Premium charges most often benefit member firms that regularly attract these charges.[20] The apparent repeated failure of Excess Capital Premium charges from deterring such firms from accumulating excessive risk is concerning.

Furthermore, based on the Committee's review of NSCC data, over the two years prior to the Meme Stock Market Event, the higher the aggregate Excess Capital Premium charges assessed, the more likely the NSCC was to waive them. While NSCC rules permit discretion in waiving or reducing Excess Capital Premium charges, the rules contain only limited guidance detailing how or when it is appropriate to waive or modify such charges.[21] This lack of detailed guidance undermines the predictability of NSCC decision-making during exigent market circumstances, such as during the Meme Stock Market Event, which, in turn, leads to confusion and uncertainty amongst NSCC member firms.

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[18] Member firms are placed on the "Watch List" if their credit rating, as measured by a credit rating system specified in NSCC rules, is assessed at a 5, 6 or 7 or if the NSCC otherwise considers that other relevant factors make a particular member firm pose a heightened risk to the clearinghouse. *See* NSCC, Rules and Procedures – Rule 1, at 21 (Jan. 24, 2022). NSCC's credit rating system considers both "(i) quantitative factors, such as capital, assets, earnings and liquidity and (ii) qualitative factors, such as management quality, market position/environment, and capital and liquidity risk management." *See Id.* at 5 (Jan. 24, 2022). Members placed on the Watch List may also be required to maintain a clearing fund deposit over and above the amounts otherwise determined by NSCC procedures to safeguard the clearinghouse from excessive risk posed by such member to the NSCC itself *See* Rule 2(B)€ of *Id.*€at 38 (Jan. 24, 2022). The Enhanced Surveillance List consists of a smaller subset of firms that are on the Watch List. *See* DTCC briefing with the Committee (Sept. 14, 2022). With respect to both the Watch List and the Enhanced Surveillance List, NSCC rules state that: "a Member or Limited Member being subject to enhanced surveillance or being placed on the Watch List shall result in a more thorough monitoring of the Member's or Limited Member's financial condition and/or operational capability, which could include, for example, on-site visits or additional due diligence information requests from the Corporation [i.e., NSCC]. In addition, the Corporation may require a Member or Limited Member placed on the Watch List and/or subject to enhanced surveillance to make more frequent financial disclosures, including, without limitation, interim and/or pro forma reports. Members and Limited Members that are subject to enhanced surveillance are also reported to the Corporation's management committees and regularly reviewed by a cross-functional team comprised of senior management of the Corporation. The Corporation may also take such additional actions with regard to any Member or Limited Member (including a Member or Limited Member placed on the Watch List and/or subject to enhanced surveillance) as are permitted by the Rules and Procedures. *See* NSCC, Rules and Procedures – Rule 2(B)(e), at 38 (Jan. 24, 2022).

[19] Committee staff recognize that NSCC has proposed rule changes to address certain redundancies in the Watch List and Enhanced Surveillance List system.

[20] DTCC briefing with the Committee (Jun. 17, 2021).

[21] NSCC briefing with the Committee (Jan. 21, 2022); NSCC, NSCC Rules and Procedures - Procedure XV I.(B)(2) (Jan. 01, 2021). Footnote 7 to Section I.(B)(2) of Procedure XV (Clearing Fund Formula and Other Matters).

c. *The Meme Stock Market Event exposed weaknesses in capital and liquidity planning and in the robustness of the technology platforms of financial services institutions upon which the orderly functioning of the stock market relies.*

Over the course of the Committee's investigation, interviews with multiple broker-dealers revealed considerable confusion, inconsistency, and lack of awareness amongst retail-oriented broker-dealers as to how the NSCC collateral requirements are calculated. Many member firms lack a full understanding of how the NSCC's Excess Capital Premium charges are assessed. Prominent firms, such as Robinhood, did not model for Excess Capital Premium charges as part of their capital and collateral planning processes prior to the Meme Stock Market Event, and there are no industry-wide best practices on how firms can ensure that they have adequate capital and liquidity to meet NSCC margin requirements.

More worrisome, according to the NSCC, certain broker-dealers that are familiar with Excess Capital Premium charges have decided to remain thinly capitalized and consciously risk attracting these charges on a regular basis.[22] Given that the NSCC often waives these charges, these firms may feel that they are unlikely to be seriously penalized for such risky behavior.

Finally, the Committee's investigation discovered evidence of multiple broker-dealers, third party clearing operations, market makers, public stock exchanges, and others suffering technology outages during the Meme Stock Market Event. Outages are particularly concerning among market makers, who are, by many accounts, lightly regulated and play an increasingly significant role in executing retail trades.[23] There is currently no FINRA or SEC requirement for broker-dealers to be active members of a public exchange, and on January 28, 2021, Robinhood was not connected to the New York Stock Exchange, Nasdaq, or any other public exchange where it could have routed customer trades for execution. Instead, Robinhood was solely reliant on its market maker firms to execute trades, most of whom were struggling under significant operational stress in the face of historic volume and volatility. Had the market makers Robinhood routinely routed orders to been unable to accept its order flow, the company would have been unable to execute trades for its customers.

d. Recommendations

Pursuant to its oversight authority, the Committee has provided a list of recommendations for possible regulatory reforms at the SEC, FINRA, and the DTCC to increase resiliency, transparency, oversight of, and access to, the equity markets. These recommendations reflect recent developments in the stock market, including the influx of retail investors and the rise of prominent "superbrokers" with millions of retail customer accounts. These potential reforms include greater attention to the identification of potential problems that may be caused by

[22] DTCC briefing with the Committee (Jul. 06, 2021).

[23] Members of Congress, consumer advocates, and regulators discussed the risks associated with the concentration of retail trading in market making firms during the Committee's three hearings on the meme stock market event. SEC Chair Gary Gensler raised concerns that such concentration could lead to market fragility. For additional detail, *see* Appendix II: Hearings and Legislation in Response to Meme Stock Market Event.

technological or other changes to market entry that lead to broader participation by individual investors. Potential reforms also include alternatives to how the NSCC assesses and applies margin charges, enhanced risk management, liquidity management and reporting requirements for clearing brokers, and other similar measures. In summary, these recommendations include the following:

Understanding the Influx of Retail Traders

- Congress should adopt legislation mandating key regulators, including the SEC and FINRA, to study how existing market rules and supervision will need to evolve to address new technological developments, including the possibility of social media driven market activity.

- The SEC should consider ways to implement trading halts tailored to respond to concentrated volatility in a limited number of stocks.

Enhancing Supervision of Retail Facing "Superbrokers"

- Congress should adopt legislation requiring broker-dealers that execute above a pre-determined threshold of customer orders to establish and maintain a connection to a public market.

- Congress should adopt legislation requiring broker-dealers that make markets and provide liquidity to other broker-dealers, which process above a pre-determined threshold of order flow, to be subject to Regulation SCI.

- The SEC and FINRA should enhance large, retail facing broker-dealer examinations and mandate stress tests that focus on liquidity management, including to account for the prospect of social media driven market volatility.

- The SEC and FINRA should introduce a requirement for clearing brokers to establish written contingency plans to address extreme market volatility and fully disclose both the contingency plans and any trading restrictions to the market in real time. Such written contingency plans should be reviewed regularly by the SEC and FINRA.

- Congress should adopt legislation that directs FINRA to conduct more thorough supervision of the broker-dealer industry, and the SEC should conduct more thorough oversight of FINRA's activities and any corrective actions FINRA may propose.

- When individual firms introduce trading restrictions, they should be required to notify the SEC and FINRA. Once introduced, FINRA should engage in enhanced monitoring to ensure that such trading restrictions are appropriate, tailored, and in place no longer than necessary.

Strengthening Capital and Liquidity Requirements and Oversight

- The SEC should introduce capitalization requirements for clearing brokers.

- The SEC should introduce a liquidity rule for clearing brokers. FINRA should establish a rules-based framework governing liquidity planning for clearing brokers.

- The DTCC and its subsidiary, the NSCC, should revisit how it conducts surveillance of member firms that may pose a greater risk, and FINRA should also focus more systematically on assessing the sufficiency of clearing brokers' liquidity planning.

- The DTCC and its subsidiary, the NSCC, should introduce clear written policies and procedures and establish transparency around the circumstances under which the DTCC may waive an Excess Capital Premium charge; such decisions should be subject to review by the SEC.

- The DTCC, its subsidiary the NSCC, the SEC, and Congress should introduce an emergency backstop funding facility for NSCC member firms that provide emergency liquidity to the NSCC.

II. COMMITTEE RESPONSE TO MEME STOCK MARKET EVENT

In the week after the Meme Stock Market Event, the Committee sent document request letters to several broker-dealers on February 4, 2021, for records and communications related to trading restrictions, as well as each firm's policies and procedures to respond to market volatility.[24] On February 18, 2021, the Committee held the first in a series of three full Committee hearings to gather information on the Meme Stock Market Event. The first hearing featured testimony from the CEOs of major financial services institutions involved in the Meme Stock Market Event, including Robinhood, Citadel Securities, and Melvin Capital. The second hearing, held on March 17, 2021, featured testimony from market experts and advocacy organizations. The final full Committee hearing on May 6, 2021, featured testimony from the SEC Chair, the CEO of FINRA, and the CEO of the DTCC.

In addition to the three full Committee hearings on the Meme Stock Market Event, the Committee engaged on market oversight with hearings on credit rating agencies on May 11, 2022, and July 16, 2021, and oversight of public exchanges, including the New York Stock Exchange and Nasdaq on March 30, 2022.

The Committee investigated the Meme Stock Market Event over the course of approximately 18 months, conducting more than 50 interviews with 20 institutions and reviewing more than 95,000 pages of responsive material received from stock trading platforms, clearing brokers, regulators, social media companies, and other related parties in response to our numerous information requests. This report comprises one part of the Committee's response to the Meme Stock Market Event, which included hearings and consideration of legislation addressing issues such as gamification, short sale disclosure, payment for order flow, and other related issues (*See* Appendix II: Hearings and Legislation in Response to Meme Stock Market Event).

Committee staff prepared this report to highlight the structural issues that the Meme Stock Market Event exposed. Experts that Committee staff spoke to agreed that while aspects of the Meme Stock Market Event were idiosyncratic, they expect market volatility driven by retail investors empowered by technology to be a recurrent trend.[25]

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[24] Letter from Chairwoman Waters to Walter W. Bettinger, II, CEO of The Charles Schwab Corporation (Feb. 04, 2021); Letter from Chairwoman Waters to Karl A. Roessner, CEO of E*TRADE Financial Corporation (Feb. 04, 2021); Letter from Chairwoman Waters to Milan Galik, CEO of Interactive Brokers LLC (Feb. 04, 2021); Letter from Chairwoman Waters to Vladimir Tenev, CEO of Robinhood Markets, Inc. (Feb. 04, 2021); Letter from Chairwoman Waters to Steve Boyle, CEO of TD Ameritrade (Feb. 04, 2021); Letter from Chairwoman Waters to Anthony Denier, CEO of Webull Financial LLC (Feb. 04, 2021).

[25] *See* Section III(3); Robinhood briefing with the Committee (Sept. 14, 2021); Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Sept. 20, 2021); Interview with W. Capuzzi (Apex Clearing Corporation), at 31 (Jun. 24, 2021).

III. COMMITTEE STAFF FINDINGS

Key Finding #1: Robinhood exhibited troubling business practices, inadequate risk management, and a culture that prioritized growth above stability during the Meme Stock Market Event.

a. Robinhood experienced conditions that limited its customers' ability to access the stock market prior to the Meme Stock Market Event.

Robinhood's unpreparedness to meet its regulatory capital obligations and the ensuing trading restrictions on January 28, 2021, was not the first time the company experienced conditions that limited its customers' ability to participate in the stock market. Robinhood suffered several technological outages through 2018 and 2019 affecting millions of its customers.[26] Most notably, on March 2–3, 2020 Robinhood's website and mobile app shut down, locking its entire customer base out of their accounts during a time of historic market volatility amidst the onset of the COVID-19 pandemic.[27] On June 30, 2021, FINRA issued the largest fine in its history to Robinhood for the company's March 2020 outages and for systemic supervisory failures (the "March 2020 Fine").[28] Among FINRA's findings in the June 2021 settlement, FINRA found that Robinhood failed to supervise technology critical to providing its customers with "core" broker-dealer services and failed to create a reasonably designed business continuity plan.[29]

Robinhood exhibited troubling business practices, inadequate risk management, and a culture that prioritized growth above stability during the Meme Stock Market Event.

b. Prior to the Meme Stock Market Event, Robinhood did not update its stress test used to predict collateral obligations to clearing agencies after FINRA made an observation to Robinhood Securities' Chief Financial Officer that the company may want to take a more conservative "best practices" approach to conducting stress tests.

Prior to the COVID-19 pandemic, FINRA conducted a 2019 Cycle examination of Robinhood Securities.[30] FINRA's examination program conducts periodic firm examinations, often referred to as "cycle exams," to ensure compliance with FINRA rules and federal securities laws and regulations. FINRA's cycle exams are risk-based and can vary in focus, and thus tailored

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[26] FINRA, *Letter of Acceptance, Waiver, and Consent* (No. 202006971201) (Jun. 30, 2021).
[27] *Id.*
[28] Maggie Fitzgerald, *Robinhood to pay $70 million for outages and misleading customers, the largest-ever FINRA penalty,* CNBC (Jun. 30, 2021); Email from FINRA to Committee staff (Mar. 03, 2022).
[29] FINRA, *Letter of Acceptance, Waiver, and Consent* (No. 202006971201) (Jun. 30, 2021).
[30] Email from FINRA to Committee staff (Mar. 03, 2022).

to the individual broker-dealer that is the subject of the examination. These examinations are designed in coordination with the risk monitoring analysts assigned to the broker-dealer.[31] Risk analysts review liquidity and capital issues as a matter of regular practice, however there is no mandatory liquidity or capitalization review as part of routine cycle examinations; rather, such areas may be subject to closer scrutiny if related business or financial practices, characteristics, history, or other factors unique to the broker-dealer are identified as a source of concern.[32]

As part of FINRA's 2019 cycle examination of Robinhood, FINRA evaluated Robinhood Securities' stress tests as part of its review of the firm's liquidity management practices. Stress tests are simulations that broker-dealers run to approximate how they might respond in a crisis considering any difficulty the firm might have meeting its financial obligations during periods of severe stress. FINRA encourages firms to make use of stress tests to prevent failure of the firm and guard against widespread systemic failure of the stock market during market turbulence. FINRA provides limited guidance on how firms should conduct stress tests.[33]

In April 2020, shortly after the onset of the COVID-19 pandemic, FINRA concluded its 2019 cycle examination of Robinhood Securities and communicated deficiencies and observations to the firm. Based upon FINRA's internal review, FINRA records show on-site and pre-exit meetings related to the 2019 cycle exam where FINRA officials shared an observation with Robinhood Securities regarding the company's stress test.[34]

Specifically, FINRA examiners made an observation regarding Robinhood's methodology for calculating its required collateral deposits for clearing agencies like the NSCC, the Options Clearing Corporation (OCC), and the Depository Trust Company (DTC) used in its stress tests.[35] At the time, Robinhood's stress tests used a "day zero" assumption for the firm's collateral charges with its clearing agencies, using whatever firm's collateral charge from the last day of the previous quarter and doubling that number. FINRA examiners communicated an oral observation that from a conservative "best practices" standpoint, the company would be better served by using the peak collateral charges and doubling that number instead.[36] According to FINRA's records, Robinhood Securities officials, including the Chief Financial Officer and the Regulatory Inquiries Manager for Robinhood Securities, were present for discussions of Robinhood Securities incorporating their peak clearing deposits for stress tests.[37] Robinhood had difficulty finding any evidence of feedback that FINRA may have provided regarding collateral charge assumptions the company used in their

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[31] *Id.*

[32] In contrast, risk monitoring analysts generally review liquidity and capital issues as a matter of regular practice. Email from FINRA to Committee staff (Mar. 03, 2022).

[33] FINRA, *Guidance on Liquidity Risk Management Practices* (Sept. 2015).

[34] Email from FINRA to Committee staff (Jun. 21, 2022).

[35] Email and attachments to email from representatives for FINRA to Committee staff (Jun. 20, 2022).

[36] Email and attachments to email from Counsel for Robinhood to Committee staff (Jun. 20, 2022).

[37] Email from FINRA to Committee staff (Jun. 19, 2022).

stress test, and commented to Committee staff that it cannot corroborate FINRA's documentation of these discussions.[38]

In any event, Robinhood did not update its stress tests according to FINRA's observation before the Meme Stock Market Event.[39] In fact, Robinhood conducted a quarterly stress test exercise in mid-January of 2021, prior to the Meme Stock Market Event using its collateral charges from the prior quarter end rather than the peak collateral charges as FINRA staff had suggested.

FINRA's observation would have led Robinhood to adapt a more conservative method for conducting a stress test than the standard FINRA guidance on this matter. Taking the approach outlined in FINRA's observation would have been a more accurate measure of the actual highest collateral charges the firm would be likely to be charged during periods of heightened volatility. As a result, the stress test that Robinhood ran in January 2021, mere days before the Meme Stock Market Event, did not more fully reflect the collateral charges with clearing agencies the firm should have anticipated.

Any increase in Robinhood's capital position could have had a significant impact. For example, Robinhood's NSCC collateral charges on December 31, 2020, the most recent quarter end before January 28, 2021, which the firm actually used in its January 2021 stress test, was as follows:

Figure 2: Robinhood's NSCC collateral charges (Dec. 31, 2020)

Date	Deposit Requirement (Start of Day)
12/31/2020	$72,774,074.93[40]

The company's top NSCC collateral charge for 2020, a level more than four times higher, which FINRA observed would be a more "best practices," conservative approach[41] for modeling Robinhood's stress test, was as follows:

Figure 3: Robinhood's highest NSCC collateral charges (2020)

Date	Deposit Requirement (Start of Day)
6/10/2020	$299,855,653.27

[38] FINRA conducted an accuracy review of this sub-finding and confirmed that the Committee's descriptions of events are correct. Email from FINRA to Committee staff (Jun. 21, 2022); Briefing with counsel for Robinhood (Jun. 21, 2022); Robinhood briefing with the Committee (Nov. 03, 2021).
[39] Email from Robinhood to Committee staff (Feb. 08, 2022)
[40] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Dec. 15, 2021).
[41] Email and attachments to email from Counsel for Robinhood to Committee staff (Jun. 20, 2022).

The difference between the two numbers when doubled in a stress test is nearly half a billion dollars (approximately $140 million versus $600 million). Consider the fact that Excess Capital Premium charges (the main contributor to Robinhood's NSCC clearing fund requirement on January 28, 2021) rise exponentially the less well capitalized a broker-dealer is relative to the volatility in their unsettled portfolio. When Committee staff inquired why FINRA would communicate its observations regarding Robinhood's stress tests orally without making an official written finding, FINRA responded that its practice is to only memorialize deficiencies in writing to the firm. In this case, there was no liquidity rule, no rule violation, and the firm was in compliance with the SEC's net capital rule (which many experts the Committee spoke with during its investigation considered to be outdated).[42]

This rule framework illustrates a gap in the current supervision of liquidity planning practices and a need to modernize the supervisory framework that applies to a new generation of retail broker-dealers, particularly at the time of the Meme Stock Market Event.[43] Lacking a more updated rule framework governing liquidity, a more conservative approach to the assumptions used to model their clearing fund obligations at the NSCC and other clearing agencies in Robinhood's stress tests could have alerted the company to the need to raise additional capital prior to January 28, 2021.

c. Robinhood relied on incomplete internal models without fully utilizing the NSCC's publicly available resources for modeling collateral charges, leaving Robinhood unprepared to accurately calculate its collateral charges on January 28, 2021.

Robinhood's CEO, Vlad Tenev, represented in Congressional testimony before this Committee that January 28, 2021, was an "unmodellable," "Black Swan event."[44] While it is impossible to know how the company could have reacted to the Meme Stock Market Event with different internal processes and controls, the Committee's investigation found that Robinhood's models used for calculating its clearinghouse collateral obligations in the days before the Meme Stock Market Event were incomplete, and therefore grossly underestimated how much the company would owe in collateral obligations on January 28, 2021.

The DTCC and the National Securities Clearing Corporation (NSCC)—the DTCC's subsidiary for clearing equities—serve as a central counterparty clearinghouse for the stock

[42] FINRA has taken several actions to respond to both the volatility from the onset of COVID-19 and the Meme Stock Market event, which includes new and revised protocols and procedures including the adoption of a Supplemental Liquidity Schedule. However, the Committee's investigation has also identified multiple areas in which FINRA could conduct more thorough oversight of broker-dealers. For instance, during the course of the investigation, Committee staff learned that the SEC and FINRA do not require firms to notify them of trading restrictions, to maintain written plans for emergency capital raisings or liquidity arrangements, or to conduct stress tests to specifically determine broker-dealers' ability to offer market access to customers during periods of peak volatility.[42]

[43] The SEC reviewed 69 FINRA examinations from fiscal year 2021 and found numerous. Related reports have demonstrated the SEC has been slow to implement programs that might increase the effectiveness of FINRA supervision. For further discussion of various shortcomings with the SEC's oversight of FINRA, *see* Appendix III: The U.S Government Accountability Organization (GAO) Found Significant Gaps in the SEC's Oversight of FINRA in Congressionally Mandated Reports.

[44] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).

market.[45] As a central counterparty, the NSCC is at the heart of processing trades in the U.S. equities market and reduces settlement risk for both buying broker-dealers and selling broker-dealers, each of which are NSCC member firms.[46] Customers execute trades through their broker, and those brokers match trades through a public exchange like Nasdaq, a market making firm like Citadel Securities, or another trading venue, but those venues ultimately direct all securities trades through the NSCC for clearing.[47]

If an NSCC member firm defaults on its obligations, the NSCC stands in the defaulted firm's place and delivers cash and securities to the non-defaulting members.[48] The NSCC requires individual member firms to deposit collateral, or margin, to protect against the risk of a member firm's default.[49]

Following the outages that occurred on Robinhood's platform in March of 2020 (which ultimately led to FINRA levying the March 2020 fine), Robinhood was placed on the NSCC's Enhanced Surveillance List.[50] However, in keeping with existing NSCC practices, the NSCC did not notify Robinhood that it had been placed on this list and was now subject to greater scrutiny. Moreover, Robinhood's incomplete liquidity planning practices were neither detected by the clearinghouse nor remedied despite the company being subject to enhanced surveillance.

Specifically, in addition to the problematic assumptions that Robinhood used in its stress tests in mid-January 2021, Robinhood's internal models used to predict its NSCC collateral charges leading into the week of January 28, 2021, did not account for the prospect of Excess Capital Premium charges—a significant component of the NSCC's collateral charge regime that applies when a broker-dealer is deemed to be undercapitalized.[51] As the market becomes more volatile, and particularly as an individual broker-dealer's uncleared portfolio becomes riskier, the NSCC collateral deposit requirements for that individual broker-dealer increases.[52] In particular,

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[45] Wyatt Wells, *Certificates and Computers: The Remaking of Wall Street, 1967 to 1971*, Business History Review, 74 (2): 193–235 (Jan. 1, 2000); House Committee on Financial Services, Testimony of Michael C. Bodson*, Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III*, 117th Cong. (May 06, 2021).

[46] "Clearing brokers," who are responsible for executing and processing trades, are members firms of clearinghouses. "Introducing brokers," who interface with individual clients and assist them in opening accounts, are not themselves members of clearinghouses. Certain brokers only act as introducing brokers and contract with a third-party clearing broker to provide clearing services. Webull is an example of a broker-dealers that acts as only an introducing broker and, in its case, relies on a contractual arrangement with Apex to clear and process trades initiated by Webull's customers on its platform.

[47] DTCC briefing with the Committee (Jun. 17, 2021).

[48] *Id.*

[49] DTCC briefing with the Committee (Jun. 17, 2021). This is also referred to as a member firm's "clearing fund requirement."

[50] DTCC briefing with the Committee (Jul. 22, 2021).

[51] *See* Appendix I: Glossary for definition of "Excess Capital Premium charge"; SEC, *Self-Regulatory Organizations; Fixed Income Clearing Corporation and National Securities Clearing Corporation; Notice of Filing and Order Granting Accelerated Approval of Proposed Rule Changes to Institute a Clearing Fund Premium Based Upon a Member's Clearing Fund Requirement to Excess Regulatory Capital Ratio* (Sept. 15, 2006) (Release No. 34-54457); House Committee on Financial Services, Testimony of Michael C. Bodson*, Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III*, 117th Cong. (May 06, 2021); DTCC briefing with the Committee (Jul. 06, 2021).

[52] DTCC briefing with the Committee (Jun. 17, 2021); DTCC briefing with the Committee (Oct. 28, 2021).

the Excess Capital Premium charge Increases exponentially based upon how risky a broker-dealer's uncleared portfolio is deemed to be relative to its capitalization.[53]

The NSCC assessed a $3.7 billion collateral charge to Robinhood on January 28, 2021, based on the risk in Robinhood's uncleared portfolio relative to the company's capitalization. This charge, which ultimately prompted Robinhood's trading restrictions, had several components. The two largest components were the Value-at-Risk charge, which totaled $1.3 billion, and the Excess Capital Premium charge, which totaled $2.2 billion.[54] During interviews with Committee staff, Robinhood officials confirmed that the company was only modeling for its potential Value-at-Risk charge for the week of January 25, 2021.[55] In other words, Robinhood had no visibility into the possibility of, much less the precise level of, Excess Premium Capital charges that it could be required to pay during the Meme Stock Market Event.

On January 28, 2021, after learning of its collateral charge for the day, Robinhood operational staff first accessed and utilized the publicly available formula that the NSCC uses to calculate Excess Capital Premium charges.[56] Three weeks after the Meme Stock Market Event, on February 18, 2021, the company first incorporated the Excess Capital Premium charge into a mathematical model used to estimate when such a charge could be assessed.[57] Then, on May 27, 2021, four months after the Meme Stock Market Event, the firm began regularly modeling what its Excess Capital Premium charge would be if it exceeded its net capital.[58] Robinhood's Head of Data Science confirmed that updating the models is relatively straightforward as the company uses Excel spreadsheets to model its NSCC collateral charge rather than more sophisticated machine learning algorithms.[59]

Despite the acknowledged simplicity of its model and the NSCC's public release of its formula for calculating collateral charges, Robinhood's Head of Data Science commented internally that Robinhood's collateral charges were a "black box" to him the day before Robinhood received its historical collateral charge.[60] Furthermore, the NSCC neither notified Robinhood that the firm was under Enhanced Surveillance, nor conducted any form of supervision that would have uncovered the incompleteness of Robinhood's calculations for modeling collateral obligations.

d. On Sunday, January 24, 2021, Robinhood leadership hesitated to model volatility before the start of the trading week

On January 24, 2021, the Sunday before Robinhood experienced a liquidity crisis and had difficulty in meeting its NSCC collateral requirements, a senior manager in Robinhood's treasury department advocated modelling the company's collateral obligations in an abundance of

[53] DTCC briefing with the Committee (Jul. 06, 2021).
[54] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Sept. 20, 2021).
[55] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Dec. 15, 2021).
[56] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Dec. 15, 2021).
[57] *Id.*
[58] *Id.*
[59] Robinhood briefing with the Committee (Nov. 03, 2021).
[60] RH_HFSC_00029119 (on file with the Committee).

caution.[61] Note that even with this cautious approach, its models did not account for Excess Capital Premium charges. However, David Dusseault, President and Chief Operating of Robinhood Financial, the subsidiary of Robinhood that operates the company's brokerage through its app and website, suggested that "triggers" that would make the firm react more fully to the surging volatility going into the trading week would be "inbound from… regulators."[62]

Figure 4: RH_HFSC_00020687 [63]

David.dusseault

01/24/2021 11:34:58

[redacted] saw your post. If you think we should front run the model I think that's Jim's call. From a negative press standpoint which is mainly what I'm focused on and regulators rhf is good with the current requirements.

David.dusseault

01/24/2021 11:35:18

I think triggers that could make us react would be inbound from any regulators

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The senior manager in Robinhood's treasury department sent an internal message, urging the company to not wait to run the models until trading opened the next day.[64] She also responded to Dusseault, saying that she was "thinking about this from a risk perspective though you guys are balancing many other concerns."[65]

e. On Monday, January 25, 2021, Robinhood focused its efforts on accommodating rapid growth, even as it faced severe operational strain in its internal systems and nearly missed a deadline to its options clearinghouse that would have prompted a liquidity crisis within Robinhood.

The next day, Monday, January 25, 2021, Robinhood executives observed a sharp increase in meme stock activity.[66] Gretchen Howard, Robinhood's Chief Operating Officer commented, "VERY high volume coming in today… Possibly Gamestop trending on twitter and wall street bets." Robinhood CEO, Vlad Tenev and Robinhood's Head of Data Science agreed.[67]

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[61] RH_HFSC_00020687 (on file with the Committee).
[62] *Id.*
[63] RH_HFSC_00020687 (on file with the Committee).
[64] *Id.*
[65] *Id.*
[66] RH_HFSC_00006682 (on file with the Committee).
[67] *Id.*

At the same time, Robinhood employees noticed operational concerns within the company relative to the sharp rise in volume and warned that volume would most likely increase.[68] The company's Head of Data Science commented that the "success of GME short squeeze and people knowing more about other short squeezes WSB (wallstreetbets) is talking about may lead to a ton of volume in the next few weeks."[69] In response, a Robinhood engineering manager responded, "today was a huge day. There are internal things that are starting to buckle under pressure."[70]

As market activity increased, the company faced challenges as various systems became overwhelmed. For example, the firm's Automated Customer Account Transfer Service (ACATS), which is used to transfer securities from one trading account to another, and various files and reports, such as Robinhood's Automated Clearing House (ACH) file, faced operational strain.[71] Robinhood's Head of Data Science and his team worked throughout the week to make sure the company's systems remained operational.[72] As Jim Swartwout, President and Chief Operating Officer for Robinhood's clearing operation commented to his employees, the increasing volume, to the extent it created longer delays in processing for internal systems, was unsustainable.[73]

Figure 5: RH_HFSC_00006803 [74]

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jim.swartwout

01/25/2021 15:22:58

Guys, ton of issues today with the lag we are looking at. ACATS will probably not be able to process at all before batch - we were "hoping" to start today's work at 8pm. We missed the ACH file being fully submitted. LOPR, OCC and others are going to be cutting it very close to cutoff.

We cannot sustain any increases in volume if it is going to create longer delays in processing every day.

Robinhood employees were particularly worried about submitting a critical file to the Options Clearing Corporation (OCC) on a timely basis. The OCC is a clearinghouse that provides central counterparty clearing and settlement services for the securities derivates market.[75] The OCC serves a similar role for the derivatives market as the NSCC serves in the equities market. When calculating daily broker-dealer dealer margin requirements, the OCC permits broker-dealers

[68] RH_HFSC_00005965 (on file with the Committee).
[69] RH_HFSC_00005965 (on file with the Committee).
[70] *Id.*
[71] RH_HFSC_00006803 (on file with the Committee)
[72] Robinhood briefing with the Committee (Nov. 03, 2021).
[73] RH_HFSC_00006803 (on file with the Committee).
[74] RH_HFSC_00006803 (on file with the Committee).
[75] OCC, What is OCC? (accessed Jan. 27, 2021).

to offset long and short positions in the same security so as to lessen the total margin owed for the day.[76] To obtain such an offset, broker-dealers must submit a file to the OCC that includes all of its long and short positions by 9:00 p.m. EST each day.[77] If the broker-dealer does not submit a request to offset securities, the OCC assumes there is no offset for each security and charges the maximum margin. In other words, rather than long positions offsetting short positions in calculating margin requirements, the OCC charges the full margin obligations for all the securities in a broker-dealer's uncleared portfolio.[78]

On January 25, 2021, Robinhood faced operational strain on its systems used to calculate its OCC spread file.[79] Given the historic volume and volatility in the markets, the OCC extended the deadline for all broker-dealers to submit their spread file on January 25, 2021. Robinhood ran various models to estimate its OCC obligations if it missed the extended deadline to submit its file to the OCC.[80] On the night of January 25, 2021, Robinhood Securities' Senior Director of Clearing Operations estimated the OCC's requirement to be approximately $1.6 to $1.9 billion if the company was unable to submit its spread file by the deadline. He also advised that missing the OCC deadline would almost certainly prompt a regulatory investigation of the firm.[81]

Figure 6: RH_HFSC_00029036 [82]

[redacted] Senior Director of Clearing Operations

01/26/2021 13:18:43

(Edited)

The requirement would be something in the 1.6 to 1.9 billion. Since we have never been in that situation and the OCC knows that we only allow spreads, there COULD be something that could be done, but you can be confident that there will be a full regulatory investigation. The biggest concern now is can we handle our scale. If we fail to deliver something like this due to us not being able to handle our own volume, it would not bode well with OCC or the regulators

Robinhood employees continued to work throughout the day to address the delays in its systems used to calculate its OCC spread files. The company's executive leadership, including Jim

[76] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[77] *Id.*
[78] OCC, OCC Rules - Rule 1306 (accessed Jan. 27, 2022).
[79] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[80] *Id.*
[81] RH_HFSC_00029036 (on file with the Committee).
[82] The original chat message was edited by its author to change the word "shorts" to "spreads" in the second sentence of the message. *Id.*

Swartwout and Gretchen Howard, expressed concerns about the impact of missing the OCC deadline for submitting the spread file would have on the firm's liquidity.[83]

Figure 7: RH_HFSC_00006804 [84]

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jim.swartwout

01/25/2021 16:30:18

Dealing with OCC file delay right now. This is going to cause liquidity issues.
Thx

As Robinhood operational staff raced to meet the OCC's deadline to avoid a liquidity crisis, Robinhood's executive leadership held an all-hands meeting and asked operational staff to discuss ways to handle Robinhood's rapid growth during the rising volatility, which many in the company saw as a commercial opportunity.[85] Prior to the meeting, Jim Swartwout commented to a Clearing Operations Manager at Robinhood Securities that perhaps instead of discussing ways to facilitate the company's rapid growth at the upcoming meeting, he should instead discuss all of the things his team was doing to "keep the lights on" amidst the week's spiking volatility.[86]

Figure 8: RH_HFSC_00006669 [87]

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jim.swartwout

01/25/2021 15:15:18

FYI - we have also been asked to discuss at All Hands anything where we can talk about handling Scale :face_with_rolling_eyes: But might be a great time to highlight all the things ACATS and Treasury have been doing to keep the lights on. I was going to discuss tomorrow in RHS Mgmt. Keep me posted. [redacted]

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[83] RH_HFSC_00006804 (on file with the Committee).
[84] *Id.*; RH_HFSC_00007056-57 (on file with the Committee).
[85] RH_HFSC_00006669 (on file with the Committee); RH_HFSC_00028837 (on file with the Committee); RH_HFSC_00029126 (on file with the Committee).
[86] RH_HFSC_00006669 (on file with the Committee).
[87] *Id.*

In response, the Clearing Operations Manager commented that Robinhood doesn't handle scale well, to which Jim Swartwout responded, "That is probably the biggest understatement of the day…."[88]

Figure 9: RH_HFSC_00006669 [89]

[redacted] Clearing Operations Manager

01/25/2021 15:31:06

...we don't handle scale well :sweat_smile:

jim.swartwout

01/25/2021 15:31:39

That is probably the biggest understatement of the day....

The Clearing Operations Manager further commented that she was struggling to understand why the company should be discussing how to absorb further growth when "things are barely being held together. Is there a focus I'm missing here?" She felt the company's product team might be better able to put a positive spin on the situation, but from an operational perspective, Robinhood had failed its obligation to fully service its customers by struggling to complete its operational obligations.[90]

Figure 10: RH_HFSC_00006669 [91]

[redacted] Clearing Operations Manager

01/25/2021 16:26:07

I'm really just struggling why they would want us to talk about this when things are barely being held together. Is there a focus I'm missing?

Potentially product would be more apt to be able to put a positive spin on it, but from my perspective today we failed our obligation to fully service our customers by not being able to complete the sweep files

[88] *Id.*
[89] *Id.*
[90] *Id.*
[91] *Id.*

The OCC extended its deadline on the night of Monday, January 25, 2021 for Robinhood and others, and extended the deadline by 60 to 90 minutes every other night of that week due to the heightened volatility.[92] Robinhood was ultimately able to work through its system issues and submitted its spread file to the OCC shortly before the extended deadline.[93] In communication with Robinhood's Head of Engineering after the company successfully submitted its file to the OCC, Gretchen Howard commented, "Made it with 1 minute to spare!!!".[94]

Robinhood's OCC collateral requirement was $92 million on January 25, 2021, rather than the estimated $1.6 to $1.9 billion charge.[95] Robinhood employees ended the day aware that further market volatility was likely,[96] Throughout the evening and into the night, Jim Swartwout remained wary of regulatory scrutiny.[97] While Robinhood employees were relieved to have submitted their OCC spread file on time, Swartwout remained cognizant of other operational difficulties that might concern regulators and communicated such concerns to Gretchen Howard, including FINRA's concerns with Robinhood's ability to continue processing fractional shares.[98] On the evening of January 25, 2021, the company's Head of Data Science warned that the company should not rule out higher volume days for the rest of the week and suggested considering contingencies if Robinhood missed the OCC's deadlines in the future.[99]

f. On Tuesday, January 26, 2021, Robinhood employees observed a historic spike in trading activity on their platform following a tweet about GameStop posted by Tesla CEO Elon Musk.

On Tuesday, January 26, 2021, employees at Robinhood continued to monitor market activity and observe volume and volatility.[100] Popular momentum behind meme stocks continued to increase, and at 4:08 p.m. EST, Tesla CEO Elon Musk tweeted "Gamestonk!!" with a link to the wallstreetbets subreddit.[101]

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92 Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
93 RH_HFSC_00007056-57 (on file with the Committee).
94 *Id.*
95 Letter from counsel for Robinhood to Committee staff (Nov. 04, 2021).
96 RH_HFSC_00005969 (on file with the Committee).
97 RH_HFSC_00011695 (on file with the Committee).
98 *Id.*
99 RH_HFSC_00005969 (on file with the Committee).
100 *Id.*
101 Elon Musk (@elonmusk), Twitter post (Jan. 26, 2021, 4:08 p.m.) (accessed Jan. 27, 2022).

Figure 11: Twitter post from Elon Musk (@elonmusk) [102]

As Robinhood employees monitored the number of customers applying to open an account on their trading platform, they observed a historical spike directly following Mr. Musk's tweet.[103] A product manager flagged the acute increase in activity internally.[104]

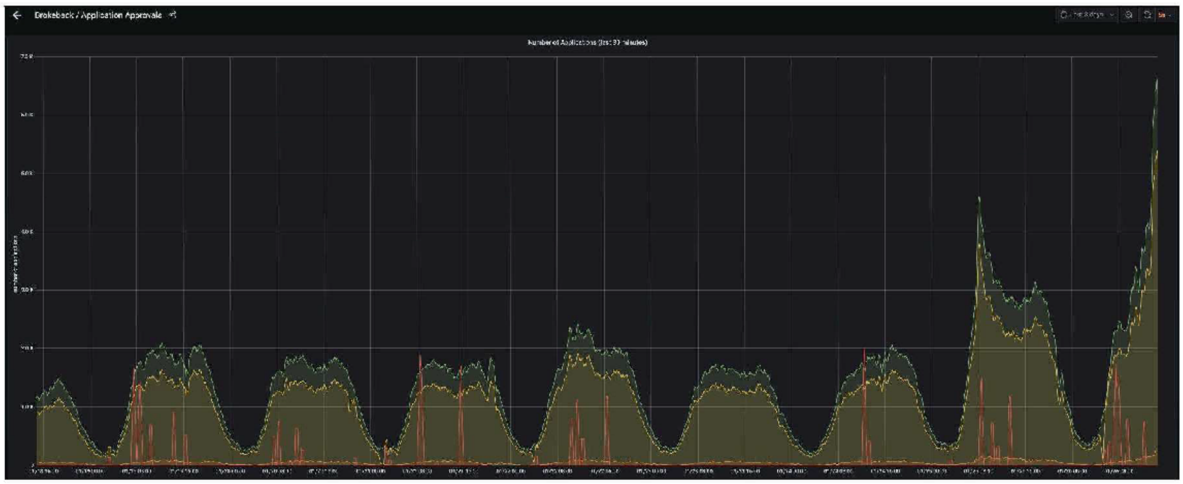
[102] *Id.*
[103] RH_HFSC_00028836 (on file with the Committee); RH_HFSC_00028837 (on file with the Committee).
[104] RH_HFSC_00028836 (on file with the Committee).

Figure 12: RH_HFSC_00028836 [105]

[redacted] Product Manager, Growth

01/26/2021 14:51:20

FYI massive spike in last 30m likely caused by Elon Musk tweet



The same product manager commented, "we could probably interact with this movement to promote RH growth," to Robinhood's Head of Data Science as they considered interacting with the market activity to promote firm growth and reminding Robinhood customers that GME was one of the stocks the company gave away as a free referral stock earlier in the company's history.[106]

[105] *Id.*

[106] RH_HFSC_00028837 (on file with the Committee).

Figure 13: RH_HFSC_00028837 [107]

[redacted] Product Manager, Growth

01/26/2021 15:18:15

we could probably interact with this movement to promote RH growth, but thinking we should stay far far away from this entirely

---

[redacted] Head of Data Science

01/26/2021 16:12:31

oh [redacted] mentioned that GME was one of the stocks we gave out to referrals users

[redacted] Head of Data Science

01/26/2021 16:12:41

we should remind the users who have this lying around

[redacted] Head of Data Science

01/26/2021 16:12:47

that this is a $200 stock now

[redacted] Product Manager, Growth

01/26/2021 16:22:10

hmm my thinking was that we don't want to call out GME at all. I'm trying to imagine the right way to tell customers that we gave them a meme stock before it was a meme

On Tuesday, January 26, 2021, Robinhood once again faced system delays that threatened its ability to submit its OCC spread file before the deadline. As Robinhood employees implored the OCC for another extension of the deadline, senior leadership grew increasingly worried about the impression the company's recurring systems delay would leave with the clearinghouse. Jim Swartwout texted Gretchen Howard on the afternoon of January 26, 2021, to say that if OCC granted Robinhood another extension on submitting its spread file, the clearinghouse "may follow up with why we needed it though. Which would not be good."[108]

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[107] *Id.*

[108] RH_HFSC_00011697 (on file with the Committee).

g. *On Wednesday, January 27, 2021, as Robinhood employees began to create trading restrictions to slow volatility on their platform, they also sought to conceal the reasons for implementing such restrictions from their customers and the public, even as they feared restrictions could cause the market to crash.*

On the morning of January 27, 2021, Robinhood employees continued to monitor market activity and observe volume and volatility.[109] Vlad Tenev was concerned going into Wednesday, January 27, 2021, about the company's ability to maintain adequate liquidity as expressed to the company's Chief Financial Officer, Jason Warnick.[110]

Figure 14: RH_HFSC_00007154 [111]

Vlad Tenev

01/27/2021 11:13:02

just make sure our liquidity stays green jason :slightly_smiling_face:

Vlad Tenev

01/27/2021 11:13:04

and we'll be fine

---

jason.warnick

01/27/2021 11:13:10

on it!

In interviews with Committee staff, Robinhood executives could not recall with specificity when the idea of creating position limits for certain volatile stocks first arose.[112] Robinhood employees worked to slow the velocity of trading within their platform.[113] Several different ideas were discussed, but at first, position limits became the favored method to slow trading velocity.

[109] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[110] RH_HFSC_00007154 (on file with the Committee).
[111] *Id.*
[112] Interview with J. Swartwout (Robinhood) (May 05, 2021); Interview with G. Howard (Robinhood) (May 11, 2021).
[113] RH_HFSC_00015755-69 (on file with the Committee).

Position limits limit the total number of stocks each customer can own in certain volatile stocks, as compared to position closing only (PCO) restrictions, which prohibit customers from purchasing certain stocks altogether.[114] Robinhood's Head of Data Science expressed concerns that PCO restrictions would look bad for the company, and also raised concerns that given the size of the company, Robinhood placing PCO restrictions on specific symbols could trigger a market crash in certain stocks.[115] Robinhood's Head of Market Operations also expressed concern that PCO restrictions could move the market given that Robinhood customers accounted for more than 10% of the market.[116]

Figure 15: RH_HFSC_00029118 [117]

[redacted] Head of Data Science

01/27/2021 12:20:33

us PCO will trigger a crash, I am certain

[redacted] Product Manager, Brokerage

01/27/2021 12:20:39

its a bad look

[redacted] Product Manager, Brokerage

01/27/2021 12:20:44

w'ere supposed to support the retail

As Robinhood employees worked through Wednesday, January 27, 2021, to code position limits for meme stocks, they struggled with how to frame the trading restrictions to the public and seemed to want to avoid giving their own clients the real reasons for imposing restrictions. [118] A product manager at Robinhood Financial asked, "Do we have a customer facing rational we can

[114] RH_HFSC_00015755-69 (on file with the Committee)
[115] RH_HFSC_00029118 (on file with the Committee).
[116] RH_HFSC_00041948 (on file with the Committee).
[117] RH_HFSC_00029118 (on file with the Committee).
[118] RH_HFSC_00015750 (on file with the Committee); RH_HFSC_00015751 (on file with the Committee).

provide?"[119] In response, a manager in Robinhood's brokerage responded, "The real reason is firm risk and us needing to control the velocity of trading. …But we shouldn't expose that."[120] The product manager agreed.[121]

In a discussion between Robinhood's Head of Data Science and the manager in the firm's brokerage, the two employees considered ways to reduce trade volume on the night of Wednesday, January 27, 2021, and weighed concerns about growth versus risk management, and seemingly placed increasing growth above prudential concerns.[122]

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[119] RH_HFSC_00015750 (on file with the Committee).
[120] RH_HFSC_00015751 (on file with the Committee).
[121] *Id.*
[122] RH_HFSC_00029126 (on file with the Committee).

Figure 16: RH_HFSC_00029126-7 [123]

[redacted] Product Manager, Brokerage

01/27/2021 23:24:03

conflict brewing

[redacted] Product Manager, Brokerage

01/27/2021 23:24:12

we have to keep the growth flywheel running

[redacted] Product Manager, Brokerage

01/27/2021 23:24:15

webull is right on our tail

[redacted] Head of Data Science

01/27/2021 23:24:25

haah dont worry, we need to survive first

[redacted] Product Manager, Brokerage

01/27/2021 23:24:35

i know

[redacted] Head of Data Science

01/27/2021 23:24:39

I am firmly in the growth camp

[123] RH_HFSC_00029126-7 (on file with the Committee).

h. *Robinhood operational employees exhibited a general lack of awareness of the NSCC's collateral charge formula during the Meme Stock Market Event.*

Despite years of operating their own clearing operation, during this period Robinhood employees remained unaware of how the NSCC calculated its collateral charges and the implications for the company's operations. As employees contemplated ways to mitigate risks with the rising market activity on the night of January 27, 2021, the Head of Data Science commented to other Robinhood employees that the NSCC's collateral charges seemed like a "black box" as the company worked to understand the implications of the volume and volatility in the markets.[124]

Figure 17: RH_HFSC_00029119-20 [125]

[redacted] Head of Data Science

01/27/2021 14:27:41

ok we will need a playbook of what are we even monitoring

[redacted] Product Manager, Brokerage

01/27/2021 14:27:49

im meeting with [redacted] later

[redacted] Head of Data Science

01/27/2021 14:27:51

because the NSCC deposit seems like a black box to me

The company's Head of Data Science was not the only senior Robinhood employee with limited knowledge of how the NSCC calculated its collateral charges. The night before the January 28, 2021, trading restrictions, Robinhood's Head of Market Operations and Robinhood's Director of Account Operations discussed efforts to create position limits to reduce the number of shares in volatile stocks Robinhood customers could purchase.[126] While discussing the need to reduce trading activity on the platform, the two senior Robinhood Financial employees expressed surprise about the existence of what they referred to as NSCC "risk fees."[127]

[124] RH_HFSC_00029119 (on file with the Committee).
[125] RH_HFSC_00029119-20 (on file with the Committee).
[126] RH_HFSC_00041943 (on file with the Committee).
[127] RH_HFSC_00041945 (on file with the Committee).

Figure 18: RH_HFSC_00041945 [128]

[redacted] Head of Market Operations

01/27/2021 20:10:51

apparently we don't have enough money to pay NSCC fees

[redacted] Director of Account Operations

01/27/2021 20:10:51

always great when people start dropping f bombs

[redacted] Head of Market Operations

01/27/2021 20:10:55

who knew about nscc fees?

[redacted] Director of Account Operations

01/27/2021 20:11:04

NCSS fees...

[redacted] Head of Market Operations

01/27/2021 20:11:06

they charge "risk fees"

[redacted] Director of Account Operations

01/27/2021 20:11:07

interesting

[128] *Id.*

Robinhood employees ended January 27, 2021, aware of historic volume and volatility in meme stocks and commented on the irony of the difference in public perception of the company relative to the operational concerns within the company. Despite the operational and liquidity concerns Robinhood had been facing all week under larger volumes than during the volatility caused by the onset of the COVID-19 pandemic, public perception was fine even though the company was "on the edge."[129]

Figure 19: RH_HFSC_00041952-4 [130]

[redacted] Director of Account Operations

01/27/2021 20:16:03

it's like we are reliving march 2020

[redacted] Head of Market Operations

01/27/2021 20:16:09

10000%

[redacted] Director of Account Operations

01/27/2021 20:16:10

but with bigger volumes

[redacted] Head of Market Operations

01/27/2021 20:16:19

its funny though because public perception is fine

[redacted] Head of Market Operations

01/27/2021 20:16:23

like no one knows there are issues

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[129] RH_HFSC_00041953-54 (on file with the Committee).
[130] RH_HFSC_00041952-4 (on file with the Committee).

[redacted] Head of Market Operations

01/27/2021 20:16:26

except like

[redacted] Head of Market Operations

01/27/2021 20:16:33

people trading crypto (not that abnormal)

[redacted] Director of Account Operations

01/27/2021 20:16:35

yeah it's different, but we are definitely on the edge

[redacted] Head of Market Operations

01/27/2021 20:16:40

and new signups, who dont really know better

[redacted] Head of Market Operations

01/27/2021 20:16:47

internally SO on edge

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*i. **Robinhood's disproportionately high order flow and unique formula for calculating PFOF rebates strained several market makers and introduced risk to the stock market.***

Commission-free trading, which Robinhood popularized, relies heavily on market making firms such as Citadel Securities and others. Market maker firms are firms that stand ready to buy or sell securities from broker-dealers at publicly quoted prices.[131] Market makers are usually able to profit by selling orders for more than they purchased them. Market makers benefit from high volume and usually pay broker-dealers rebates for customer orders as a way to attract orders, a practice referred to as payment for order flow (PFOF).[132] The Meme Stock Market Event demonstrated the critical role that market makers play in retail trading, and exposed a lack of

[131] SEC, Executing an Order, Investor.gov (accessed Feb. 1, 2022).
[132] *Id. See* Appendix I: Glossary for definition of "market makers."

regulatory controls related to critical operations resulting in inconsistencies in how various organizations planned for, reacted to, and were ultimately impacted by the Meme Stock Market Event.

While virtually all commission-free retail trades are routed through market makers, Robinhood's relationship with its market makers leading up to January 28, 2021, was distinct in several ways. One way Robinhood stands out is the number of trades that its customers make on a regular basis. Robinhood generates revenue on every customer trade and is incentivized to push their customers to trade as much as possible. To this end, the company popularized commission-free trading to reduce barriers to entry for the stock market. Furthermore, the company has historically had a lax policy for allowing young traders to trade on margin (buying stocks with borrowed money) and famously employs digital engagement tactics, such as celebratory animations and game-like features, to increase customer activity on its platform.[133]

In the first quarter of 2020, Robinhood users "traded nine times as many shares as E*TRADE customers, and 40 times as many shares as Charles Schwab customers, per dollar in the average customer account."[134] Despite several major broker-dealers, such as Charles Schwab and E*TRADE, eliminating trading commissions in recent years, Robinhood still generated significantly more total orders relative to others in the industry leading up to the Meme Stock Market Event. [135]

Virtu Financial (Virtu), a market maker firm that provides liquidity in stocks and exchange traded products for over 240 broker-dealer clients, commented to Committee staff that it received more customer orders per day from Robinhood leading up to the Meme Stock Market Event than the rest of its clients combined.[136] Virtu told Committee staff that during the week of the Meme Stock Market Event, the order volume it received from Robinhood increased six times from the prior week in GME, AMC, BlackBerry Ltd. (BB), Koss Corp. (KOSS), Bed Bath & Beyond Inc. (BBBY), and Nokia Corp. (NOK).[137]

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[133] Nathaniel Popper, *Robinhood Has Lured Young Traders, Sometimes With Devastating Results*, The New York Times (July 8, 2020).
[134] *Id.*
[135] Kyle Woodley, *Schwab, TD Ameritrade, E*Trade, Fidelity Go Commission-Free* (Oct. 10, 2019).
[136] Virtu briefing with the Committee (Jan. 18, 2022).
[137] *Id.*

Another way that Robinhood stands out from other broker-dealers is the way in which it calculates PFOF rebate rates that it receives from market makers. Most other broker-dealers calculate PFOF rebates as a flat fee per share, whereas Robinhood calculates PFOF rebate rates based on the spread between the purchase and sale price of each security at the time of executing a trade on behalf of a customer.[138, 139] During periods of acute volatility, such as during the Meme Stock Market Event, when significantly more market participants were buying meme stocks than selling them, Robinhood's formula results in disproportionately higher rebate rates. Citadel Securities employees estimated that the PFOF rebates it owed Robinhood for GME the week of January 28, 2021, were approximately 60 times greater than the week before.[140] An employee for Citadel Securities described Robinhood's PFOF rebates as a runaway freight train in the days leading up to January 28, 2021.[141]

> **CITADEL SECURITIES EMPLOYEES ESTIMATED THAT THE PFOF REBATES IT OWED ROBINHOOD FOR GME THE WEEK OF JANUARY 28, 2021 WERE APPROXIMATELY 60 TIMES GREATER THAN THE WEEK BEFORE. AN EMPLOYEE FOR CITADEL DESCRIBED ROBINHOOD'S PFOF REBATES AS A RUNAWAY FREIGHT TRAIN IN THE DAYS LEADING UP TO JANUARY 28, 2021.**

Citadel Securities provided equities execution services for approximately 160 broker-dealers on January 27, 2021—of those, only Robinhood calculated its PFOF rebate rates using a formula based upon the bid-ask spread of each stock.[142] Analysts speculate that Robinhood relies on a spread-based formula to maximize the revenue it generates from PFOF rebates.[143] As discussed further in this section, Robinhood's proprietary formula for calculating PFOF became a

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[138] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[139] Morningstar, Bid-Ask Spread (accessed on Mar. 11, 2022). The bid-ask spread of a security is commonly used to measure how much liquidity is available for that security. The bid is the price a buyer is willing to buy a stock for, and the ask is the price at which a seller is willing to sell the stock for. In order to meet in the middle and achieve an agreement on price, the seller receives the lower price, and the buyer receives the higher price. When a stock is widely available and most market participants agree on the price, the spread is negligible.
[140] Citadel Securities briefing with the Committee (Nov. 03, 2021).
[141] *Id.*
[142] Email from counsel for Citadel Securities to Committee staff (Nov. 30, 2021).
[143] Tomio Geron, *Data shows how Robinhood makes more money from its users than other brokers*, Protocol (Jul. 15, 2021).

point of contention between Robinhood and Citadel Securities the night before Robinhood's historic trading restrictions on January 28, 2021.[144]

Another significant factor affecting Robinhood during the Meme Stock Market Event was the limitation on its ability to access the shares needed to fulfill the purchase orders of its customers. Robinhood relied upon only six market makers to fulfill its equities orders and did not belong to any public exchanges, such as the New York Stock Exchange (NYSE) or the Nasdaq Stock Market, where it could fetch from a deeper, more liquid source.[145] Exchanges have significantly more market participants from whom to obtain stocks than market making firms. Most broker-dealers are connected to at least one if not more public exchanges. For example, Apex Clearing Corporation, a similarly situated clearing broker, was connected to NYSE, Nasdaq, the Miami International Securities Exchange (MIAX), the Chicago Board Options Exchange (CBOE), and other public exchanges during the Meme Stock Market Event.[146]

In Robinhood's business model, market makers pay broker-dealers PFOF. Public exchanges charge broker-dealers a membership fee and an access fee for consuming liquidity from the exchange; they pay rebates for brokers who provide liquidity to the exchange.[147] One of Robinhood's primary marketing points is that it does not charge its customers a commission on trades. To make up for lost revenue, Robinhood relies on PFOF, which has become a primary source of its revenue.[148] As a result, Robinhood did not initially become a member of a public exchange, relying instead on market makers to fill its orders.

Due to its business model, Robinhood was unable to route trades directly to any public exchange and had fewer options than other similarly situated broker-dealers for executing trades for their customers and was limited to transacting with six market makers during the Meme Stock Market Event. Robinhood needed at least one of the six to remain fully operational, so that it could execute trades on behalf of their customers. In April 2021, four months after the Meme Stock Market Event and after three years of operating a clearing subsidiary, Robinhood became a member of Nasdaq.

When Committee staff inquired about Robinhood's business decision to operate a clearing subsidiary for three years without connecting it to a public exchange, representatives for Robinhood replied, "(h)aving a public exchange connection is not a regulatory requirement."[149] Furthermore, according to the company, both FINRA and the SEC have been aware for years that

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[144] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021); Citadel Securities briefing with the Committee (Nov. 03, 2021).
[145] *Id.*
[146] FINRA, Apex Clearing Corporation, BrokerCheck (2022); SEC, Market Centers: Buying and Selling Stock (Oct. 15, 2012).
[147] 17 C.F.R §242 (2005).
[148] Tomio Geron, *Data shows how Robinhood makes more money from its users than other brokers*, Protocol (Jul. 15, 2021).
[149] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Feb. 4, 2022).

Robinhood did not connect to an exchange and did not raise any potential concerns during any examinations or investigations.[150]

In comparing their clearing operation to their competitors, many of whom maintain numerous connections to public exchanges, Robinhood told Committee staff that competing clearing brokers "typically would have been established many years ago before the recent, rapid evolution of securities trading in the U.S. markets," and added that Robinhood Securities was "proud to be the only clearing system … built from scratch on modern technology in the past decade."[151]

As a result, during the Meme Stock Market Event, when multiple market makers were facing severe operational constraints, Robinhood was wholly reliant on its market makers to execute trades for their customers. The NYSE commented to Committee staff that while it is common practice for broker-dealers to route primarily to market makers rather than public markets,[152] many institutions prefer to route trades to public exchanges during periods of acute volatility and erratic price fluctuations in the market.[153]

On the evening of January 27, 2021, Jim Swartwout and his team were in frequent contact with the market makers the company routinely routed orders to.[154] While Swartwout's direct reports led most of the conversations, they provided Robinhood executives critical updates.[155] Gretchen Howard, Robinhood's Chief Operating Officer, who described her role to Committee staff as being like a "train conductor" across the entire company, alleged to Committee staff that the morning of January 28, 2021 was a blur and she could not recall with specificity any updates she received on various market makers the company interacted with during the Meme Stock Market Event.[156]

On January 28, 2021, Robinhood routed orders to six market makers for equities: Citadel Securities, G1 Execution Services, Morgan Stanley & Co., Two Sigma Securities, Virtu, and Wolverine.[157] Robinhood uses a smart order router, which is unique among broker-dealers. Robinhood's smart order router estimates the likely execution quality offered by each venue for specific stocks and order sizes on an order-by-order basis and based on historical performance.[158] The company can manually adjust who it routes orders to and made several manual adjustments during the Meme Stock Market Event to provide relief to its market makers who were having trouble fulfilling all its orders.[159]

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[150] For discussion of concerns regarding FINRA's supervision of the securities industry, *see* Appendix III.
[151] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Feb. 4, 2022).
[152] Virtu briefing with the Committee (Jan. 18, 2022).
[153] The New York Stock Exchange briefing with the Committee (Oct. 19, 2021). *See* Appendix I: Glossary for definition of "lit exchange".
[154] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[155] Interview with G. Howard (Robinhood) (Robinhood) (Jan. 07, 2022).
[156] *Id.*
[157] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021); Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Feb. 4, 2022).
[158] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Feb. 4, 2022).
[159] *Id.*

Throughout January 27 and 28, 2021, several of the market makers Robinhood routinely routed orders to struggled with operational constraints. Routing trading information generates vast quantities of data, especially during periods of volatility. Given the extraordinary volatility of meme stocks, NYSE and other exchanges imposed trading halts numerous times throughout January 28, 2021.[160] When an exchange halts a stock, no one is allowed quote the stock, including market makers and broker-dealers that internalize trades. The operational and data constraints of imposing and lifting continuous trading halts throughout the day and otherwise handling exceptional volumes of volatile securities generated more activity at various market maker firms than their computer systems could safely handle.[161]

Robinhood's market makers had been struggling to accommodate the acute market volatility prior to January 28, 2021. On January 27, 2021, Virtu sent an email to all its broker-dealer clients asking Robinhood and others to route away all equities that began with the letter "A" except for AAPL, AMD, and AMZN.

<u>Figure 20:</u> *<u>RH_HFSC_00043395</u>* [162]

From: divreorg@robinhood.com on behalf of "Virtu Americas LLC" <VirtuAmericasLLC@virtu.com>
Sent: Wed, 27 Jan 2021 20:50:39 +0000 (UTC)
To: "+Client Service Broadcast" <ClientServiceBroadcast@virtu.com>
Subject: Please route away all stocks in the letter "A" range

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[redacted]
Broker Dealer Client Services

VIRTU
FINANCIAL

One Liberty Plaza
New York, NY 10006
646-[redacted]- W
888-931-HELP - Desk
[redacted]@virtu.com
www.virtu.com

Virtu partitions certain of its systems used to process orders into 26 ranges or stripes, which serve as a kind of virtual servers.[163] The range used to process "A" trades suffered operational

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160 RH_HFSC_00012456 (on file with the Committee); RH_HFSC_00017639 (on file with the Committee).
161 *Id.*
162 RH_HFSC_00043395 (on file with the Committee).
163 Virtu briefing with the Committee (Jan. 18, 2022); RH_HFSC_00045005 (on file with the Committee).

strain and delays in its system on January 27, 2021, in the face of "significantly increased order flows and trading halts" required under the Regulation NMS Limit Up Limit Down Plan by various venues such as the NYSE in AMC for brief stretches in the morning and afternoon.[164] Virtu employees decided to close the "A" range at approximately 3:40 p.m. EST for all of its clients on the afternoon of January 27, 2021.[165] Virtu represented to Committee staff that the company closed its "A" to "ensure clients' orders would not be impacted in the event Virtu experienced additional system delays going into the close of trading for the day."[166]

Virtu's request to route trades away was far from the only operational concern presented to Robinhood Securities during the Meme Stock Market Event. Many venues requested Robinhood route certain orders away on January 27 and 28, 2021 and at certain points, market makers requested Robinhood route away all orders. Jim Swartwout commented to Committee staff that during certain periods of the Meme Stock Market Event, only two of Robinhood's market makers for equities were accepting orders.[167] On January 27, 2021, Robinhood Securities temporarily stopped routing certain equity orders to Two Sigma and Virtu and temporarily stopped routing certain options orders to Morgan Stanley & Co.[168] The next day, on January 28, 2021, Robinhood Securities temporarily stopped routing equity orders to Wolverine and reduced equities order flow to G1 Execution Services; temporarily stopped certain equity orders to Two Sigma Securities and Virtu; and temporarily stopped routing certain options orders to Morgan Stanley & Co.[169]

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[164] While Virtu's "A" range was experiencing operational strain, AAPL, AMD, and AMZN all have their own server partitions. RH_HFSC_00045005 (on file with the Committee).

[165] Virtu briefing with the Committee (Jan. 18, 2022).

[166] Email from representative for Virtu Financial to Committee staff (Jun. 19, 2022).

[167] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).

[168] On January 27, 2021, Robinhood Securities (RHS) stopped routing NLSP equity orders to Citadel Securities; RHS stopped routing AAL, AAPL, AMC, AMD, ARKK, BA, BB, BNGO, CCIV, and CTRM equity orders to G1X Execution Services and KSTR option orders to Global Execution Services before temporarily turning off equity order routing to G1X; RHS stopped routing AMC, GME, and NOK option orders to Morgan Stanley & Co.; RHS temporarily stopped routing equity orders to Two Sigma Securities; RHS temporarily stopped routing AMC equity orders to Virtu Americas (Virtu). Thereafter RHS again stopped routing AMC equity orders to Virtu before turning off equity order routing to Virtu. RHS also stopped routing "A" (except AAPL, AMD, and AMZN) equity orders to Virtu. Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Feb. 4, 2022).

[169] On January 28, 2021, RHS stopped routing OPTT option orders to Citadel; RHS stopped routing equity orders to G1X. That evening RHS restored routing equity orders to G1X with reduced equity flow by 50%; RHS temporarily stopped routing option orders and thereafter stopped routing BBBY and EXPR option orders to Morgan Stanley; RHS temporarily stopped routing equity orders to Two Sigma on two different occasions; RHS restored equity order routing to Virtu (which had been turned off on January 27, 2021, as noted above) and stopped routing NAKD, NOK, and NSLP equity orders to Virtu; RHS stopped routing ACST, AMC, ATOS, AVGR, AZRX, BB, BIOL, BNGO, BRK.A, CCIV, EXPR, GME, GRTS, GSAT, JAGX, KOSS, LLIT, NAKD, NLSP, NOK, OCGN, OXBR, SENS, SYN, and ZOM equity orders to Wolverine. RHS also temporarily stopped routing equity orders to Wolverine before ultimately turning off routing equity orders to Wolverine. Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Feb. 4, 2022).

j. Robinhood threatened to terminate their business relationship with a market maker that wanted to limit order flow during the Meme Stock Market Event due to "regulatory and financial risk."

Wolverine Execution Services (Wolverine), a market making firm headquartered in Chicago, Illinois, emailed Robinhood on Monday, January 25, 2021, to notify Robinhood of issues executing trades and "an extremely high number for quoted spread" on GME based upon Robinhood's unique formula for calculating PFOF.[170] Employees at Robinhood and Wolverine continued to communicate throughout the week regarding the acute volatility, and at one point Wolverine communicated to Robinhood that it considered Robinhood to be "a regulatory and financial risk to their business."[171] Early in the morning of January 28, 2021, an employee for Wolverine emailed Jim Swartwout at Robinhood Securities to state that Wolverine was "on the cusp of disaster," and the firm wanted to "stay in the business with Robinhood on the equity side but the pressure on sustained losses is not good."[172]

Wolverine, like other market makers, faced both financial and operational challenges during the Meme Stock Market Event. Financially, Robinhood's unique formula for calculating PFOF rebate rates created extraordinarily high quoted rates Wolverine would be required to pay Robinhood relative to periods of less volatility. In addition to Robinhood's disproportionate PFOF rebate rates, Wolverine faced operational concerns from the inbound order flow. Like Virtu, the firm's IT systems were placed at risk due to the extraordinary order flow in meme stocks. Throughout January 28, 2021, as Robinhood's other market makers stopped taking order flow, Robinhood had to disproportionately increase the amount of order flow it routed to Wolverine. This additional order flow went far beyond what Robinhood typically sent to Wolverine, which greatly exacerbated the stress on Wolverine's systems.[173] Wolverine employees requested that Robinhood route away all equities trades.[174] As the two firms communicated throughout the night of January 27, 2021 and throughout the day of January 28, 2021, Robinhood employees, including Jim Swartwout, grew increasingly frustrated with Wolverine's requests to route equities away.[175] Robinhood Securities begrudgingly routed equities orders away from Wolverine, which Robinhood thought Wolverine (referred to as "WEX" in the communication below) had requested based on concerns from their compliance team regarding the movement of speculative meme stocks.

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[170] RH_HFSC_00009944 (on file with the Committee).
[171] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021); RH_HFSC_00011870 (on file with the Committee).
[172] RH_HFSC_00012324 (on file with the Committee).
[173] Wolverine Execution Services briefing with the Committee (Dec. 16, 2021).
[174] RH_HFSC_00017640-1 (on file with the Committee).
[175] *Id.*

Figure 21: RH_HFSC_00017640-41 [176]

[redacted] Senior Manager, Trading Operations

01/28/2021 15:59:21

Okay...I know what [redacted] call was about...Spoke with [redacted], WEX is requesting to be 100% removed from equity route for the near term. Reason given, their compliance team does not want them involved w/any speculative stocks. I can set up a time tomorrow for us to talk further with them if you like. We removed them from the route

Although Wolverine's operational staff was concerned about the ability of their systems to accommodate the volume and volatility of the trading in meme stocks,[177] Wolverine had initially chosen to turn equities off based on a sole individual's intuition and experience working in the industry, fearing that it was on the brink of a total breakdown of their systems.[178]

Wolverine's Chief Compliance Officer monitored the firm's liquidity during the Meme Stock Market Event but had not expressed concerns regarding the firm's capacity to continue executing equities.[179] Wolverine employees did not consult with their compliance department on the operational concerns they faced, nor did the firm have any written policies or procedures to determine when to limit trade execution for risk management reasons. There were no regulations requiring market makers to develop written policies and procedures for such events.[180]

Wolverine employees expressed concerns regarding their equities business in the days leading up to the Meme Stock Market Event, which was a newer, less developed, and significantly less lucrative business than their options business.[181] Robinhood employees grew increasingly frustrated with Wolverine and considered ending their entire business relationship with the market maker—both equities and options—even though Wolverine cleared approximately 20% of Robinhood's options orders.[182]

[176] *Id.*
[177] *Id.*
[178] Wolverine Execution Services briefing with the Committee (Dec. 16, 2021).
[179] *Id.*
[180] *Id.*
[181] Email and attachment from General Counsel and Chief Compliance Officer of Wolverine Trading, LLC to Committee staff (Jan. 18, 2022).
[182] RH_HFSC_00017641 (on file with the Committee).

Figure 22: RH_HFSC_00017641 [183]

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jim.swartwout

01/28/2021 16:12:27

I am reviewing the entire relationship. They are at 20% of options. We may want to completely shut them off. We need partners we can rely on

---

Jim Swartwout placed a call to operational staff at Wolverine on January 28, 2021, in response to Wolverine's request to route equities away. Swartwout told Wolverine's staff that if Wolverine would no longer accept equities for Robinhood, then Robinhood would also no longer route options through Wolverine either.[184] The Wolverine employee who manages the firm's relationship with Robinhood commented to Committee staff that he understood this to mean that Robinhood would route all options trades away from Wolverine indefinitely if Wolverine did not continue to accept equities order flow on January 28, 2021.[185]

The Wolverine employee relayed Swartwout's message to Rob Bellick, the Managing Partner of Wolverine Trading, LLC, Wolverine's parent company.[186] Rob Bellick made an executive decision to continue offering equities market making services to Robinhood.[187]

Jim Swarwout, President and Chief Operating Officer of Robinhood Securities, directed his team to turn Wolverine back on after convincing Bellick to override the risk management concerns of Wolverine's operational staff.[188] After Wolverine continued trading in equities, Jim Swartwout commented to a Robinhood Securities trading operations senior manager who reported to him that, "Rob Bellick came to his senses when I made it clear what our reaction was going to be," making it clear that Swartwout believed that Wolverine reacted to Robinhood's threat to terminate the business relationship regarding options if Wolverine didn't continue clearing equities as well.[189]

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[183] *Id.*
[184] Wolverine Execution Services briefing with the Committee (Dec. 16, 2021).
[185] *Id.*
[186] *Id.*
[187] *Id.*
[188] RH_HFSC_00017643 (on file with the Committee).
[189] *Id.*; Wolverine Execution Services briefing with the Committee (Dec. 16, 2021).

Figure 23: RH_HFSC_00017643 [190]

jim.swartwout

01/28/2021 19:46:53

I guess. Wherever we were at the close. Rob Bellick came to his senses when I made it clear what our reaction was going to be

[redacted] Senior Manager, Trading Operations

01/28/2021 19:47:48

very good. thank you!

Wolverine was a small company, (its equities business employed only two employees, a trader, and an IT professional), and was struggling to accept the increasingly large equities order flow Robinhood sent their way as certain other market makers that Robinhood routinely routed orders to ceased accepting order flow. When Wolverine asked Robinhood to reduce the equities order flow, Robinhood threatened to indefinitely cease routing both options and equities to Wolverine.[191] As a result, Wolverine continued accepting equities order flow despite the concerns raised by Wolverine's operational staff that the increasing order flow could result in a system failure.[192] Wolverine wound down its equities market making business subsequent to the Meme Stock Market Event.[193] When Rob Bellick spoke with Committee staff, he could not recall the specific time or subject matter of any discussion with Jim Swartwout or what was discussed.[194]

k. Robinhood and Citadel Securities engaged in "blunt" negotiations the night before the trading restrictions to lower the PFOF rates Robinhood was charging Citadel Securities.

While Virtu, G1 Execution Services, Wolverine, and other market makers struggled with operational constraints, Citadel Securities commented to Committee staff that the firm had upgraded its system's capacity significantly since the onset of COVID-19 market volatility.[195]

[190] RH_HFSC_00017643 (on file with the Committee).
[191] Wolverine Execution Services briefing with the Committee (Dec. 16, 2021).
[192] *Id.*
[193] *Id.*
[194] Interview with R. Bellick (Wolverine Trading, LLC) (Dec. 08, 2021).
[195] Citadel Securities briefing with the Committee (Nov. 03, 2021).

Unlike other market makers, Citadel Securities did not face operational capacity constraints.[196] Citadel Securities employees represented to the Committee that they felt confident their systems were able to perform during this period of extraordinary volatility and volume.

Citadel Securities and other market makers expressed frustrations with Robinhood's calculated PFOF rebate rates on meme stocks throughout January 27, 2021. In response, Robinhood employees held internal discussions about how to limit PFOF rebate rates to maintain the relationships with market makers with the primary objective of ensuring Robinhood Securities had venues available to execute customer orders.[197] Such discussions reached the top of the firm, with Robinhood's C-Suite executives, like Robinhood's CEO Vlad Tenev, Chief Operating Officer Gretchen Howard, Chief Legal Officer Dan Gallagher, and Robinhood Securities President and Chief Operating Officer Jim Swartwout remaining highly aware of the potential unwillingness of Citadel Securities and others to provide for PFOF in line with past commercial practices.

Figure 24: RH_HFSC_00017655 [198]

Gretchen Howard

01/27/2021 16:39:23

Just a FYI that Dan and I are joining Jim at 5pm on a call with Citadel. They reached out and want to speak this evening and we believe they will make some demands on limiting PFOF across the board. We won't agree to anything but wanted to give you a heads-up.

Vlad Tenev

01/27/2021 16:44:21

Ok

Vlad Tenev

01/27/2021 16:44:49

Maybe this would be a good time for me to chat with Ken griffin

[196] *Id.*
[197] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[198] RH_HFSC_00017655 (on file with the Committee).

Like many other market makers, Citadel Securities grew increasingly concerned about the magnitude of the PFOF rebates it might be required to pay Robinhood associated with GME and AMC given Robinhood's unique PFOF rate structure in an unprecedented trading environment.[199] Neither Citadel Securities employees nor Robinhood employees who spoke with the Committee could pinpoint precisely when the two firms began negotiating PFOF rebates on January 27, 2021.[200] However, it is clear that by early in the evening of January 27, 2021, Citadel Securities employees communicated their concerns regarding PFOF rebates to Robinhood, particularly regarding the skyrocketing PFOF rebates being calculated for GME and AMC.

Figure 25: RH_HFSC_00017631 [201]

[redacted] Senior Manager, Trading Operations

01/27/2021 14:34:43

say I know what you said about GME and AMC....but all are complaining
[redacted] is saying they haven't decided but think they want to limit pfof on one or both symbols...

Robinhood and Citadel Securities discussed ways to limit PFOF for one or both symbols.[202] Citadel Securities wanted to make sure that Robinhood understood that the PFOF rebate rates being calculated based upon Robinhood's unique spread-based formula were untenable, especially in the context of the unprecedented volatility and volume. As Citadel employees broached the subject of limiting PFOF rebates within Robinhood, Jim Swartwout expressed frustration with the concerns being relayed by the Citadel employee who managed the relationship with Robinhood.

Figure 26: RH_HFSC_00017632 [203]

jim.swartwout

01/27/2021 15:12:19

she always has something to complain about

[199] Citadel Securities briefing with the Committee (Nov. 03, 2021).
[200] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021); Citadel Securities briefing with the Committee (Nov. 03, 2021).
[201] RH_HFSC_00017631 (on file with the Committee).
[202] *Id.;* RH_HFSC_00017632 (on file with the Committee).
[203] RH_HFSC_00017632 (on file with the Committee).

As Robinhood employees discussed ways to limit their PFOF rebate rates, they wanted to make sure that all market makers were treated equally.[204] Given the volatility of GME, Swartwout developed a plan to suspend the company's formula for calculating PFOF rebates and cap PFOF rebate rates for GME to $0.003 per share retroactively to January 25, 2021, at all of their market maker venues.[205] Jim Swartwout came up with the new proposal based on a rough average of Robinhood's PFOF calculation typically derived from the formula that had been applied to all of their previous orders.[206] Jim Swartwout expressed willingness internally to route away from Citadel Securities if Citadel Securities' relationship manager didn't "like the new pricing model. The others will be happy to take it at normal rates."[207]

Figure 27: RH_HFSC_00017632 [208]

[redacted] Senior Manager, Trading Operations

01/27/2021 14:36:48

my point ...if we do or do not adjust it shoudl be same for all

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jim.swartwout

01/27/2021 15:02:35

We can route away from her if she doesnt like the new pricing model. The others will be happy to take it at normal rates

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A Senior Vice President at Citadel Securities who managed the relationship with Robinhood contacted Swartwout's team on January 27, 2021 to schedule a call to discuss PFOF.[209] At approximately 6:45 p.m. EST on January 27, 2021, Robinhood and Citadel Securities agreed to have a call to discuss PFOF rebates.[210] At 7:03 p.m. EST, Robinhood emailed its proposal for a $0.003 per share PFOF rebate rate on GME, retroactive to Monday, January 25, 2021.[211] Simultaneously, Citadel Securities developed a plan suggesting Robinhood place a monetary cap on PFOF fees per symbol per day, for all symbols, going forward.[212] At 8 p.m. EST, Citadel

[204] *Id.*
[205] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[206] *Id.*
[207] RH_HFSC_00017632 (on file with the Committee).
[208] *Id.*
[209] RH_HFSC_00017631 (on file with the Committee).
[210] CIT-HFSC_0000001 (on file with the Committee).
[211] *Id.*
[212] *Id.*

Securities and Robinhood spoke together by telephone during which Citadel Securities suggested its plan of placing a monetary cap on volatile securities.[213]

Citadel Securities employees described this telephone conversation as blunt and indicated in the call that if Robinhood was unwilling to take actions to limit PFOF rebates being generated, Robinhood would need to look elsewhere to route trades.[214] Jim Swartwout described the conversations between Robinhood and Citadel as tense that day.[215]

According to Citadel Securities' representations to the Committee, Citadel Securities employees did not see Robinhood's email proposal to cap PFOF rates prior to their 8 p.m. EST call.[216] Citadel Securities told the Committee that it did not realize it had received Robinhood's proposal until after the 8 p.m. call. As a result, Citadel Securities employees described the conversation as "two ships passing in the night" because Citadel Securities did not realize that Robinhood had made a proposal – likely not realizing what Citadel Securities had described as not being aware of Robinhood's proposal. Later that evening, senior members of Citadel Securities and Robinhood spoke, and Citadel Securities understood the confusion. Shortly after this evening call, Citadel Securities accepted Robinhood's proposal.

Jim Swartwout emailed the Senior Vice President at Citadel Securities who managed the relationship with Robinhood to tell her, "I am beyond disappointed in how this went down. It's difficult to have a partnership when these kind of things go down this way."[217] Robinhood employees left the conversation frustrated that Citadel Securities had generated their own plan to limit PFOF rebates without considering Robinhood's proposal.[218] On January 30, 2021, the day after widespread trading restrictions, Robinhood emailed out a similar price cap on AMC, limiting PFOF rebate rates to $0.003 retroactively to January 19, 2021, in addition to the price cap it had placed on GME. Citadel Securities accepted.[219]

l. Robinhood received a waiver of the largest component of its deposit requirement from DTCC. Without this waiver, over which Robinhood had no control, the company would have defaulted on its regulatory collateral obligations.

Before the market opened on the morning of January 28, 2021, at approximately 5:11 a.m. EST, Robinhood Securities, Robinhood's clearing broker, received its daily automated notice from the NSCC setting out the firm's daily collateral deposit requirement of approximately $3.7 billion.[220] Given the fact that Robinhood already had approximately $700 million on deposit with the NSCC from the day before, this automated notice outlined a

[213] *Id.*; Citadel Securities briefing with the Committee (Nov. 03, 2021).
[214] CIT-HFSC_0000001 (on file with the Committee); Citadel Securities briefing with the Committee (Nov. 03, 2021).
[215] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[216] Citadel Securities briefing with the Committee (Nov. 03, 2021).
[217] RH_HFSC_00014317 (on file with the Committee).
[218] CIT-HFSC_0000001 (on file with the Committee); Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[219] Email from counsel for Citadel Securities to Committee staff (Nov. 30, 2021); RH_HFSC_00017636 (on file with the Committee).
[220] RH_HFSC_00000652 (on file with the Committee).

requirement for Robinhood Securities to deposit an additional $3 billion in its NSCC account by 10 a.m. EST.[221]

Figure 28: RH_HFSC_00000652 [222]

**[redacted] ROBINHOOD SECURITIES, LLC - NSCC Daily Margin Statement

From: [redacted]@dtcc.com
Sent: Thu, 28 Jan 2021 10:11:23 +0000 (UTC)
To: [redacted]
Subject: [redacted] ROBINHOOD SECURITIES, LLC - NSCC Daily Margin Statement

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ROBINHOOD SECURITIES, LLC #[redacted] DEFICIT:($3,006,178,364.89)

TO OBTAIN DETAILED INFORMATION REGARDING YOUR REQUIREMENT, NAVIGATE TO NSCC RISK MANAGEMENT REPORTING UNDER THE SETTLEMENT SERVICES MENU IN THE PBS PORTAL.

Questions in reference to requirements should be
addressed to the following phone numbers:
Hotline (212)[redacted]
Or via email at [redacted]@dtcc.com

TO OBTAIN DETAILED INFORMATION REGARDING YOUR DEPOSIT, NAVIGATE TO THE CLEARING FUND SECTION UNDER THE SETTLEMENT SERVICES MENU IN THE PBS PORTAL.

Questions in reference to deposit information
should be addressed to the following phone numbers:
Hotline (212)[redacted]

As further detailed in the information that the NSCC provided to Robinhood through an automated portal, the largest components of the company's collateral deposit requirement was a Value-at-Risk charge of approximately $1.3 billion, as well as an Excess Capital Premium charge of $2.2 billion, which Robinhood had not calculated.[223] Robinhood calculated that of the $1.3 billion Value-at-Risk charge, approximately $850 million was attributable to AMC and approximately $250 million was attributable to GME.[224]

When Robinhood Securities' operational staff first saw the collateral charge, they reached out to members of Robinhood's executive team at approximately 5:11 am EST (2:11 am PST in California where several Robinhood executives reside). The Robinhood employees also attempted to reach NSCC staff to verify the accuracy of the charge, which they were unsuccessful at doing upon their first attempt.[225]

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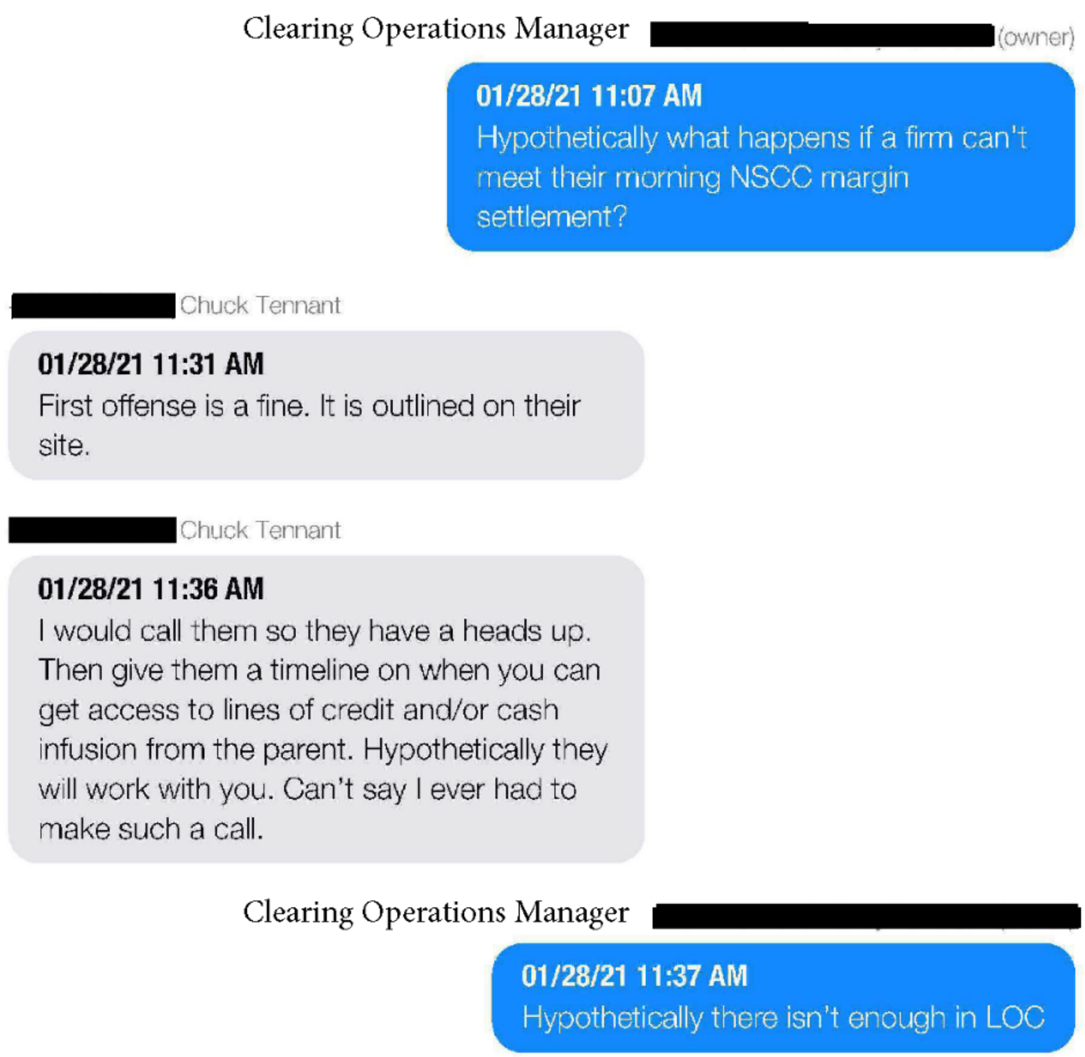
[221] *Id.*
[222] RH_HFSC_00000652 (on file with the Committee).
[223] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Sept. 20, 2021).
[224] *Id.*
[225] *Id.*RH_HFSC_00029626 (on file with the Committee); RH_HFSC_00042079-80 (on file with the Committee).

A clearing operations manager based in Orlando, Florida—one of the first Robinhood Securities employees to learn of the company's NSCC collateral charge on January 28, 2021—reached out to Chuck Tennant, the former head of Robinhood's clearing operation, to better understand what could happen if a broker-dealer was unable to meet its NSCC collateral obligations.[226] The Robinhood employee asked Tennant at 6:07 a.m. EST "Hypothetically what happens if a firm can't meet their morning NSCC margin settlement?... Hypothetically there isn't enough in LOC [i.e., line of credit]."[227]

Figure 29: RH_HFSC_00042079-80 [228]



Clearing Operations Manager [redacted] (owner)

01/28/21 11:07 AM
Hypothetically what happens if a firm can't meet their morning NSCC margin settlement?

[redacted] Chuck Tennant

01/28/21 11:31 AM
First offense is a fine. It is outlined on their site.

[redacted] Chuck Tennant

01/28/21 11:36 AM
I would call them so they have a heads up. Then give them a timeline on when you can get access to lines of credit and/or cash infusion from the parent. Hypothetically they will work with you. Can't say I ever had to make such a call.

Clearing Operations Manager [redacted]

01/28/21 11:37 AM
Hypothetically there isn't enough in LOC

[226] RH_HFSC_00042079 (on file with the Committee).
[227] RH_HFSC_00042079-80 (on file with the Committee)
[228] Please note, the timestamp for this production is for GMT time. EST is (GMT+5), i.e., the Clearing Operation Manager's initial text message was sent at 6:07 a.m. EST. *Id.*

Chuck Tennant suggested the Robinhood employee should call the NSCC as “they are at work already.” The Robinhood employee replied that they had been unsuccessfully attempting to contact the clearinghouse.[229] Tennant further implored the Robinhood employee to “wake up your senior leaders. Time for a cash infusion.”[230]

Figure 30: RH_HFSC_00042079-80 [231]

On the morning of January 28, 2021, Robinhood had approximately $696 million in collateral already on deposit with the NSCC, leaving it with a collateral deficit of approximately $3 billion, which it was required to post to satisfy the NSCC’s clearing fund requirement or risk being in violation of the NSCC’s rules and potentially losing the ability to clear trades for their customers altogether.[232] Swartwout confirmed that this amount came as a surprise to Robinhood and explained to Committee staff that they had anticipated and prepared for the $1.4 billion of collateral deposit requirements that represent “core” charges, but because they did not model for Excess Capital Premium charges, Robinhood therefore did not expect and had not arranged adequate funding for the additional $2.2 billion Excess Capital Premium charge.[233] On the morning of January 28, 2021, Jim Swartwout texted Gretchen Howard at 6:29 a.m. EST, writing “Huge liquidity issue.”[234]

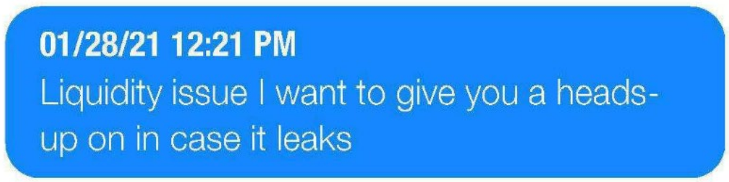
When Committee staff asked Jim Swartwout what he meant to convey by this early morning message, Swartwout commented that liquidity can mean different things in different contexts. In this case, he commented that he was concerned with Robinhood’s ability to meet its collateral requirement at DTCC.[235]

Shortly after learning about Robinhood’s liquidity concerns, Gretchen Howard reached out to notify Vlad Tenev of the situation.[236] Gretchen Howard also communicated her concerns

[229] *Id.*
[230] *Id.*
[231] *Id.*
[232] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
[233] Interview with J. Swartwout (Robinhood) (May 05, 2021); please see Finding 1(d) for further detail regarding Robinhood’s failure to address the possibility of Excess Capital Premium charges in its collateral planning processes and the deficiencies in the models used to calculate its NSCC collateral obligations prior to January 28, 2021.
[234] RH_HFSC_00011657 (on file with the Committee).
[235] Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
[236] Email and attachment to email from Counsel for Vladimir Tenev to Committee staff (Nov. 10, 2021) (on file with the Committee).

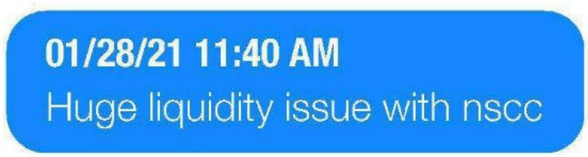
regarding the company's liquidity position to the company's Chief Marketing & Communications Officer, giving her a "heads-up" in case the company's liquidity issues leaked. Up until that morning, the company had faced operational and liquidity concerns all week without suffering adverse publicity.[237]

Figure 31: RH_HFSC_00042085 [238]



Gretchen Howard also communicated her concerns regarding the company's liquidity position to Jason Warnick, Robinhood's Chief Financial Officer, "Huge liquidity issue with nscc."[239]

Figure 32: RH_HFSC_00042082 [240]



Robinhood Securities operations personnel and senior Robinhood Markets executives—including CFO Jason Warnick, COO Gretchen Howard, and CLO Dan Gallagher—first convened internally between approximately 6:30 a.m. and 7:15 a.m. EST of that day to determine how best to address the NSCC's deposit requirement and manage the situation.[241] During this and several other conversations early that morning, the Robinhood team determined that they would need to impose PCO restrictions on certain volatile securities.[242]

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[237] RH_HFSC_00041953 (on file with the Committee).
[238] RH_HFSC_00042085 (on file with the Committee).
[239] RH_HFSC_00042082 (on file with the Committee). *See also* RH_HFSC_00042083 and RH_HFSC_00042081 (on file with the Committee).
[240] RH_HFSC_00042082 (on file with the Committee).
[241] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
[242] *Id.*

m. In addition to restricting stocks, Robinhood leadership throttled new account creation on their platform to limit volatility and hopefully address liquidity concerns.

In addition to imposing PCO restrictions on top of the existing position limits that the company had implemented the night before, Gretchen Howard inquired about how to turn off automatic approvals on new accounts in an effort to reduce volume on Robinhood's platform.[243] After hesitating to reduce marketing all week, Robinhood leadership was forced to take more restrictive actions to reduce marketing to slow activity on their trading platform.[244] As Howard discussed the technical aspects of "throttling," or slowing the pace of new account openings, she sought to maximize the reduction of new account creation to ameliorate volatility and mitigate Robinhood's liquidity risk.[245]

Figure 33: RH_HFSC_00006807 [246]

Gretchen Howard

01/28/2021 06:20:38

Can we slow down new account approval? Do we have a playbook for turning off auto approvals?

[redacted] Director of Account Operations

01/28/2021 06:21:00

There's a throttle on

[redacted] Director of Account Operations

01/28/2021 06:21:08

we can turn it off or bring it down more

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[243] RH_HFSC_00006807 (on file with the Committee).
[244] RH_HFSC_00006803 (on file with the Committee).
[245] RH_HFSC_00006807 (on file with the Committee).
[246] *Id.*

Gretchen Howard

01/28/2021 06:21:09

how big - we may need to turn it up

Gretchen Howard

01/28/2021 06:21:37

ok we are having major liquidity issues. is there a channel where you are discussing how much you throttle?

According to Robinhood operations staff, turning off auto approval meant that Robinhood was still "accepting applications, but approval is turned off. This means a large number of customers (were) still applying but (wouldn't) be approved immediately," delaying their ability to transact on the platform.[247] The decision to throttle new account creation arose spontaneously on the morning of January 28, 2021.[248] During the afternoon of January 28, 2021, Robinhood Director of Account Operations estimated that approximately 300,000 customer applications were waiting in the queue to be approved.[249] Robinhood employees discussed when to turn auto approval back on throughout the day on January 28, 2021 but decided to keep the auto approvals turned off for the remainder of the day due to risk concerns associated with increased load on their platform.[250] As a Robinhood employee said in a chat discussing when to resume approving accounts, "any additional load takes us to the bottom faster."[251]

[247] RH_HFSC_00028605-06 (on file with the Committee).
[248] RH_HFSC_00006807 (on file with the Committee).
[249] RH_HFSC_00053795 (on file with the Committee).
[250] RH_HFSC_00006639 (on file with the Committee).
[251] *Id.*

Figure 34: RH_HFSC_00006639 [252]

[redacted] Manager, Product Management

01/28/2021 14:18:31

The problem is that right now we look like this

[redacted] Manager, Product Management

01/28/2021 14:19:39

so any additional load takes us to the bottom faster

Ultimately Robinhood's decision to turn off auto approval had a significant impact on the number of new accounts on its platform. On the morning of January 29, 2021, the next day, Robinhood Financial's Director of Brokerage Risk estimated that the number of customers waiting in the queue for their accounts to be approved had increased to approximately 730,000.[253]

In addition to slowing volume on the platform, the Robinhood team felt the need to raise additional capital early on the morning of January 28, 2021.[254] More capital would be needed to ensure that Robinhood could meet deposit requirements going forward and bolster its capital base, so that the firm could resume normal trading operations for its customers as soon as possible.[255]

At the time, company executives, including Robinhood CFO Jason Warnick understood that raising additional capital would allow customers to trade on an unrestricted basis.[256] Warnick

[252] *Id.*
[253] RH_HFSC_00055051 (on file with the Committee).
[254] Interview with J. Warnick (Robinhood) (Jun. 10, 2021).
[255] *Id.*
[256] *Id.*

began organizing the capital raising and placing calls to key investors.[257] Robinhood chose to raise additional capital by issuing convertible notes in two tranches to participating investors.[258] At the outset of the capital raising, Robinhood sought $1 billion in new investment, a target it increased to $3.5 billion by Saturday, January 30, 2021.[259] The company's financial modeling predicted the company would need $2.5 billion in additional capital to return to a normal, unrestricted trading environment and handle potential spikes in collateral deposit requests driven by continued market instability.[260] Robinhood's $3.5 billion fundraising target therefore included an additional $1 billion beyond this amount as a prudential measure.[261]

n. Robinhood's Chief Legal Officer notified senior officials at the DTCC that Robinhood could not meet its collateral obligations before the market opened on January 28, 2021.

Robinhood Securities' operations personnel worked to contact the DTCC on the morning of January 28, 2021 to seek confirmation that the amount of their NSCC collateral deposit requirement, as communicated in that morning's automated notice, was accurate and to seek an understanding of the nature of the charges.[262] At approximately 6:30 a.m. EST, a market risk manager at DTCC spoke with the Head of Securities Processing of Robinhood Securities for approximately 15 minutes, with the conversation focused on the manner in which the Excess Capital Premium charge and volatility charge components of Robinhood Securities' daily clearing fund requirement had been calculated. Robinhood would have been able to estimate its volatility charge using a calculator tool in NSCC's member portal or using the methodology guide that NSCC makes available to members. NSCC's Excess Capital Premium charge formula was also publicly available prior to the Meme Stock Market Event.[263] During this call, Robinhood also conveyed to DTCC that it believed that the NSCC's calculation of Robinhood's Value-at-Risk charge for the day was unreasonable.[264]

At approximately 7:15 a.m. EST, Dan Gallagher, Robinhood's Chief Legal Officer and former Republican Commissioner of the SEC, placed a phone call to a Deputy General Counsel at DTCC with whom Gallagher was professionally acquainted (the two men had previously worked at the same law firm).[265] The Deputy General Counsel was not immediately available, but returned Mr. Gallagher's call soon thereafter.[266] On this call, Gallagher indicated that the NSCC's clearing fund requirement for Robinhood for the day was problematic and requested that the matter be escalated within DTCC's risk department, which is ultimately responsible for the calculation,

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[257] *Id.*
[258] *Id.* Committee staff have reviewed the funding documents associated with this capital raising and obtained detailed information on the timing of the receipt of funds that constituted the capital raising by Robinhood.
[259] *Id.*
[260] *Id.*
[261] *Id.*
[262] Interview with J. Swartwout (Robinhood) (May 05, 2021).
[263] Email from General Counsel for DTCC to Committee staff (Aug. 4, 2021).
[264] DTCC briefing with the Committee (Sept. 10, 2021).
[265] Interview with D. Gallagher (Sept. 13, 2021).
[266] *Id.*

assessment, and waiver of collateral charges.[267] The Deputy General Counsel indicated that Gallagher affirmatively raised the prospect of reducing the amount of Robinhood's daily clearing fund requirement and was interested in connecting with more senior DTCC officials to discuss how to obtain relief, waiver, or an exemption.[268]

The Deputy General Counsel conveyed that he would attempt to alert the relevant people internally at the DTCC who were responsible for these matters, but also explained that NSCC rules limited the circumstances in which extensions or other modifications to clearing fund requirements can be made.[269] In interviews with Committee staff, the Deputy General Counsel also explained that he understood that Gallagher placed a call to him because Robinhood officials were concerned that the DTCC operational employee that was previously serving as their point of contact was too junior with respect to Robinhood's challenges relating to its daily clearing fund requirement and may not have had the authority to provide relief in terms of exemptions or other forbearance.[270] Upon concluding the call, the Deputy General Counsel sent an internal email to senior DTCC officials, including to Timothy Cuddihy, DTCC's Managing Director of Financial Risk Management, alerting them to Robinhood's issue.[271] When asked about the specific concerns that Gallagher relayed to the NSCC during his call with the DTCC Deputy General Counsel, Gallagher told Committee staff he did not recall the conversation with specificity.[272]

Figure 35: *Email from DTCC Deputy General Counsel to T. Cuddihy and others in DTCC's Risk and Legal Departments (7:38am EST)* [273]

From: [redacted]
Sent: 1/28/2021 7:38:03 AM
To: Cuddihy, Timothy J. [[redacted]]; Hulse, Timothy B. [[redacted]]; [redacted]; [redacted]]
Subject: Urgent

Dan Gallagher from Robinhood called to say they received abt a $3b call for 10am today. They've been talking to [redacted] but would like someone to call Jim Swartwout, Pres of the Clg firm to discuss a way forward. [redacted]. He suggested they have 600M, but 3B is problematic. BB

[redacted]
Managing Director & Deputy General Counsel
[redacted], Jersey City, NJ 07310-1617
212.[redacted] w; 202.[redacted] m
[redacted]

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[267] DTCC briefing with the Committee (Jul 29, 2021).
[268] *Id.*
[269] *Id.*
[270] *Id.*
[271] *Id.*; DTCC_CONG_00000001(on file with the Committee).
[272] Interview with D. Gallagher (Robinhood) (Sept. 13, 2021).
[273] DTCC_CONG_00000001 (on file with the Committee).

Also, at approximately 7:15 a.m. EST on January 28, 2021, other DTCC personnel confirmed the accuracy of the approximately $3.7 billion collateral deposit requirement to the Robinhood Securities employee who had initiated the outreach to them earlier that morning.[274] Robinhood Securities personnel then requested a larger group call for later that morning to be attended by senior DTCC personnel along with senior Robinhood Securities and Robinhood Markets executives.[275] At approximately 7:45 a.m. EST, the DTCC's Market Risk Director spoke with the Head of Securities Processing of Robinhood Securities about the NSCC's Excess Capital Premium charge to Robinhood for the day. The DTCC's Market Risk Director conveyed that Robinhood's Excess Capital Premium charge was being reviewed for downward adjustment without commenting on why it was being reviewed or what would qualify Robinhood for a downward adjustment.[276]

At approximately 8:15 a.m. EST, senior personnel from DTCC, Robinhood Securities, and Robinhood Markets spoke about the deposit requirements.[277] Specifically, the conversation addressed the Excess Capital Premium charge and Value-at-Risk components of Robinhood's daily clearing fund requirement, and the impact that the clearing fund requirement would have on Robinhood's liquidity for that day.[278] During that call, Robert Crain, an equity market risk executive at DTCC, stated that the DTCC was prepared to reduce the Excess Capital Premium charge from approximately $2.3 billion to approximately $835 million. Crain notified Robinhood that the DTCC was evaluating a further reduction or waiver of the Excess Capital Premium charge.[279] According to Robinhood officials, the DTCC did not provide a specific basis for reducing Robinhood's Excess Capital Premium charge. Upon being informed that the Excess Capital Premium charge would be reduced, the senior Robinhood personnel on the call expressed that even such a reduced amount would present an operational strain on the firm's liquidity.[280]

According to DTCC officials, Gretchen Howard also asked the DTCC if Robinhood could negotiate its Value-at-Risk charge down to a lower amount, which DTCC officials refused.[281] In addition, according to DTCC officials, Robinhood Securities personnel explained the mitigation efforts that were being taken in response to the unanticipated spike in collateral requirements during this call, specifically conveying that Robinhood had increased margin requirements for its clients to 100% on GME and certain other volatile equities and had decided to impose PCO

[274] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
[275] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
[276] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021); DTCC briefing with the Committee (Sept. 10, 2021); Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021); DTCC briefing with the Committee (Sept. 17, 2021).
[277] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021); Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021). The Robinhood participants on this call included Gretchen Howard (Chief Operating Officer of Robinhood Markets, Inc.), Daniel Gallagher (Chief Legal Officer of Robinhood Markets, Inc.), Director of Financial Operations and Chief Financial Officer of Robinhood Securities, and Clearing Operations Manager (Securities Processing) for Robinhood Securities.
[278] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021).
[279] *Id.*
[280] DTCC briefing with the Committee (Sept. 10, 2021).
[281] *Id.*

restrictions on certain volatile symbols.[282] In speaking with the Committee, Gretchen Howard could not recall the specific details of any conversations with DTCC officials on the morning of January 28, 2021.[283]

Upon concluding the call, DTCC officials requested that Robinhood provide detailed liquidity and other financial information to DTCC and participate in one or more follow-up calls later that day.[284] At some time between 8:00 a.m. EST and 8:15 a.m. EST, a DTCC official separately notified a Robinhood Securities employee that Robinhood Securities' Excess Capital Premium charge had been reduced to approximately $876 million from the original approximately $2.2 billion.[285]

At approximately 8:35 a.m. EST, the Deputy General Counsel of the DTCC and Robinhood CLO Dan Gallagher spoke again by telephone for approximately 10 minutes.[286] During the phone call, the two discussed Robinhood's Value-at-Risk charges, as well as actions that Robinhood was undertaking to improve its current liquidity position.[287] Gallagher stated that Robinhood believed that its Value-at-Risk charge of $1.3 billion would be sufficient, that additional charges were not necessary, and this was an appropriate circumstance for the DTCC to exercise its discretion to reduce or waive Robinhood's Excess Capital Premium charge.[288] According to the Deputy General Counsel, Gallagher also indicated that if the NSCC charged amounts in excess of the Value-at-Risk charge, this would stress Robinhood's liquidity.[289] The Deputy General Counsel responded that he understood Robinhood's position on the matter, but that the NSCC was subject to rules and oversight that did not allow it to waive nondiscretionary charges.[290] Gallagher indicated that he accepted that, but implored the Deputy General Counsel for further relief, arguing that the Excess Capital Premium charge could be further reduced or waived entirely consistent with NSCC rules.[291]

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[282] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021). *See* Finding 1(c) for further detail on trading restrictions imposed.
[283] Interview with G. Howard (Robinhood) (Jan. 07, 2022).
[284] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021). At approximately 9:45 a.m., Tim Hulse (Risk Management Executive at DTCC) had a follow up conversation with Dan Gallagher and Gretchen Howard to further discuss DTCC's request for additional information concerning Robinhood's liquidity and capital. Robinhood and DTCC officials also had a call at approximately 1:30 p.m. to discuss clearing fund requirements applicable to Robinhood as well as Robinhood's available liquidity lines and plans to raise additional capital. DTCC officials on this call included members of the Risk Committee. Robinhood officials on this call included Gretchen Howard, Dan Gallagher, and Jim Swartwout. The call lasted approximately 20 minutes.
[285] The approximately $876 million amount that was established as the modified ECP charge was determined in accordance with a methodology that the NSCC had used in certain prior cases where it had modified an assessed charge.
[286] Email from General Counsel for DTCC General Counsel for DTCC to Committee staff (Aug. 03, 2021).
[287] *Id.*
[288] *Id.*; DTCC briefing with the Committee (Sept. 15, 2021).
[289] DTCC briefing with the Committee (Sept. 15, 2021); Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021).
[290] DTCC briefing with the Committee (Sept. 15, 2021).
[291] *Id.*; Mr. Gallagher expressed that he did not recall all of the details of this particular conversation.

At 9:11 a.m. EST, 19 minutes before the market opened, Robinhood Securities received an updated deposit requirement notice from the NSCC that outlined a total deposit requirement of approximately $1.4 billion with a reduction in the Excess Capital Premium charge to $0.[292] This left Robinhood needing to meet an overall collateral deficit at the NSCC of approximately $734 million by NSCC's 10:00am deadline. Subsequent to receiving this updated deposit requirement notice, Robinhood wired the approximately $734 million remaining balance and satisfied the reduced aggregate deposit requirement of approximately $1.4 billion.[293] According to Robinhood executives, at no time during the course of its conversations about Excess Capital Premium charges did DTCC personnel explain to Robinhood Securities their precise rationale for ultimately waiving the Excess Capital Premium charge and whether this waiver was connected to the various remedial measures that Robinhood informed them that it would be taking.[294] In addition, Robinhood did not subsequently obtain, or seek, a further confirmation from DTCC about what prompted the issuance of the waiver.[295] In interviews with Committee staff, Robinhood's executives expressed relief at having received the benefit of this waiver, but could not draw conclusions as to why the NSCC ultimately decided to exercise its discretionary authority to issue it.[296]

AT 9:11 A.M. EST, 19 MINUTES BEFORE THE MARKET OPENED, ROBINHOOD SECURITIES RECEIVED AN UPDATED DEPOSIT REQUIREMENT NOTICE FROM THE NSCC THAT OUTLINED A TOTAL DEPOSIT REQUIREMENT OF APPROXIMATELY $1.4 BILLION WITH A REDUCTION IN THE EXCESS CAPITAL PREMIUM CHARGE TO $0.

Six NSCC member firms generated Excess Capital Premium charges on the morning of January 28, 2021. NSCC officials explained to Committee staff that they ultimately decided to issue an across-the-board waiver of Excess Capital Premium charges to all member firms that were assessed such a charge on January 28, 2021, due to concerns that applying the charge as assessed

[292] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
[293] *Id.*
[294] Interview with J. Swartwout (Robinhood) (May 05, 2021); Interview with J. Swartwout (Robinhood) (May 21, 2021); Interview with G. Howard (Robinhood) (Jun. 11, 2021).
[295] Interview with J. Swartwout (Robinhood) (May 21, 2021).
[296] *Id.*; Interview with G. Howard (Robinhood) (Jun. 11, 2021); NSCC, NSCC Rules and Procedures – Procedure XV I(B)(2) (Jan. 01, 2021). NSCC is granted broad discretion to waive Excess Capital Premium charges pursuant to existing NSCC rules and, thus, was acting within its regular authority when it made the determination to waive these charges.

could have created systemic risk to the market. NSCC explained that extraordinary spike in market volatility, particularly in meme stocks, was a material contributor to the elevated clearing fund requirements for several firms, including most of those that were subject to Excess Capital Premium Charges that day. Therefore, it determined that it would not be appropriate to apply the charge.[297]

Without the NSCC's waiver of Robinhood's Excess Capital Premium charge, Robinhood's nonpayment would have constituted a "serious rule violation" according to the NSCC's rules.[298] When a clearing-broker cannot deposit the required collateral, the member is in default to the clearinghouse and NSCC may "cease to act" for that member under its rules, as the NSCC did for Lehman Brothers on September 24, 2008 and MF Global on October 31, 2011.[299] When NSCC ceases to act, the clearinghouse assumes control of the defaulted member's portfolio and liquidates it.[300] This is done to limit the risk that the defaulted member poses to NSCC and to other non-defaulting NSCC members, who can be subject to mutualized losses if the collateral already held by NSCC is insufficient to cover losses on the defaulter's portfolio.[301] Robinhood leadership remained aware during the morning of January 28, 2021 that the NSCC could effectively eliminate the company's ability to clear their client's trades and liquidate the firm's holdings.[302]

While Robinhood's senior staff engaged in extensive crisis management on the morning of January 28, 2021, to avoid such a possibility, Robinhood Financial President and COO David Dusseault, whose communications from earlier in the week emphasized that among his main priorities was avoiding negative press, expressed doubt that DTCC would "shut (Robinhood) down" as a result of its collateral obligations.[303]

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[297] Testimony of Michael C. Bodson, Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III, 117th Cong. (May 06, 2021).

[298] DTCC briefing with the Committee (Jun. 17, 2021).

[299] National Securities Clearing Corporation, Lehman Brothers, Inc. Closeout – Deadline for Submission of Member Closeout Details to NSCC for Security Balance Orders including CNS Receive and Deliver Orders (Oct. 31, 2008); National Securities Clearing Corporation, NSCC CEASES TO ACT – MF GLOBAL INC. (MEMBER NOS. 120 AND 650) (Oct. 31, 2011).

[300] Ceasing to act requires board of directors' approval under NSCC's rules. A recommendation to cease to act would originate with the Risk team which, time permitting, would convene the Management Risk Committee to approve the recommendation to the Board.

[301] DTCC briefing with the Committee (Jun. 17, 2021).

[302] Interview with G. Howard (Robinhood) (May 11, 2021).

[303] RH_HFSC_00007111 (on file with the Committee).

Figure 36: RH_HFSC_00007111 [304]

david.dusseault

01/28/2021 05:33:56

ah we will navigate through this nscc issue

david.dusseault

01/28/2021 05:34:19

we are to big for them to actually shut us down

Dusseault commented to Committee staff that he made this comment to give other employees comfort while the firm was navigating the early morning of January 28, 2021, before the DTCC granted its waiver.[305] When discussing the matter with other Robinhood employees later in the day on January 28, 2021, Dusseault stated that the DTCC had a reputation for asking for large amounts of collateral. Dusseault commented to Committee staff that he made this statement based on his decades of experience working for other broker-dealers.[306]

Figure 37: *RH_HFSC_00043294* [307]

david.dusseault

01/28/2021 15:37:56

I'll just say this dtcc reputation of asking for large amounts is not a new thing

[304] *Id.*
[305] Interview with D. Dusseault (Robinhood) (Jan. 05, 2022).
[306] *Id.*
[307] RH_HFSC_00043294 (on file with the Committee).

o. Robinhood asserted to the public and testified to the Committee that the company was "always comfortable with [its] liquidity" leading up to its historic trading restrictions, despite the actions undertaken by Robinhood's executive leadership to respond to liquidity issues it faced in the days leading up to the Meme Stock Market Event.

The NSCC waived Robinhood's Excess Capital Premium charge at approximately 9:11 am EST. After the conclusion of the trading day, at 7:00 p.m. EST, Robinhood CEO Vlad Tenev appeared on CNBC and stated that, "there's no liquidity problem."[308] Furthermore, on February 18, 2021, Vlad Tenev testified before this Committee and stated that, "we were always comfortable with our liquidity."[309]

> **CHAIRWOMAN WATERS:** … Mr. Tenev, you explained that Robinhood restricted transactions in certain securities to meet demands coming from your clearinghouse, and yet, on January 28th, you represented to the media that there was no liquidity problem. Isn't it true that being concerned about having enough capital to meet deposit requirements—isn't that a liquidity problem? Could you just answer yes or no?
>
> **MR. TENEV:** Chairwoman Waters, I appreciate the opportunity to address that.
>
> **CHAIRWOMAN WATERS:** Just yes or no.
>
> **MR. TENEV:** We always felt comfortable with our liquidity and the additional capital that Robinhood raised—
>
> **CHAIRWOMAN WATERS:** Please answer yes or no.
>
> **MR. TENEV:** We always felt—
>
> **CHAIRWOMAN WATERS**: Reclaiming my time, I don't have time, I just need a yes-or- no answer.
>
> **MR. TENEV:** I stand by my statement. The additional capital we raised wasn't to meet capital requirements or deposit requirements—

[308] Kevin Stankiewicz, *Robinhood CEO: Tapping credit lines is proactive, not a sign of cash crunch in GameStop frenzy*, CNBC (Jan. 29, 2021).
[309] House Committee on Financial Services, *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III*, 117th Cong. (May 06, 2021).

Although Tenev claimed that Robinhood "was always comfortable with our liquidity," Tenev was aware of the need to manage the firm's liquidity relative to the volatility in meme stock trading leading up to the Meme Stock Market Event.[310]

Figure 38: RH_HFSC_00007154 [311]

Vlad Tenev

01/27/2021 11:13:02

just make sure our liquidity stays green jason :slightly_smiling_face:

Vlad Tenev

01/27/2021 11:13:04

and we'll be fine

---

jason.warnick

01/27/2021 11:13:10

on it!

Robinhood Markets Chief Operating Officer, Gretchen Howard, described her role to Committee staff as a "train conductor" who works to place "the right leaders with the right skill sets in the right environments so that they can run those businesses effectively.[312] After receiving a text from Jim Swartwout, the head of Robinhood's clearing operation, on the morning of January 28, 2021 that Robinhood was experiencing a "Huge liquidity issue,"[313]Howard sent numerous communications to Robinhood's Chief Financial Officer, Chief Marketing & Communications Officer, and other leaders at the company representing her belief that the firm was experiencing a "huge liquidity issue with nscc."[314]

Committee staff asked Gretchen Howard about the disconnect between how the company communicated regarding the issues with meeting its NSCC collateral obligations inside the firm

[310] RH_HFSC_00007154 (on file with the Committee).
[311] *Id.*
[312] Interview with G. Howard (Robinhood) (Jan. 07, 2022).
[313] RH_HFSC_00011657 (on file with the Committee).
[314] RH_HFSC_00042082 (on file with the Committee).

and outside the firm.[315] Howard commented to Committee staff that her internal statements about liquidity were a first reaction after being woken up so early and first learning of the situation, but after the NSCC issued a waiver, Robinhood was comfortable with its liquidity and staff moved on to handle other operational concerns.[316] Yet the Committee's investigation demonstrates that Robinhood was concerned about its liquidity position and had been in the days leading up to January 28, 2021. It was only the DTCC's willingness to waive the largest component of Robinhood's January 28, 2021 collateral obligations that gave Robinhood's leadership the breathing room to focus on other matters.

In fact, after the NSCC waived the Excess Capital Premium charge on January 28, 2021 Robinhood continued to seek reductions to its "core" NSCC deposit requirements, as reflected in its Value-at-Risk charge, beyond the initial request by Gretchen Howard.[317] Specifically, at approximately 11:00 a.m. EST, Robert Crain, Executive Director, and another colleague in DTCC's Risk Department spoke with Robinhood's Head of Securities Processing by phone.[318] During that call, Robinhood requested a reduction in its Value-at-Risk charge for that day.[319] DTCC officials indicated that a reduction in the Value-at-Risk charge was not available.[320]

During a subsequent 12:00 p.m. call, Robinhood Securities' Director of Financial Operations, a senior manager in Robinhood's treasury department, and Robinhood Securities' Head of Securities Processing spoke with Robert Crain, and discussed Robinhood's request for additional information about the calculation of the Value-at-Risk charge with Robinhood again requesting a reduction of its Value-at-Risk charge for the day.[321] DTCC officials once again indicated to Robinhood that a reduction in the Value-at-Risk charge was neither available nor permitted by the publicly available NSCC rules.[322]

To meet NSCC collateral deposit requirements, clearing brokers such as Robinhood Securities typically access their own balance sheet. Many also have access to parent company funding. They typically also arrange for the availability of credit facilities with lending institutions that can be drawn down from as needed. Accounting for its various funding sources, Robinhood Securities' maximum cash balance prior to remitting its NSCC collateral deposit on the morning of January 28, 2021, was approximately $1.44 billion. While $1.44 billion represents Robinhood's peak available liquidity on the morning of January 28, 2021, Robinhood senior leadership

[315] Interview with G. Howard (Robinhood) (Jan. 07, 2022).
[316] *Id.*
[317] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021). Interview with R. Crain (DTCC) (Sept. 17, 2021); DTCC briefing with the Committee (Sept. 17, 2021).
[318] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021); Interview with R. Crain (DTCC) (Sept. 17, 2021); DTCC briefing with the Committee (Sept. 17, 2021).
[319] Interview with R. Crain (DTCC) (Sept. 17, 2021); DTCC briefing with the Committee (Sept. 17, 2021).
[320] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021).
[321] *Id.*; Interview with R. Crain (DTCC) (Sept. 17, 2021); DTCC briefing with the Committee (Sept. 17, 2021).
[322] Interview with R. Crain (DTCC) (Sept. 17, 2021); DTCC briefing with the Committee (Sept. 17, 2021).

understood they had approximately $600 million available cash, as represented to the NSCC and memorialized in an email by a Deputy General Counsel at the DTCC.[323]

Further complicating matters, throughout the day of January 28, 2021, a number of Robinhood's credit counterparties, including Barclays, US Bank, and Bank of Montreal, reached out expressing concerns about the company's liquidity arrangements.[324] For instance, Robinhood's circumstances "caught the attention of folks at the top of (the) firm," at Barclays, one of Robinhood's credit counterparties.[325] As a Managing Director at Barclays communicated to Robinhood's Treasurer on January 28, 2021, when asking for more information to better understand Robinhood's liquidity position, "the ask comes from a very high level of our firm."[326]

Even accounting for the approximately $700 million of collateral already on deposit with the NSCC on the morning of January 28, 2021, Robinhood would not have had the resources to post an aggregate of approximately $3.7 billion of collateral.[327] Jim Swartwout acknowledged this during interviews with Committee staff and Vlad Tenev also testified before this Committee that Robinhood did not have sufficient capital on hand when the company first received deposit notice from the NSCC at 5:11 a.m. EST on January 28, 2021,[328] stating "at that moment, we would not have been able to post the $3 billion in collateral."

The Committee's investigation further revealed that, even after exhausting all its available liquidity sources, Robinhood would have been unable to meet the collateral requirements by the 10:00 a.m. EST deadline. In other words, but for the NSCC's decision to waive the Excess Capital Premium charge, Robinhood Securities would have defaulted on its daily collateral deposit requirement upon the 10:00 a.m. deadline, which seems at odds with statements made by the company's executive leadership regarding the firm's liquidity.

The consequences when a broker-dealer defaults can be severe for the firm, its customers, other clearing firm members, and the stock market. Indeed, FINRA monitored Robinhood and other broker-dealers closely throughout the day on January 28, 2021, considering such contingencies as whether troubled companies could potentially default, which could lead to them liquidating their positions and requiring the Securities Investor Protection Corporation (SIPC) to step in to protect investors.[329] Had Robinhood been forced to extend all of its available capital to

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[323] As of January 28, 2021, Robinhood Securities had access to a parent company line of credit of $550 million, of which it had previously drawn $300 million, leaving an additional $250 million available to meet the 10:00 a.m. collateral deposit deadline. Robinhood Securities also had access to a secured credit line of $550 million that remained unutilized during the weeks of January 25, 2021 and February 1, 2021. Robinhood Markets also had access to a $600 million credit line, which it drew from January 27, 2021, in the amount of $500 million and a further amount of $100 million on January 28, 2021, as part of its normal procedures, and it therefore was depleted and unavailable. Email from Counsel for Robinhood to Committee staff (May 20, 2021).
[324] RH_HFSC_00022140 (on file with the Committee); RH_HFSC_00022058 and RH_HFSC_00022049 (on file with the Committee).
[325] RH_HFSC_00022140 (on file with the Committee).
[326] *Id.*
[327] RH_HFSC_00000862 (on file with the Committee).
[328] House Committee on Financial Services, Testimony of Vlad Tenev, *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III*, 117th Cong. (May 06, 2021).
[329] FINRA briefing with the Committee (Sept. 29, 2021).

meet its unanticipated regulatory clearing obligations, effectively defaulting on its obligations, the company would have faced a threat to its ability to operate as a clearing broker altogether.

Gretchen Howard acknowledged in interviews with Committee staff that the company understood that if it defaulted on this obligation, the NSCC would have had the right to effectively shut down Robinhood's ability to clear trades for its clients.[330] Although Vlad Tenev testified to the Committee that Robinhood‘s "risk management processes worked appropriately to keep [Robinhood] in compliance with all of our deposit requirements and collateral requirements," the Committee staff‘s investigation has revealed that Robinhood was unprepared to meet its collateral deposit requirements on January 28, 2021, both from a liquidity as well as a risk planning perspective.[331]

The company was only saved from defaulting on its daily collateral deposit requirement by a discretionary and unexplained waiver issued by the NSCC over which Robinhood had no control. In other words, Robinhood's risk management processes did not work well to predict and avert the risk of default that materialized. Rather, Robinhood's risk management processes failed and wider risk to Robinhood's customers was only averted due to the NSCC's exercise of discretion.

This was not simply a mistake of operational balance sheet management by Robinhood, but a more fundamental failure to adequately capitalize the firm, maintain adequate liquidity arrangements relative to the firm's business model and risk profile, and accurately predict and prepare for NSCC deposit requirements as set forth in publicly available rules and based on customer trading activity. Instead of making appropriate arrangements to be prepared for the spike in collateral deposit requirements experienced on January 28, 2021, as would be called for by effective risk management processes, Robinhood's failure to do so required the firm to focus on remedial measures after the fact.

p. Robinhood adopted more extensive trading restrictions for a longer period of time relative to other broker-dealers that imposed comparable restrictions.

Robinhood's trading restrictions consisted of a blanket prohibition on the purchase of certain highly volatile stocks followed by strict limits on 50 securities that individual customers could purchase on its platform. The public, including many of Robinhood's own customers, received such severe restrictions poorly.[332]

Prior to January 28, 2021, Robinhood adopted a number of trading restrictions that were consistent with what was occurring in the wider industry, including gradually increasing margin

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[330] Interview with G. Howard (Robinhood) (Jun. 11, 2021).

[331] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part I* (Feb. 18, 2021).

[332] Robinhood Markets CEO, Vlad Tenev's personal information was somehow released to the public and he received numerous threatening and vulgar messages on his personal cellphone targeting himself and his family throughout the day of January 28, 2021. Email and attachment to email from counsel for Vladimir Tenev to Committee staff (Nov. 10, 2021) (on file with the Committee).

requirements for its customers purchasing GME.[333] On January 26, 2021, for instance, Robinhood Securities, Robinhood's clearing broker, increased initial and maintenance margin requirements for GME to 80% and, later in the day, increased initial margin requirements for GME to 100%.[334] Margin requirements on GME were later increased to 100% on January 27, 2021 which made GME non-marginable.[335] As market volatility continued throughout the week of January 25, 2021, Robinhood gradually extended such requirements and on January 27 and 28, 2021 and increased the initial and maintenance margins requirements for 11 other volatile equities to 100%.[336] Robinhood also reduced the total amount of GME options contracts each customer could purchase from 5,000 to 3,000 on January 26, 2021, meaning each customer could only purchase option contracts on 3,000 GME stocks.[337]

On January 27, 2021, Robinhood further reduced these position limits for GME options from 3,000 to 300, and then from 300 to 100.[338] That same day, approximately 604,000 new customers downloaded the company's app for the first time, and Robinhood recorded one of its then-highest daily active user numbers of approximately 9.4 million.[339] In addition, due to its heightened exposure to volatile securities, on January 27, 2021, the NSCC notified Robinhood of an intraday charge of approximately $411 million, which brought the total end of day deposit requirement to approximately $693 million, as more fully described previously in this section. Thereafter, Robinhood personnel anticipated implementing more restrictive measures, such as position limits on equities, which would restrict the total number of stocks a customer could own, and PCO restrictions on certain volatile stocks, which would prohibit customers from purchasing those stocks altogether for the duration of the PCO restriction.[340, 341]

After the market closed on the night of January 27, 2021, Robinhood Securities imposed $10,000 position limits for all customer accounts on six stocks, including GME, AMC, BB, Express, Inc. (EXPR), KOSS, and NOK, meaning that for the duration of the position limit, customers could not make new purchases of the restricted stocks if such purchase would result in the customer owning more than $10,000 total as a result.[342] Robinhood also formulated a plan to impose PCO restrictions for January 28 and January 29, 2021 for GME options contracts expiring

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333 Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
334 Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
335 *Id.*
336 These included Dillard's, Inc. (DDS), Ligand Pharmaceuticals (LGND), Bed Bath & Beyond Inc. (BBBY), National Beverage Corp. (FIZZ), AMC Networks Inc. (AMCX), Macerich (MAC), Academy Sports and Outdoors Inc (ASO), SunPower Corp. (SPWR), Tanger Factory Outlet Centers Inc. (SKT), Accelerate Diagnostics Inc. (AXDX) and BlackBerry Ltd. (BB). Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
337 Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).
338 *Id.*
339 *Id.*
340 *Id.;* Interview with J. Swartwout (Robinhood) (May 05, 2021).
341 As used in this report, "position-closing only" or "PCO" refers to the practice of only permitting sales of a subject security while prohibiting purchases of that same security.
342 Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).

on January 29, 2021.[343] PCO restrictions were ultimately placed on options contracts expiring on January 29, 2021 for each of GME, American Airlines (AAL), AMC, BB, BBBY, NOK and Sundial Growers (SNDL).[344]

Faced with an extremely large deposit requirement on the morning of January 28, 2021, as discussed previously in this section, and which Robinhood would have been unable to satisfy, the company attempted to mitigate the volatility that it believed was driving its collateral deposit requirements.[345] Throughout the morning of January 28, 2021, specifically between 6:30 a.m. EST and 7:30 a.m. EST, Robinhood Securities employees began to impose position closing only (PCO) restrictions on certain highly volatile symbols (and corresponding options contracts) which would prohibit customers from purchasing these stocks altogether.[346] Broker-dealers rarely introduce position closing only (PCO) restrictions. Usually, broker-dealers will only introduce PCO restrictions to comply with regulatory obligations, e.g., a stock has been delisted or the stock was offered by a company which has been banned from the U.S. equities market. [347] FINRA commented to Committee staff that they consider using PCO restrictions as a risk mitigation tactic to be extraordinary.[348] Robinhood

FINRA COMMENTED TO COMMITTEE STAFF THAT THEY CONSIDER USING PCO RESTRICTIONS AS A RISK MITIGATION TACTIC TO BE EXTRAORDINARY.

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[343] Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021). Robinhood Financial (RHF) and Robinhood Securities (RHS) decided to commence their standard option closeout procedure earlier in the afternoon on Friday, January 29, 2021, and would also close out riskier positions with the intended aim of reducing potential losses to customers. Because RHS was anticipating these steps on January 29, 2021 for GameStop (GME) and AMC Entertainment Holdings (AMC) options contracts expiring on January 29, 2021, it believed it suitable to also prohibit customers from buying these options contracts on January 28 or 29, 2021 (given that it would be closed on the same day or the following day).

[344] Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021). The PCO restrictions on these options contracts remained in place when PCO restrictions were otherwise lifted on January 29, 2021.

[345] Interview with J. Swartwout (Robinhood) (May 05, 2021).

[346] Restricted stocks included: American Airlines (AAL), AMC Entertainment Holdings (AMC), BlackBerry Ltd. (BB), Bed Bath & Beyond Inc. (BBBY), Castor Maritime Inc. (CTRM), Express, Inc. (EXPR), GameStop (GME), Koss Corp. (KOSS), Naked Brand Group Ltd. (NKD), Nokia Corp. (NOK), Sundial Growers (SNDL), Tootsie Roll Industries Inc. (TR), and Trivago N.V. (TRVG).Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021); House Committee on Financial Services, Testimony of Vlad Tenev, *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III*, 117th Cong. (May 06, 2021).

[347] FINRA briefing with the Committee (Jul. 09, 2021).

[348] *Id.*

Securities ultimately lifted these PCO restrictions prior to market open on January 29, 2021, relying instead on strict limits on the numbers of equity shares that its customers could purchase in these and other symbols commencing on January 29, 2021 and PCO restrictions on fractional purchases of 13 stocks.[349]

On January 29, 2021, Robinhood Securities imposed position limits on the top 50 symbols that the company assessed were driving its heightened Value-at-Risk charge, with only one equity share per customer in aggregate permitted to be purchased for 35 symbols, and a maximum of five for the rest.[350] In addition, for the entire duration that trade restrictions were in place for each of these stocks, customers were prohibited from purchasing shares entirely if they already held more than the total number of shares permitted to be purchased in accordance with each position limit.

By restricting the purchasing of meme stocks in this manner, Robinhood avoided extending its PCO restrictions in name only, while virtually eliminating its customers' ability to meaningfully purchase meme stocks through extremely strict position limits. Indeed, for most customers who had more than a *de minimis* existing position in these stocks (i.e., who owned a single share, or five shares in the case of the far lesser number of stocks subject to a 5-share limit), the position limits operated as de facto PCO restrictions, as such customers could not purchase any new shares of these stocks and could only sell them.

By the time of market open on February 1, 2021, equity position limits remained in place for AMC, BB, EXPR, GME, Genius Brands International, Inc. (GNUS), KOSS, Naked Brand Group Ltd. (NAKD), and NOK, but had been removed for the other symbols.[351] During the morning of February 2, 2021, equity position limits remained in place on AMC, EXPR, GME, NAKD, and NOK, but had been lifted on BB, GNUS, and KOSS.[352] By market open on February 3, 2021, equity position limits had been removed on EXPR, NAKD, and NOK, but remained in place on AMC and GME, which remained in place until February 4, 2021 after market hours, after which all trading in these symbols was also reopened and unrestricted.[353] Robinhood also maintained PCO restrictions on fractional shares for 13 stocks through February 10, 2021.

According to representatives for Robinhood, throughout the time that the company had equity position limits in place, it regularly monitored and reviewed such equity position limits and, as a general matter, modified its position limits on specific securities when it believed that it could

[349] In addition, RHS had also introduced PCO restrictions on the purchase of fractional shares in American Airlines Group Inc. (AAL), AMC Entertainment Holdings (AMC), BlackBerry Ltd. (BB), Bed Bath & Beyond Inc. (BBBY), Castor Maritime Inc. (CTRM), Express, Inc. (EXPR), GameStop (GME), Koss Corp. (KOSS), Naked Brand Group Ltd. (NAKD), Nokia Corp. (NOK), Sundial Growers, Inc. (SNDL), Tootsie Roll Industries, Inc. (TR) and Trivago N.V. (TRVG). The last such restriction was removed on February 10. Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).

[350] Appendix A to Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Mar. 29, 2021).

[351] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Jul. 09, 2021).

[352] *Id.*

[353] *Id.* RHS also imposed limits on option contact purchases during this same time period, and all such restrictions which were lifted by the evening of February 4. Options contacts purchases were limited with respect to: AAL, AMC Entertainment Holdings (AMC), BlackBerry Ltd. (BB), Bed Bath & Beyond Inc. (BBBY), Express, Inc. (EXPR), GameStop (GME), and Genius Brands International, Inc. (GNUS).

stay within pre-established internal risk limits after modifying or eliminating the relevant restrictions and notified its customers through blog posts, emails, and cards in their mobile app.[354] Robinhood executives have acknowledged to Committee staff that these measures were specifically designed to drive down the volatility in Robinhood's trading book which resulted in heightened Value-at-Risk charges and an Excess Capital Premium charge.[355] Robinhood executives hoped that these restrictions would encourage the NSCC to reduce its collateral deposit requirement.[356]

In addition to implementing trading restrictions, Robinhood leadership immediately began raising money on the morning of January 28, 2021. Robinhood successfully completed an emergency capital raising and by the end of the day on January 29, 2021, and raised and received approximately $1.5 billion of new funding in exchange for the issuance of convertible notes to participating investors.[357] By the end of the day on February 1, 2021, Robinhood raised and received a cumulative amount of approximately $2.2 billion in new funding. By the close of February 2, 2021, it raised and received a cumulative amount of approximately $3.05 billion in additional funding.[358] According to Robinhood's internal models, the firm required approximately $2.5 billion in additional capital in order to remove all trading restrictions, return to an unrestricted trading environment, and maintain an additional capital cushion to be adequately prepared for potential collateral deposit spikes driven by continued market volatility.[359] This amount of capital was described by Robinhood's CFO as sufficient to handle future shock scenarios and extreme edge cases.[360]

Additionally, by January 29, 2021, Robinhood's start of day NSCC collateral deposit requirement had declined to approximately $354 million, leaving Robinhood with a collateral deposit surplus with the NSCC of approximately $1.08 billion.[361] The dramatic decline in Robinhood's collateral deposit requirement as compared to the prior day's opening requirement of $3.7 billion was likely due to the impact of the PCO restrictions that had been adopted on January 28, 2021. Because only sell orders were permitted, the overall net buy position of Robinhood's trading book had declined and the Value-at-Risk charge had decreased.

While the opening day NSCC collateral deposit requirement for Robinhood increased to approximately $753 million on February 1, 2021, Robinhood continued to have an approximately

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[354] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Jul. 09, 2021).
[355] Interview with J. Swartwout (Robinhood) (May 05, 2021).
[356] *Id.*
[357] Convertible notes are debt instruments that convert into equity securities under specified conditions as set forth in the instrument creating the convertible notes. *See* Finding 1(n) for further details about the Robinhood capital raising.
[358] An additional amount of approximately $424.5 million in new funding came in during the remainder of that week, and another $70 million was received on 16th February, which amounts to a total amount of new funding from the Tranche I and Tranche II notes offering of approximately $3.55. billion. *See* Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Jun. 02, 2021).
[359] Interview with J. Warnick (Robinhood) (Jun. 10, 2021).
[360] *Id.*
[361] Email and attachments to email from Counsel for Robinhood to Committee staff (May 20, 2021) (on file with the Committee); RH_HFSC_00000866 (on file with the Committee).

$109.9 million surplus on deposit with the NSCC.[362] For the period from February 2, 2021, through February 5, 2021, Robinhood's start of day and end of day collateral deposit requirements ranged between approximately $211 million and $314 million, which were well within the levels of capital available to the firm. In fact, apart from Friday, February 5, 2021, when Robinhood had a collateral deposit deficit of approximately $57.4 million, Robinhood maintained a surplus in its collateral deposit account with the NSCC for the week of February 1, 2021.[363]

Given that Robinhood's collateral deposit requirements were well within manageable levels by January 29, 2021, and the company had raised the capital that its models suggested was sufficient to handle shock scenarios by the end of the day on February 2, 2021, it is unclear why the company prohibited purchasing fractional shares of certain meme stocks, with the last fractional share trading restriction being lifted on February 10, 2021, and maintained position limits in GME and AMC securities until February 5, 2021. While Robinhood told Committee staff that it maintained these restrictions for prudential reasons, by Robinhood's own estimations, the firm should have been able to return to an unrestricted trading environment by February 2, 2021, at the latest.[364]

Robinhood's trading restrictions were most likely a direct consequence of inadequate liquidity at Robinhood. Robinhood's inability to anticipate and plan for the spike in its NSCC collateral deposit requirements meant that it did not arrange for sufficient liquidity ahead of time and thereafter did not meet its normal operating requirements to act as a clearing broker. This meant that Robinhood had to adopt stringent trading restrictions to lower volatility within parameters that it had the resources to fund. Even though Robinhood was subject to the DTCC's Enhanced Surveillance at the time, which theoretically entails the clearinghouse conducting more thorough due diligence of the firm on a more regular basis, DTCC remained largely unaware that Robinhood's internal procedures for calculating collateral charges did not calculate the Excess Capital Premium charge.[365] When asked whether Robinhood communicated any liquidity concerns Robinhood may have had to the DTCC on the morning of January 28, 2021, Robinhood Chief Legal Officer Dan Gallagher could not recall with specificity.[366]

Ultimately, given a confusing collateral charge regime by the DTCC and incomplete models within Robinhood, Robinhood did not have a sufficient capital cushion to support an unrestricted trading environment for its customers during the Meme Stock Market Event and for days afterwards. As a result, Robinhood had to adopt the most stringent and longest lasting trading restrictions of any broker-dealer during the Meme Stock Market Event. Had Robinhood more adequately anticipated heightened collateral deposit requirements or maintained an adequate capital cushion ahead of time, it likely would have been able to adopt more modest restrictions. With reduced or lighter restrictions, ordinary retail customers who use the Robinhood platform to

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362 RH_HFSC_00000870 (on file with the Committee).
363 RH_HFSC_00000872 – 78 (on file with the Committee).
364 Interview with J. Swartwout (Robinhood) (Oct. 22, 2021).
365 DTCC briefing with the Committee (Jul. 06, 2021); DTCC briefing with the Committee (Jul. 22, 2021).
366 Interview with D. Gallagher (Robinhood) (Sept. 13, 2021).

access public markets might not have been frozen out of the restricted stocks for as long as they were.

Key Finding #2: Broker-dealers facing the greatest operational and liquidity concerns took the most expansive trading restrictions, although multiple broker-dealers introduced trading restrictions for a variety of risk management reasons during the Meme Stock Market Event.

The restrictions that Robinhood implemented were the most stringent and longest lasting that any clearing broker imposed during the Meme Stock Market Event. This was in line with a trend that occurred throughout the industry—namely that, with one exception, firms that confronted the most serious liquidity problems imposed the most stringent restrictions.

Broker-dealers facing the greatest operational and liquidity concerns took the most expansive trading restrictions, although multiple broker-dealers introduced trading restrictions for a variety of risk management reasons during the Meme Stock Market Event.

Figure 39: Approximate Duration of Formal Trading Restrictions Placed on Equities [367]

	Jan 28	Jan 29-30	Feb 1	Feb 2	Feb 3-4	Jan 28 - Feb 10
Robinhood [368]	Placed PCO restrictions on 13 stocks from market open to close	Placed position limits[369] on 50 stocks	Placed position limits on 8 stocks	Placed position limits on 5 stocks	Placed position limits on AMC and GME	Prohibited fractional shares purchases for 13 stocks
Interactive Brokers [370]	Placed PCO restrictions on 22 stocks from about 8 a.m. through 10 p.m.	X[371]	X	X	X	X
Apex [372]*	Placed PCO restrictions on AMC, GME, and NOK from 11 am to 2 pm	X	X	X	X	X
Axos Clearing [373]*	X	X	X	Placed PCO restrictions on AMC, BB, GME, and NOK from market open to 3 pm	X	X
E*TRADE [374]	Placed PCO restrictions on AMC and GME from 3 pm through close	X	X	X	X	X
Charles Schwab / TD Ameritrade [375]	X	X	X	X	X	X

367 This chart summarizes in simplified form trading restrictions for those clearing brokers within the scope of the Committee's investigation. This chart does not include steps that broker-dealers took to limit the extension of credit to customers, including increased margin requirements, short sale restrictions or restrictions placed on options trading, some combination of which all the clearing brokers within the scope of its investigation adopted to some degree.
368 For further detail, *see* Finding 1.; The limits on GME and AMC were lifted on the evening of February 4, 2021, after market hours. Only one symbol, not all 13 symbols, had a fractional PCO in place through February 10, 2021; the remaining symbols had theirs lifted through February 3, 2021.
369 In this report, "position limits" refers to the practice by broker-dealers of imposing strict numerical limits on the number of subject securities that customers can purchase on that broker-dealer's trading platform.
370 According to representatives for Interactive Brokers, the firm restricted trading as a risk management measure to protect the firm and customers from outsize losses during abnormal market behavior and not due to capital and liquidity concerns. For further detail, *see* Finding 2(d).
371 "X" indicates that no action was taken to formally prohibit trading activity in equities.
372 For further detail, *see* Finding 2(b).
373 For further detail, *see* Finding 2(c).
374 E*TRADE's trade restrictions stemmed from a technology outage on its platform rather than liquidity concerns or difficulty meeting collateral requirements and therefore were involuntary. For further detail, *see* Finding 2(e).
375 For further details, *see* Finding 2(d).

In addition to the regulatory halts, numerous broker-dealers voluntarily adopted trading restrictions during the period of the Meme Stock Market Event as partially illustrated by the above chart. Some firms devised restrictions tailored to the risk profile of their business, while clearing brokers required other stock trading platforms to implement restrictions.

Larger and older broker-dealers were more likely to be robustly capitalized and therefore better able to navigate market volatility by adopting more limited trading restrictions, both in terms of the time that such restrictions were in effect for as well as in terms of the severity of the restrictions.[376] Certain newer clearing brokers had more limited financial resources and available liquidity, and in some cases were forced to adopt more restrictive measures.

Interactive Brokers represents a notable outlier to this general trend. Interactive Brokers maintained sizeable net capital reserves during the Meme Stock Market Event, but nonetheless stated that it voluntarily enacted trading restrictions to protect its customers and its firm during a period of acute volatility.[377] Interactive Brokers specifically characterized the market during this time as "a volatile and unstable marketplace", which affected its risk management approach during the Meme Stock Market Event.[378]

Several broker-dealers voluntarily placed trading restrictions on meme stocks amid the heightened activity. Individual broker-dealers decide to impose trading restrictions according to their own risk management calculus with limited oversight and review of such decisions by applicable regulators. As part of their risk management practices, clearing brokers sometimes implement various trading restrictions to manage the amount of risk in their book of business to safeguard against the risk of absorbing losses from failed settlement by individual traders and customers. Such measures include increasing margin requirements for purchasing options, restricting options purchases, and limiting short sales. Position limits, or a restriction placed by the broker-dealer on the number of shares a customer can buy or sell are rarer. [379] PCO restrictions, whereby investors are only allowed to close or reduce existing positions, are considered extraordinary.[380]

Many broker-dealers adopted a range of relatively routine trading restrictions to mitigate the adverse effects of market volatility during the Meme Stock Market Event. However, a subset of clearing brokers—those that experienced actual or potential liquidity challenges due to the magnitude of unanticipated NSCC collateral deposit requirements—generally took significantly more stringent countermeasures.

[376] In this regard, it should be noted that trade restrictions implemented by E*TRADE were the result of information technology problems rather than liquidity and financial soundness concerns.
[377] Interactive Brokers, FAQs*: Securities subject to Special Requirements, Interactive Brokers* (accessed Sept. 17, 2021).
[378] *Id.*
[379] FINRA briefing with the Committee (Jul. 09, 2021).
[380] *Id.*

a. Apex directed Webull, Ally Invest, SoFi, and hundreds of other firms that clear their trades through Apex to prohibit purchases of certain highly volatile stocks.

Webull operates as an introducing broker.[381] In such capacity, it does not clear its own trades and entered into a Clearing Agreement with Apex pursuant to which Apex opens and maintains accounts and executes, clears, and settles securities transactions that are initiated by Webull's customers using Webull's trading platform.[382] Apex provides these same clearing services to many other introducing brokers, including Ally Invest, Betterment Securities, M1 Finance, Marcus by Goldman Sachs & Co., SoFi Securities, Stash Capital, Tastyworks Inc., TradeZero America Inc, and hundreds more.[383] Webull and the other introducing brokers that clear through Apex are reliant on Apex to process, clear, and settle customer trades and would be unable to function without Apex, or another external services provider, performing these functions on their behalf.[384] Apex, as a clearing broker, is an NSCC member firm and is responsible for maintaining sufficient collateral deposits with the NSCC in order to meet its clearing fund requirements and support the trading activities of the customers of all of its introducing broker clients. Webull's Clearing Agreement with Apex permits Apex to mandate that Webull impose trading restrictions at Apex's discretion. Apex has such contractual arrangements in place with the other introducing brokers that are its customers as well.[385]

On January 28, 2021, at 10:30 a.m. EST, Webull received an emergency notice via email from Apex expressly instructing it that GME, AMC, and KOSS securities be placed into "liquidation only" statuses on their trading systems (i.e., a PCO restriction).[386] The restriction was stated to apply to "both equities and all options series, most importantly January 29, 2021 expiration."[387] These restrictions effectively prohibited Webull from accepting new purchase positions in AMC, GME, and KOSS stocks and options.[388] Apex employees confirmed to Committee staff that the email notice mandating liquidation only settings for GME, AMC, and KOSS was transmitted to each of the introducing brokers to which Apex provides clearing services.[389] Webull complied with this instruction and at 11:30 a.m. EST announced the imposition

[381] Webull briefing with the Committee (May 12, 2021).
[382] Interview with A. Denier. (Webull) (May 20, 2021).
[383] APEX-HFS000018-19 (on file with the Committee).
[384] Webull briefing with the Committee (May 12, 2021); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 10 (May 20, 2021).
[385] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 20, 45-46 (Jun. 16, 2021).
[386] APEX-HFS000001 (on file with the Committee); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 21 (May 20, 2021).
[387] APEX-HFS000001 (on file with the Committee). Positions in these same stocks had been previously set to 100% margin and Apex.
[388] *Id.*
[389] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 21 (May 20, 2021).

of these instructions via posts on social media, specifically on Webull's Facebook page and via its Twitter account.[390] Webull did not distribute notice of these restrictions in any other manner.[391]

Figure 40: Twitter post from Webull on January 28, 2021[392]

[390] Exhibit A to Letter from General Counsel for Webull to Chairwoman Waters and Chairman Green (Feb. 09, 2021).
[391] *Id.*
[392] Letter and produced Exhibit A from General Counsel for Webull to Chairwoman Waters and Chairman Green (Feb. 09, 2021).

At approximately 1:54 p.m. EST, Apex distributed an emergency update to each of its introducing brokers, including Webull, confirming that it was removing the liquidation only restriction for GME, AMC, and KOSS, with the exception of short sells and options that had a January 29, 2021 expiration.[393] Webull thereafter removed the trading restrictions, which lasted for approximately 193 minutes in total.[394] At approximately 2:42 p.m. EST, Webull posted an update to its Twitter and Facebook posts announcing the lifting of the restrictions which stated "!! Update GME, AMC and KOSS are no longer restricted!!".[395] Except for TradeZero America Inc., Apex confirmed that all the other introducing brokers that are its clients complied with its order to cease accepting orders for the restricted securities.[396]

b. Apex instructed its broker-dealer clients to restrict trading because the company was concerned about the magnitude of a potential collateral deposit request from the NSCC.

Apex sent instructions to the introducing brokers it works with to restrict GME, AMC, and KOSS after receiving notice of a large collateral deposit requirement from the NSCC on the morning of January 28, 2021.[397] Prior to market open on each trading day, each NSCC member firm receives an automated deposit notice outlining that member firm's clearing fund deposit requirement for the trading day.[398] In addition to this morning clearing fund requirement notice, NSCC makes estimated margin requirements available throughout the day in 15-minute intervals outlining the total potential deposit requirement applicable to that member firm based on changes in the relevant firm's portfolio.[399] These updated estimates are referred to in the industry as

393 APEX-HFS000003 (on file with the Committee).

394 Exhibit A to Letter from General Counsel for Webull to Chairwoman Waters and Chairman Green (Feb. 09, 2021). Functionally, it is the introducing broker that can permit or restrict trading for individual trading clients and, therefore, once Apex communicated its directives to restrict trading and then lift trading restrictions on the relevant stocks, each introducing broker would have implemented such instructions in accordance with its own practices. As a result, each introducing broker would have imposed and lifted restrictions at different times. From a retail or end-customer perspective, the precise length of the trading restrictions that impacted them would therefore be determined by which introducing broker they held their accounts with.

395 *Id.* Webull's original Twitter post announcing the restrictions was deleted between 4:25 p.m. EST and 4:26 p.m. EST.

396 Letter from counsel for Apex Clearing Corporation to Committee staff (Aug. 31, 2021). Although TradeZero Inc. refused to voluntarily comply with Apex's directive, had it been necessary to do so, Apex would have had the technical ability, had it been necessary to do so, to cease processing trades in the restricted securities originating from that introducing broker.

397 APEX-HFS000005 (on file with the Committee).

398 DTCC, NSCC Equity Clearing & Settlement Overview: Presentation to House Staff, at slide 6 (Jun. 17, 2021).

399 DTCC briefing with the Committee (Jun. 17, 2021). Under NSCC rules, the clearinghouse has discretionary authority to issue an intraday margin call to any of its members, demanding a member firm deposit additional collateral to adequately manage the overall risk of the member firm's cleared portfolio, but it is not required to do so. Slices therefore preview potential requirements in this regard. If an intraday margin call is issued, member firms are obligated to deposit additional collateral with the NSCC within one hour of the demand.

"slices."[400] The "slices" are the updates to the calculator in the NSCC's member portal. Slices are not sent to members but is accessed by most members' risk management departments throughout the day. The calculator covers core clearing fund component charges: those that are based only on the portfolio and are designed to cover portfolio risk. The calculator does not cover non-core charges, such as the ECP charge.[401]

On the morning of January 28, 2021, prior to market open, Apex received its daily automated NSCC deposit requirement notice which showed a collateral deficit of approximately $68.2 million, well within the means of Apex to satisfy and, accordingly, this deposit notice did not elicit any non-routine reaction from Apex personnel.[402] At 10 a.m. EST, however, Apex accessed the NSCC's portal and viewed a slice (the "10 AM Slice") that showed a total potential collateral deposit requirement that had increased exponentially from approximately $68.2 million to approximately $1 billion, with a Value-at-Risk charge of $434.9 million. While the Slice did not include information on a potential Excess Capital Premium charge, Apex calculated that it would owe an Excess Capital Premium charge of $562.4 million based upon the Value-at-Risk charge contained in their 10 AM Slice.[403]

Under NSCC rules, the clearinghouse has discretionary authority to issue an intraday margin call to any of its members, demanding a member firm deposit additional collateral to adequately manage the overall risk of the member firm's trading book.[404] If an intraday margin call is issued, member firms are obligated to deposit additional collateral with the NSCC within one hour of the demand.[405] Thus, Apex officials were on notice once they reviewed the 10 AM Slice that the NSCC could demand the deposit of additional collateral. [406]

[400] DTCC briefing with the Committee (Jun. 17, 2021). Typically, the largest component of such charges during ordinary trading days is the VaR charge, which represents risk associated with unsettled trades in a member firm's cleared portfolio. In addition, NSCC rules provide for the assessment of an Excess Capital Premium charge when "core" margin charges for a member firm are greater than such firm's "excess net capital" (as specified in FINRA FOCUS Reports). In such instances, the NSCC calculates an Excess Capital Premium charge, which it requires in addition to its baseline clearing fund requirement. Because the Excess Capital Premium charge is based on a ratio that compares the amount by which "core" charges exceed excess net capital, it can increase sharply if a firm's "core" charges greatly exceed excess net capital. The purpose of the Excess Capital Premium charge is to penalize, and therefore attempt to deter, member firms from accumulating excessive amounts of risk in their cleared portfolio as represented by the VaR charge and other "core" charges.

[401] Email and produced attachment from General Counsel for DTCC to Committee staff (Jun. 19, 2022).

[402] APEX-HFS000005 (on file with the Committee).

[403] APEX-HFS000009 (on file with the Committee); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 14 and 16 (Jun. 16, 2021). Interviews with Committee staff have revealed that margin requirements had been increased by the NSCC to 118% of notional value for AMC and 80% of notional value for GameStop (GME) by the morning of January 28, 2021. Ordinarily, margin requirements are a fraction of the overall notional value of a trade, but due to increased margin requirements for these stocks that were precipitated by the extreme market volatility, this would mean that for AMC, for every dollar that a customer purchased in that symbol, clearing firm members would be required to deposit $1.18. For GameStop (GME), every dollar that a customer purchased would necessitate an $0.80 deposit to be maintained by the member firm.

[404] DTCC briefing with the Committee (Jun. 17, 2021).

[405] *Id.*

[406] APEX-HFS000009 (on file with the Committee); DTCC briefing with the Committee (Jun. 17, 2021).

Apex grew concerned that they may be required to meet their full collateral deposit requirement, both the $434.9 million Value-at-Risk charge from their portal and the additional Excess Capital Premium charge of $562.4 Apex had calculated internally at any moment, and they would have a maximum of one hour to meet the margin call once issued.[407] At 10:15 a.m. EST and 10:30 a.m. EST, Apex reviewed additional slices that continued to show a total potential deposit requirement of more than $1 billion.[408] At 10:45 a.m. EST, Apex reviewed a slice indicating a potential requirement of approximately $1.06 billion, largely consisting of a Value-at-Risk charge of approximately $325 million and what Apex calculated to be an Excess Capital Premium charge that had increased to approximately $607.9 million.[409]

Upon receiving the 10 AM Slice, Apex personnel felt that it would be challenging for them to meet a discretionary intraday margin call in the vicinity of $1 billion within the normal one-hour time frame.[410] Upon receiving what appeared to be anomalous slice data, it quickly reached out to NSCC to and confirmed that the numbers provided in Apex's portal were accurate (which did not include the Excess Capital Premium charge calculated internally by Apex).[411] Senior Apex personnel, expecting trading activity to increase throughout the day and drive the requirements even higher, decided to impose the trading restrictions on AMC, GME, and KOSS.[412] Apex reviewed the detailed NSCC files outlining its collateral charges and estimated that at the time that it imposed its restrictions, pending settlements for these three symbols accounted for approximately 90% of Apex's total potential NSCC deposit requirement.[413] Apex's CEO, Bill Capuzzi, approved of the decision to impose trading restrictions prior to the distribution of the emergency notice via email that was sent to Apex's clients.[414]

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[407] Email from counsel for Apex to Committee staff (Jun. 20, 2022).
[408] APEX-HFS000009-11 (on file with the Committee),
[409] APEX-HFS000012 (on file with the Committee),
[410] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 20-21 (May 20, 2021).
[411] *Id.*
[412] *Id.*
[413] *Id.* at 21.
[414] *Id.* at 44-45.

Figure 41: Emergency notice Apex sent to customers [415]

EMERGENCY NOTICE: GME, AMC, and KOSS Liquidations Only

Thursday, January 28, 2021

Apex would like to inform you that the below listed stocks should be liquidation only on your systems whether proprietary or through a 3rd party. This would include both equities and all option series, most importantly the **January 29th 2021 expiration**.

These positions have been previously set at 100% margin and will continue for the foreseeable future.

- GME: GameStop
- AMC: AMC Entertainment
- KOSS: Koss Corp.

Around the same time, senior Apex personnel began considering how to inject additional capital into the firm given that Apex could have been the recipient of an intraday margin call from the NSCC at any moment.[416] Apex personnel were concerned that if they were not able to meet such a prospective intraday margin call within an hour, the application of existing NSCC rules could have resulted in the cessation of Apex's clearing activities by the NSCC.[417] In other words, were the intraday margin call to materialize and were Apex unable to meet it, Apex may have been restricted from continuing its clearing operations, which in turn, could have prevented customers of each of the introducing brokers that Apex clears for from executing trades. Apex personnel reached out to the firm's primary shareholder, Peak6 Investments LLC, which ultimately infused additional capital into Apex in the amount of $100 million on January 29, 2021 and another $50 million on February 2, 2021.[418] However, Apex's capital raising activities became less pressing

[415] APEX-HFS000001 (on file with the Committee).
[416] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 20-21 (May 20, 2021).
[417] *Id.* at 21.
[418] APEX-HFS000013 (on file with the Committee).

after they received another slice at 11 a.m. EST (the "11 AM Slice"), which outlined a dramatically lower collateral requirement.[419] Based on the information in the 11AM slice, Apex calculated that it would not be subject to an Excess Capital Premium charge. Apex subsequently confirmed with the NSCC on a phone call that the lower amount was accurate.[420]

Apex officials represented to Committee staff that between a capital infusion from their parent company and the use of unsecured bank credit facilities, the company would have ultimately been successful in raising the necessary capital to meet the peak potential intraday margin call of over $1 billion within the one-hour time frame imposed by the NSCC.[421] Peak6 ultimately injected $150 million of additional capital into Apex to bolster Apex's ability to meet the NSCC collateral requirements, given Apex's expectation that extreme market volatility would continue for the foreseeable future.[422] Once Apex confirmed that there would be no Excess Capital Premium charge, the firm distributed an update to its introducing broker clients confirming removal of the liquidation only policy to its introducing brokers.[423] Once these restrictions had been removed, Apex did not reimpose them at a later stage and did not introduce any limits on any customer's initiation of new long positions in any security.[424]

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[419] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 22 (May 20, 2021).

[420] *Id.*

[421] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 38-40, 55 (Jun. 16, 2021).

[422] *Id.* at 25 (Jun. 16, 2021); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 55 (May 20, 2021). Apex also eventually increased the aggregate amount of its available credit facilities by $250 million to better prepare for the prospect of large NSCC collateral requirements in the future.

[423] APEX-HFS000003-4 (on file with the Committee); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 18-19 (Jun. 16, 2021).

[424] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 18-19 (Jun. 16, 2021).

Figure 42: Notice sent to Apex clients informing them of the removed restrictions [425]

EMERGENCY UPDATE: GME, AMC, and KOSS

Thursday, January 28, 2021

Apex is removing the liquidation only restriction for the following securities with the exception of short sells and options with January 29th 2021 expiration. We ask that firms that allow options trading to be mindful of expiration risk that could cause an open short.

These positions have been previously set at 100% margin and will continue for the foreseeable future.

- GME: GameStop
- AMC: AMC Entertainment
- KOSS: Koss Corp.

The 11 AM Slice showed a dramatically reduced total potential deposit requirement of approximately $164.8 million. It consisted of a Value-at-Risk charge of approximately $112.2 million and other miscellaneous charges,[426] and based on the information in the 11AM slice, Apex calculated that it would not be subject to an Excess Capital Premium charge. $0.[427]

Apex later conducted an internal investigation and discovered what led to the elimination of its Excess Capital Premium charge, as communicated in the 11 AM Slice.[428] Its internal review revealed an imbalance of trading activity in Apex's trading book from January 27, 2021, the day before, caused by a single large one sided trade when a proprietary trading firm both sold and

[425] APEX-HFS000003-4 (on file with the Committee).
[426] APEX-HFS000012 (on file with the Committee)
[427] *Id.*
[428] Letter from counsel for Apex Clearing Corporation to Committee (Jul. 9, 2021); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 11 and 23 (May 20, 2021).

purchased approximately $385 million of AMC.[429] The two trades occurred within less than a second of one another, but given the extreme volatility in AMC, the buy order went through but the sell side of the trade required manual intervention because the price of the stock had changed so considerably in the fraction of a second between the buy and the sell order.[430] Apex's overnight process for clearing trades require manual verification for trades that involve both a buy order and sell order in rapid succession if the spread between the buy and sell order is greater than $10 net.[431]

This created a temporary imbalance in trading activity, i.e., a net buy position, which represents greater risk in a trading book and resulted in the NSCC assessing a heightened Value-at-Risk charge to Apex.[432] Once Apex's operations team became aware of the need to manually acknowledge the sell-side of the trade, they promptly approved the trade.[433] The acknowledgement eliminated the imbalance in trading activity, greatly lowering the company's Value-at-Risk charge, and eliminated the Excess Capital Premium charge in the firm's internal calculations.[434]

According to Apex's representations to the Committee, the firm restricted trading in meme stocks for a period of time on January 28, 2021 after receiving an anomalous slice and based upon an understanding that the firm may be required to pay an intraday charge in aggregate of over $1 billion, including a calculated Excess Capital Premium charge of $562.4.[435] However, according to the DTCC, the clearinghouse would not have been permitted to include an Excess Capital Premium charge in any intraday margin call to Apex – any increased Excess Capital Premium charge would have been collected the following morning.[436] At the time, Apex did not know whether the DTCC would have the discretion to assess the Excess Capital Premium charge on the intraday charge or not. Regardless, Apex commented to the Committee that whether the Excess Capital Premium charge was assessed during an intraday charge or applied the next morning it would not have changed their actions – company leadership still believed they were going to have to come up with more capital.[437]

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[429] Letter from counsel for Apex Clearing Corporation to Committee (Jul. 9, 2021); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 11 and 23 (May 20, 2021). This particular trade was from a proprietary trading firm engaging in market-making activity who initiated a near simultaneous buy order and sell order of an equivalent amount, i.e., approximately 23 million shares of AMC Entertainment Holdings (AMC) long and 23 million shares of AMC Entertainment Holdings (AMC) short.

[430] Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 11-13 (Jun. 16, 2021).

[431] *Id. at 23.*

[432] *Id.*

[433] *Id.*

[434] This report refers to Excess Capital Premium charge "as assessed" Excess Capital Premium charge to indicate that an Excess Capital Premium charge was notified to the relevant member-firm consistent with NSCC rules. Apex was assessed an Excess Capital Premium charge of approximately $30.5 million on January 29, 2021, but this charge was subject to the across-the-board NSCC waiver described in detail in this report.

[435] Email from counsel for Apex to Committee staff (Jun. 20, 2022).

[436] Email and attachment from General Counsel for DTCC to Committee staff (Jun. 20, 2022).

[437] Email from counsel for Apex to Committee staff (Jun. 21, 2022).

c. *Axos prohibited new opening transactions in certain meme stocks on February 2, 2021, due to liquidity concerns, and feared that without taking such measures it would likely exhaust its available funding sources.*

Axos Clearing LLC (Axos), a subsidiary of Axos Financial, Inc. is a clearing broker that serves retail-oriented introducing brokers, some of whom are rapidly growing online trading firms.[438] Most customer trades initiated through Cash App Investing, LLC and others were cleared and settled through Axos in January and February 2021.[439] Starting at approximately 9:30 a.m. EST on February 2, 2021, nearly a week after Robinhood and others implemented their trading restrictions, Axos prohibited the opening of new positions, whether long buys or short sales, in AMC, GME, BB, and NOK.[440] These restrictions were lifted at approximately 3:00 p.m. EST of the same day.[441]

Axos, like Robinhood, was also at the time subject to Enhanced Surveillance by the NSCC, and acted to limit trading in these securities because the NSCC indicated to Axos that it would issue the firm an Excess Capital Premium charge as of February 2, 2021.[442] Beginning January 29, 2021, the NSCC raised Axos's collateral deposit requirements due to increased trading volume in the relevant securities that was being originated by Axos's introducing firms.[443] On January 29, 2021, Axos's NSCC collateral deposit requirement peaked at approximately $95 million and on February 1, 2021, peaked at approximately $153 million.[444] While Axos had been assessed an Excess Capital Premium charge on January 28, 2021, this charge was ultimately waived by the NSCC.[445,446] On February 1, 2021, however, Axos was informed by the NSCC that the clearinghouse intended to apply an Excess Capital Premium charge to the firm the next day, as Axos's collateral deposit requirements still exceeded Axos's excess net capital.[447]

The NSCC conveyed to Axos that it would not apply the full amount of the Excess Capital Premium charge that could be levied on the firm, but the NSCC would exercise its discretion to apply some amount of these charges.[448] In response, Axos informed the NSCC that should any

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[438] Axos Clearing, What We Do (accessed Feb. 03, 2022). Axos also serves institutional trading firms and proprietary trading firms.
[439] Cash App Investing briefing with the Committee (Jul. 30, 2021). In Cash App Investing's case, it has engaged DriveWealth to provide various trade processing services, which entered into a clearing agreement with Axos to clear and settle trades that it processes.
[440] Letter from Chief Compliance Officer of Axos Clearing LLC to Sr. Director of Risk Monitoring at FINRA (Feb. 22, 2021).
[441] *Id.*
[442] *Id.* Axos briefing with the Committee (Sept. 20, 2021); DTCC briefing with the Committee (Jul. 22, 2022).
[443] Letter from Chief Compliance Officer of Axos Clearing LLC to Sr. Director of Risk Monitoring at FINRA (Feb. 22, 2021).
[444] *Id.*
[445] Email and attachment from counsel for Axos Clearing LLC to the Committee (Nov. 05, 2021); DTCC briefing with the Committee (Jul. 22, 2022).
[446] See Finding 4(a) for further details regarding NSCC's across the board waiver of Excess Capital Premium charges, which it decided to maintain in place through February 1, 2021.
[447] Email and attachment from counsel for Axos Clearing LLC to the Committee (Nov. 05, 2021).
[448] *Id.*

amount of Excess Capital Premium charge be applied to the firm, Axos would likely exceed its available funding sources.[449] Axos conveyed to the NSCC that the firm would impose PCO restrictions on its introducing firms (and ultimately the customers of its introducing brokers) in securities that contributed disproportionately to the firm's Value-at-Risk charges if any Excess Capital Premium charges were assessed, in this case AMC, GME, BB, and NOK.[450,451] Axos and the NSCC concluded the call and scheduled a second call for 8:00AM EST on the following morning to continue discussions, by which time the NSCC could provide more specifics on the contemplated Excess Capital Premium charge.[452]

On the evening of February 1, 2021, Axos had separate dialogues with both FINRA and the SEC regarding Axos's liquidity and its ability to fund its margin requirements at the NSCC.[453] Axos informed the SEC and FINRA that it planned to manage any risks to its liquidity by restricting introducing brokers and their customers from opening new positions in the most volatile securities that were driving its margin requirements.[454] According to Axos, neither FINRA nor the SEC provided any specific guidance on this plan.[455] At approximately 8:00 AM EST on February 2, 2021, the NSCC proceeded to apply an Excess Capital Premium charge to Axos, resulting in a total margin requirement of $247,041,600.[456] Axos informed the NSCC that while it was able to meet the $247 million requirement, the company was not certain about its ability to meet additional increases from the NSCC, which is why it implemented new position restrictions.[457]

d. Larger and older broker-dealers adopted a range of trading restrictions during the Meme Stock Market Event, but such restrictions were generally less severe than those of smaller or newer firms due to limited concerns about broker-dealer liquidity and capitalization.

Charles Schwab & Co. Inc. (Schwab) and TD Ameritrade Inc. and TD Ameritrade Clearing, Inc. (both registered broker-dealers that are collectively referred to herein as "TDA"), which are each under common ownership and control and are part of the publicly listed Charles Schwab Corporation, responded to market events during the Meme Stock Market Event by designating nineteen (19) securities that experienced increased trading volume (Schwab/TDA

[449] *Id.*
[450] Letter from Chief Compliance Officer of Axos Clearing LLC to Sr. Director of Risk Monitoring at FINRA (Feb. 22, 2021).
[451] Email and attachment from counsel for Axos Clearing LLC to the Committee (Nov. 05, 2021).
[452] *Id.*
[453] *Id.*
[454] *Id.*
[455] *Id.* Axos briefing with the Committee (Sept. 20, 2021).
[456] Letter from Chief Compliance Officer of Axos Clearing LLC to Sr. Director of Risk Monitoring at FINRA (Feb. 22, 2021).
[457] Email and attachment from counsel for Axos Clearing LLC to the Committee (Nov. 05, 2021).

Restricted Securities[458]) as non-marginable.[459] This meant that a 100% margin requirement was in place in order for customers to purchase the relevant Schwab/TDA Restricted Securities.[460] In other words, the Schwab/TDA Restricted Securities were prohibited from being purchased on margin and could not be used as collateral for a margin loan.[461]

Schwab first changed the margin requirement for GameStop from 70% to 100% on January 13, 2021 and raised the margin requirements for the other eighteen (18) Schwab/TDA Restricted Securities during the week of January 25, 2021.[462] TDA similarly began raising the margin requirement for GME on January 13, 2021 and raised margin requirements on the Schwab/TDA Restricted Securities during the week of January 25, 2021.[463] Schwab and TDA also ceased accepting short sale orders with respect to most of the Schwab/TDA Restricted Securities and limited certain advanced options strategies with respect to the Schwab/TDA Restricted Securities that involved leverage.[464] Schwab and TDA believed that under the circumstances these orders could expose their customers and respective firms to significant potential losses.[465] For instance, both firms prohibited clients from selling naked call options on certain securities during the Relevant Period.[466]

Importantly, neither firm restricted customers from either purchasing an equity security or from selling an equity security already owned by customers during the Meme Stock Market Event

[458] The Schwab Restricted Securities included: AMC Entertainment Holdings, Inc. (AMC); Bed Bath & Beyond Inc. (BBBY); Blackberry Limited (BB); Cel-Sci Corp. (CVM); Dillard's Inc. (DDS); Express, Inc. (EXPR); Fossil Group, Inc. (FOSL); GameStop Corp. (GME); GSX Techedu Inc. (GSX); iRobot Corp. (IRBT); Koss Corp. (KOSS); Naked Brand Group Ltd. (NAKD); National Beverage Corp. (FIZZ); National CineMedia Inc. (NCMI); Nokia Corp. ADR (NOK); Northern Dynasty Minerals Ltd. (NAK); Tootsie Roll Industries Inc. (TR); Urban One, Inc. (UONE); VIR Biotechnology Inc. (VIR).

[459] Letter from counsel for Schwab/TDA to Chairwoman Waters (Mar. 03, 2021). The Charles Schwab Corporation is the indirect parent of Schwab. TD Ameritrade Holding Corporation is the indirect parent of both TD Ameritrade Inc. and TD Ameritrade Clearing, Inc.

[460] *Id.*

[461] Charles Schwab, *Schwab Issues Statement About Recent Trading Activity* (Jan. 29, 2021).

[462] Letter from counsel for Schwab/TDA to Chairwoman Waters (Apr. 23, 2021).

[463] *Id.*

[464] Charles Schwab, *Schwab Issues Statement About Recent Trading Activity* (Jan. 29, 2021); Letter from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Mar. 03, 2021).

[465] Charles Schwab, *Schwab Issues Statement About Recent Trading Activity* (Jan. 29, 2021); Letter from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Mar. 03, 2021).

[466] Charles Schwab, *Schwab Issues Statement About Recent Trading Activity* (Jan. 29, 2021). Increasing margin requirements when necessary is consistent with existing FINRA guidance and rules relating to member-firm risk management procedures. Indeed, member firms are required to have procedures in place to formulate their own "house" margin requirements and where appropriate institute higher margin requirements for individual securities or customer accounts.[26] *See* FINRA, *FINRA Reminds Member Firms of Their Obligations Regarding Customer Order Handling, Margin Requirements and Effective Liquidity Management Practices During Extreme Market Conditions* (Mar. 18, 2021) (Regulatory Notice 21-12).

and did not place limitations on the purchase or sale of basic options contracts.[467] The restrictions adopted for Schwab/TDA Restricted Securities were applied equally to all of their customers.[468]

Schwab and TDA lifted certain risk management controls on their restricted securities during the week of February 8, 2021.[469] On February 8, 2021, Schwab and TDA permitted short sales of restricted securities if shares were available for loan pursuant to Regulation SHO and removed the restrictions on advanced options strategies for the following securities: BBBY, National Beverage Corp. (FIZZ), Fossil Group Inc. (FOSL), iRobot Corp. (IRBT), KOSS, NAKD, NOK, Tootsie Roll Industries, Inc. (TR) and Urban One, Inc. (UONE).[470] The restrictions on advanced options strategies for the remaining restricted securities were removed as of February 22, 2021. As of April 19, 2021, Schwab and TDA still had a 100% margin requirement In place to purchase GME and AMC.[471]

Interactive Brokers LLC (Interactive Brokers) is an SEC-registered broker-dealer that provides execution and clearing services for markets in the United States and elsewhere. Interactive Brokers is a group company of Interactive Brokers Group Inc., a large, public company listed on NASDAQ, which, through various operating subsidiaries around the world, operates a global brokerage business.[472] In response to the meme stock volatility, Interactive Brokers imposed a range of trading restrictions on select symbols. However, according to Interactive Brokers, these measures were not precipitated by capital or liquidity requirements. In particular, as of mid-day on January 27, 2021, Interactive Brokers put AMC, BB, EXPR, GME, and KOSS options trading into liquidation only, meaning that new options positions could no longer be opened.[473] It also increased margin requirements on both long and short positions in these same symbols requiring 100% margin for long stock positions and 300% margin for short stock positions.[474]

Interactive Brokers lifted trading restrictions on these options, as well as other options, on January 29, 2021.[475] However, Interactive Brokers reimposed liquidation only restrictions on options trading in AMC, BB, EXPR, and GME from 12:34 a.m. EST on January 30, 2021 until 8:35 p.m. EST on January 31, 2021.[476] For general risk management, the firm also prohibited short sales in FOSL, BB, NOK, KOSS, AMC, and BBBY from 8:51 a.m. EST on January 28, 2021 until 12:16 p.m. EST on February 3, 2021; in AeroCentury Corp. (ACY), Janone Inc. (JAN), and,

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[467] Letters from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Mar. 03, 2021).
[468] Letters from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Mar. 03, 2021); Letter from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Sept. 03, 2021). The limitation on advanced option strategies was not implemented with respect to independent registered investment advisors that utilize Schwab's custody platform to manage accounts held by Schwab clients.
[469] Letters from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Apr. 23, 2021).
[470] Letters from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Apr. 23, 2021).
[471] Letters from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Apr. 23, 2021).
[472] Interactive Brokers, About the Interactive Brokers Group (Jan 01, 2022).
[473] Interactive Brokers, *Interactive Brokers Takes Action on Actively Traded Symbols* (Jan. 28, 2021).
[474] Interactive Brokers, *Interactive Brokers Takes Action on Actively Traded Symbols* (Jan. 28, 2021).
[475] Interactive Brokers, *Interactive Brokers Lifts All Trading Restrictions on Options* (Jan. 30, 2021).
[476] Appendix A to Letter from Chief Counsel of Investigations and Enforcement at Interactive Brokers, to Chairwoman Waters and Chairman Green (Feb. 19, 2021).

Monopar Therapeutics Inc. (MNPR) from 8:12 a.m. EST on January 28, 2021 until 12:16 p.m. EST on February 3, 2021; and GME from 9:29 a.m. EST on January 25, 2021 until 8:20 a.m. EST on January 26, 2021 and again from 8:51 a.m. EST until 12:16 p.m. EST on February 3, 2021.[477]

Interactive Brokers also placed several symbols into PCO for approximately nine hours.[478] With exceptions, these PCO restrictions were introduced by Interactive Brokers at 10:50 a.m. EST on January 28, 2021, and were removed by 8:23 p.m. EST the same day.[479]

Interactive Brokers explained to Committee staff that the company's PCO restrictions on January 28, 2021 were motivated by general risk management concerns rather than liquidity or capitalization concerns.[480] On January 28, 2021, Interactive Brokers' daily NSCC collateral deposit requirement was approximately $1.3 billion, and the firm had reported excess capital of approximately $4.4 billion.[481] Interactive Brokers stated that it restricted trading "to protect the firm and its customers from incurring outsized losses due to wild swings in price in a volatile and unstable marketplace."[482] Interactive Brokers expressed concern about the effect of the high volatility on the clearinghouses, broker-dealers, and market participants.[483]

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[477] *Id.* Short sale restrictions at Interactive Brokers generally did not apply to execution only customers, who are customers that only execute orders through Interactive Brokers but do not clear and settle their trades through the firm. Interactive Brokers' execution only customers are generally either buy-side institutions, such as mutual funds, hedge funds and other investment vehicles that rely on a broker-dealers other than Interactive Brokers as their prime broker-dealer or custodian or, alternatively, other broker-dealers (whether US or foreign) that submit orders for their own account or for their customers (whether they are retail or non-retail).

[478] Appendix A to Letter from Chief Counsel of Investigations and Enforcement at Interactive Brokers, to Chairwoman Waters and Chairman Green (Feb. 19, 2021). The symbols subject to position closing only limitations were: Fossil Group Inc. (FOSL), BlackBerry Ltd. (BB), Nokia Corp. (NOK), Nokia Oyj (NOKN), Nokia Oyj (NOAA), Nokia (NOKIASEK), Nokia (NOKIA), Express, Inc. (EXPR), Express, Inc. (02Z), Koss Corp. (KOSS), AMC Entertainment Holdings Inc. (AMC), Bed Bath & Beyond Inc. (BBBY), Bed Bath & Beyond Inc. (BBY), GameStop (GME), GameStop Corp. (GS2C), AeroCentury Corp. (ACY), Janone Inc. (JAN), Janone Inc. (5AR1), Monopar Therapeutics Inc. (MNPR), New Concept Energy, Inc. (GBR), Lianluo Smart Ltd. (LLIT), and Lianluo Smart Ltd. (J8D1).

[479] Appendix A to Letter from Chief Counsel of Investigations and Enforcement at Interactive Brokers, to Chairwoman Waters and Chairman Green (Feb. 19, 2021). The position closing only restrictions on certain symbols were introduced and lifted at different times on January 28, 2021. Specifically, for Bed Bath & Beyond, Inc. (BBY) and 02Z, the restriction was introduced at 1:51 p.m. EST and lifted at 8:23 p.m. EST; for GameStop (GME) and Koss Corp. (KOSS), the restriction was introduced at 7:56 a.m. EST and lifted at 8:23 p.m. EST; for GS2C, the restriction was introduced at 11:46 a.m. EST and lifted at 8:23 p.m. EST; for ACY, JAN and MNPR, the restriction was introduced at 7:56 a.m. EST and lifted at 9:00 p.m. EST; for 5AR1, the restriction was introduced at 13:51 p.m. EST and lifted at 9:42 p.m. EST; for GBR, the restriction was introduced at 12:32 p.m. EST and lifted at 9:42 p.m. EST; for LLI, the restriction was introduced at 11:41 a.m. EST and lifted at 9:42 p.m. EST; and for J8D1, the restriction was introduced at 1:51 p.m. EST and lifted at 9:42 p.m. EST. In some instances, these restrictions took thirty minutes or more to be applied across the Interactive Brokers platform from the time that risk personnel introduced them.

[480] Interactive Brokers briefing with the Committee (Jun. 14, 2021).

[481] *Id.* The approximately $4.4 billion excess net capital figure is based on data from the firm's Financial and Operational Combined Uniform Single Report (FINRA FOCUS Report) filed on January 27, 2021, and which would have been referred to by the NSCC on January 28, 2021. Interactive Brokers' FINRA FOCUS Report for the period ending January 31, 2021 reflected excess net capital of approximately $3.8 billion.

[482] Interactive Brokers, FAQs*: Securities subject to Special Requirements, Interactive Brokers* (last accessed Sept. 17, 2021).

[483] *Id.*

E*TRADE Securities LLC (E*TRADE) also implemented risk management measures during the Meme Stock Market Event. E*TRADE increased margin requirements for various symbols, including GME and AMC, over the course of January 22, 2021, to January 29, 2021.[484] E*TRADE also prohibited customers from opening new short equity positions in AMC and GME stock after the market closed on January 27, 2021.[485] As a result of this prohibition, E*TRADE customers were unable to open new short equity positions, or increase existing short equity positions, in GME and AMC stock for the duration of January 28, 2021.[486] While E*TRADE also temporarily prohibited the purchase of GME and AMC stock during part of this period (other than to close an open short position), such restrictions were caused by a technology outage rather than concerns relating to the ability to fund the NSCC collateral deposit requirements or liquidity concerns generally.[487]

e. ***E*TRADE, Cash App Investing, TD Ameritrade, and other broker-dealers experienced IT system outages and other difficulties due to the volume of trading activity experienced during the Meme Stock Market Event.***

E*TRADE experienced a significant increase in order volume during the Meme Stock Market Event, driven by exceptionally high levels of retail customer interest in GME and AMC.[488] On January 27, 2021, E*TRADE customers made more than 2.6 million trades, representing a 77% increase from one week prior, when E*TRADE customers made 1.47 million trades on January 20, 2021. For context, E*TRADE had approximately 652,000 Daily Average Revenue Trades in the first quarter of 2020.[489] The unanticipated and rapid growth in order volume during this period overwhelmed one of E*TRADE's trading technology systems, limiting the overall number of customer orders that E*TRADE was able to process for a period of time.[490]

Specifically, after market close on January 27, 2021, E*TRADE discovered that their order routing system, Routex, had exhausted the allotted unique order sequence identification (Order ID) numbers that it assigns to orders Routex sends to market centers (for example, to stock exchanges or market makers) for execution.[491] The exhaustion of Order IDs led to two specific types of problems for affected customers: certain customer orders became suspended in Routex and were unable to be transmitted to the market for execution, while some other orders were assigned duplicate Order IDs before execution and were matched with the incorrect account,

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[484] Letter from counsel for E*TRADE to Chairwoman Waters and Chairman Green (Apr. 16, 2021).
[485] *Id.*
[486] E*TRADE briefing with the Committee (Mar. 24, 2021); Letter from counsel for E*TRADE to Chairwoman Waters and Chairman Green (Apr. 16, 2021).
[487] E*TRADE briefing with the Committee (Mar. 24, 2021); Letter from counsel for E*TRADE to Chairwoman Waters and Chairman Green (Apr. 16, 2021).
[488] E*TRADE briefing with the Committee (Feb. 10, 2021).
[489] Letter from counsel for E*TRADE to Chairwoman Waters (Apr. 16, 2021); SEC, Form 10-Q for E*TRADE Financial Corporation (May 06, 2020).
[490] E*TRADE briefing with the Committee (Feb. 10, 2021); Letter from counsel for E*TRADE to Chairwoman Waters (Apr. 16, 2021).
[491] Letter from counsel for E*TRADE to Chairwoman Waters (Apr. 16, 2021).

symbol, or quantity of shares.[492] E*TRADE began taking remedial measures to address both the suspended orders and the mismatched orders upon discovering these problems.[493]

Despite these efforts, E*TRADE technology personnel did not have sufficient time before market open on the following day, January 28, 2021, to implement a technology solution that would avert the possibility of the Routex Order ID issue occurring again.[494] Instead, E*TRADE personnel anticipated that order volumes might once again trigger an exhaustion of Order IDs and therefore monitored order volume throughout that day.[495] E*TRADE personnel were concerned that the issue could recur, and determined that the firm must reduce the volume of orders it received in order to protect the integrity of its trading platform.[496] E*TRADE personnel determined that this could be accomplished by restricting activity in GME and AMC, which were the two securities generating the largest volume of activity at E*TRADE during this time (and which collectively represented approximately 15% of E*TRADE's order volume on January 28, 2021).[497]

As a result, shortly before 3:00 p.m. EST on January 28, 2021, E*TRADE restricted customers from making new purchases of GME and AMC stock or opening options positions in them (the short sale of these stocks had already been restricted by this time).[498] These restrictions did not prevent customers from closing positions in either GME or AMC. Customers could continue to sell stock they owned or purchase stock to cover pre-existing short positions.[499] These restrictions sufficiently reduced total order volume such that the Routex Order IDs were not again exhausted on January 28, 2021.[500] E*TRADE technology personnel were able to implement a technology solution after market close on January 28, 2021, and these restrictions were lifted before the market opened on the morning of January 29, 2021. The technology outage did not recur.[501]

Other broker-dealers also experienced technology outages due to extreme market volatility during this period. For instance, TDA experienced functionality issues due to unprecedented trading volume on January 28, 2021.[502] Specifically, access to TDA's mobile application was in some cases unavailable for users.[503] TDA encouraged customers to use its website or other platforms in lieu of using the mobile application during this time.[504] Customers continued to be able to access their accounts and place trades on TDA's website and its "thinkorswim" web, mobile, and desktop platforms, which are other trading platforms available to TDA customers. None of these alternative platforms experienced significant functionality issues that would inhibit

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[492] *Id.* E*TRADE notified FINRA and the SEC of these issues on January 27, 2021.
[493] *Id.*
[494] *Id.* E*TRADE notified FINRA and the SEC of these issues on January 27, 2021.
[495] *Id.*
[496] *Id.*
[497] *Id.*
[498] *Id.*
[499] *Id.*
[500] *Id.*
[501] *Id.*
[502] Letter from counsel for Schwab/TDA to the Committee (Sept. 03, 2021).
[503] *Id.*
[504] TD Ameritrade (@TDameritrade), Twitter post (Jan. 27, 2021 10:14AM) (accessed Feb. 03, 2021).

customer trading during the relevant period.[505] Similarly, with respect to Robinhood, some customers were unable to access Robinhood's web application on the morning of January 27, 2021.[506] However, at the same time Robinhood customers were generally able to trade securities through Robinhood's iOS and Android apps.[507]

Cash App Investing LLC (Cash App Investing) is an indirect subsidiary of Block, Inc. (formerly Square Inc.), which is a publicly listed global technology company with a focus on financial services. Cash App Investing also experienced technical challenges relating to its stock trading platform on January 28, 2021. Cash App Investing experienced a disruption to its proprietary back-end system that facilitates trading activity for approximately one hour on the morning of January 28, 2021.[508] As a result of this issue, customers were unable to place orders for the duration of this disruption.[509] Separately, DriveWealth, which Cash App Investing outsources certain functions to and is responsible for arranging the clearing and processing of trades initiated through Cash App Investing, also experienced delays to its systems commencing at around 9 a.m. EST on January 28, 2021.[510] These issues led to delays and, in certain cases, cancellations of affected customer orders.[511] In addition, once the system delays at DriveWealth were resolved, there was an influx of traffic to Cash App Investing to process incoming requests.[512] The increased traffic also led to delays in the processing of customer purchase orders between approximately 10:17 a.m. EST and 12:49 p.m. EST.[513] Also, DriveWealth could not fulfill certain orders that were placed aftermarket hours on January 27, 2021 for execution after market open on January 28, 2021, and certain orders placed during market hours on January 28, 2021. Specifically, DriveWealth only executed orders for whole shares, but cancelled, or busted, certain fractional share orders due to being unable to process them.[514]

In addition to the internal delays and failure to process transactions experienced by DriveWealth, the company's staff observed downstream latency throughout the market while attempting to fulfill customer orders.[515] DriveWealth employees commented to the Committee that they had never seen the amount of orders that were initiated during this period and that they observed other firms suffering tech outages and having capacity issues.[516] In addition to broker-dealers, market makers, and other market participants working through technological constraints,

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[505] Letter from counsel for Schwab/TDA to Chairwoman Waters and Chairman Green (Sept. 03, 2021). Schwab also had functionality issues on January 25, 27 and 28, 2021 at market open due to the record volume that was traded by its customers. Schwab's information technology support teams introduced technical fixes that provided the processing power necessary to allow trading systems to perform normally even with volumes that might have been more than three or four multiples of previous peaks.
[506] Email from counsel for Robinhood to Committee staff (Sept. 03, 2021).
[507] *Id.*
[508] Email from Head of Federal Policy at Square to Committee staff (Aug. 19, 2021).
[509] *Id.*
[510] *Id.*
[511] *Id.*
[512] *Id.*
[513] *Id.*
[514] *Id.* Email from Head of Federal Policy at Square to Committee staff (Aug. 19, 2021).
[515] DriveWealth briefing with the Committee (Sept. 22, 2021).
[516] *Id.*

other elements of stock market infrastructure also became strained.[517] According to Drivewealth employees, the volatility had a waterfall effect whereby each company outside of their own firm that suffered a tech outage or slow-down put more pressure on other market participants to handle the volume of order flow.[518]

To execute a trade, there must be a buyer and a seller. While DriveWealth submitted customer orders for certain meme stocks, the firm struggled throughout the day to find customers willing to sell the stock.[519] For example, DriveWealth speculated that with the steep price increase of meme stocks, many customers were placing buy orders with the expectation of continued price appreciation but few customers were willing or able to place sell orders.[520] Thus, while the firm was able to submit buy orders, it experienced delays in receiving a confirmation back that a trade had been executed.[521] Such a delay-approximately 700 milliseconds or more in this instance-led DriveWealth to question whether it was achieving best execution on trades.[522] This in turn led DriveWealth to bust a number of trades that were outside of its risk control benchmarks.[523]

Key Finding #3: Most of the firms the Committee spoke to do not have explicit plans to change their policies for how they will meet their collateral requirements during extreme market volatility or adopt trading restrictions when market volatility may warrant their introduction.

Most of the firms the Committee spoke to do not have explicit plans to change their policies for how they will meet their collateral requirements during extreme market volatility or adopt trading restrictions when market volatility may warrant their introduction.

Several NSCC member firms Committee staff interviewed either did not model for, or otherwise explicitly plan for, Excess Capital Premium charges prior to the events of January 28, 2021. In the case of Robinhood, this gap in its collateral planning and liquidity management practices contributed to an inability to fund potential NSCC collateral deposit requirements during the Meme Stock Market Event, which froze retail

[517] For instance, the New York Stock Exchange's Trade Reporting Facility (TRF), a FINRA managed facility at the exchange that reports off-exchange trades to DTCC, did not properly process trade reporting on the afternoon of January 27, 2021. The TRF at the New York Stock Exchange was initially built to process 15 million trades but received approximately 19 million trades on January 27, 2021. Staff at the NYSE worked through the weekend to reprocess the trades and confirmed to Committee staff that all trades were properly reported to DTCC and the TRF has since been expanded to have a capacity of 60 million trades per day. New York Stock Exchange briefing with the Committee (Oct. 21, 2021).

[518] DriveWealth briefing with the Committee (Sept. 22, 2021).

[519] *Id.*

[520] *Id.*

[521] *Id.*

[522] *Id.*

[523] *Id.*

customers out of trading in certain securities. Committee staff has learned that there are significant inconsistencies in how individual NSCC member firms approach their collateral planning processes and there is an absence of precise regulatory requirements determining how individual firms should conduct collateral planning and related risk management. In certain cases, NSCC member firms appeared to be entirely unfamiliar with the particularities of the Excess Capital Premium charge regime and did not specifically address it in their collateral planning and liquidity management practices. The events of January and February 2021 demonstrate how concentrated trading activity in a handful of securities can disrupt the stock market and produce spikes in collateral requirements for individual firms.

In the case of Robinhood, the company confirmed to Committee staff that it relies on internal statistical models to guide its collateral planning. Prior to January 28, 2021, the company did not specifically model for, or otherwise calculate, Excess Capital Premium charges as part of this collateral planning process and, in this regard, Robinhood's Head of Data Science, who is not directly responsible for clearing operations but supports multiple teams at Robinhood and its affiliated companies, commented internally that Robinhood's collateral charges were a "black box" to him the day before Robinhood received its historical collateral charge.[524,525]

On January 28, 2021 the firm first accessed and utilized the NSCC's publicly available Excess Capital Premium charge.[526] On May 27, 2021 Robinhood began modeling what the Excess Capital Premium charge would be if Robinhood Securities exceeded 100% of its net capital.[527] Prior to January 28, 2021, firm officials viewed the likelihood of Excess Capital Premium charges being imposed as remote and emphasized that they had incurred such a charge on only one other occasion in the prior two years, which was during the March 2020 volatility that occurred during the onset of the COVID-19 pandemic.[528] The DTCC also waived the Excess Capital Premium charge Robinhood received in March 2020.[529]

The perceived remoteness of being required to pay an Excess Capital Premium charge may have contributed to Robinhood's inattention to the Excess Capital Premium charge from a collateral planning and liquidity management perspective. The potential application of the charge was not at all remote but quite foreseeable—as of December 31, 2020, Robinhood Securities only maintained excess net capital of approximately $486.8 million, which itself should have put the firm on notice that it was thinly capitalized for a highly volatile environment.[530]

Swartwout confirmed that after the events of January 28, 2021, when Robinhood was assessed the unanticipated charge, the company took remedial measures and sought to learn about

[524] Interview with J. Swartwout (Robinhood) (May 05, 2021).
[525] RH_HFSC_00029119 (on file with the Committee).
[526] Letter from counsel for Robinhood to Chairwoman Waters and Chairman Green (Dec. 15, 2021).
[527] *Id.*
[528] Interview with J. Swartwout (Robinhood) (May 05, 2021).
[529] *Id.*
[530] In contrast, after the occurrence of the meme stock market event and Robinhood's subsequent capital raising, Robinhood Securities maintained excess net capital of approximately $2.5 billion as of March 31, 2021. *See* SEC, Amendment No. 2 to Form S-1 for Robinhood Markets, Inc., at 161 (Jul. 27, 2021).

the Excess Capital Premium charge and how it is calculated.[531] The NSCC directed Robinhood officials to explanatory manuals that were already available to Robinhood on its member portal and that provide details on how Excess Capital Premium charges are calculated.[532] Upon reviewing these manuals, Robinhood built its own internal models to account for the level of Excess Capital Premium charges that the company might be assessed.[533]

Swartwout acknowledged to Committee staff that Robinhood Securities had not previously reviewed these manuals.[534] Robinhood's failure to incorporate the possibility of Excess Capital Premium charges into its planning processes prior to January 28, 2021, despite the firm's vulnerability to the imposition of additional charges because of relatively limited excess net capital at the time, led to its unpreparedness to meet its collateral deposit requirement on January 28, 2021. Due to this lack of visibility, no efforts were made to arrange for adequate funding ahead of time that would have enabled Robinhood to meet its initial approximately $3.7 billion collateral deposit requirement on January 28, 2021.

Although Apex employs internal Value-at-Risk calculations, Apex confirmed to Committee staff that the company does not employ its own statistical models to predict NSCC collateral requirements.[535] Instead, the company employs tools that the NSCC makes available through its web portal to each of its member firms.[536] The NSCC provides a Value-at-Risk calculator tool as well as a what is referred to as an "Account Details" tool that member firms are able to use to help determine the next day's NSCC collateral deposit requirement as well as a member firm's exposure to intraday margin calls.[537] Using these NSCC-provided tools, Apex reviewed historical NSCC collateral requirement data for up to the prior 12 months and applied a 2X multiple to predict and plan for its collateral requirements.[538] Therefore, it appears that Apex did not expressly focus on the precise level of an Excess Capital Premium charge that could be incurred prior to January 28, 2021, but was acting in accordance with general FINRA guidance on the topic. In Apex's case, while this gap in collateral planning was unrelated to the Excess Capital Premium charge that was exhibited in its 10 AM Slice (which, as detailed in this report, was caused by an operational requirement to manually verify a single trade), it is representative of an overall lack of industry-wide preparedness for Excess Capital Premium charges as part of routine collateral planning processes and also the insufficiency of the existing regulatory benchmarks for collateral planning.

Larger or older broker-dealers, such as Interactive Brokers and Charles Schwab, have taken a different approach to planning for the prospect of Excess Capital Premium charges. Interactive Brokers, for instance, confirmed to Committee staff that to date it has not been necessary for it to build a model or calculations specific to the formula for Excess Capital Premium charges as it is

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531 Interview with J. Swartwout (Robinhood) (May 05, 2021).
532 *Id.*
533 *Id.*
534 *Id.*
535 Letter from counsel for Apex Clearing Corporation to the Committee (Jul. 9, 2021).
536 *Id.*
537 *Id.*
538 *Id.*

outlined in NSCC rules.[539] According to Interactive Brokers officials, this is because the firm regularly maintains an amount of excess net capital that far exceeds an amount that would likely trigger the imposition of an Excess Capital Premium charge.[540] Interactive Brokers believes that it is appropriate instead for the firm to monitor its clearing fund requirements in the ordinary course of business and update its models and collateral planning procedures to specifically account for Excess Capital Premium charges only their clearing fund requirements approached the amount of excess net capital maintained by the company.[541]

Charles Schwab and TDA similarly do not model for Excess Capital Premium charges as part of their own planning processes as they regularly carry excess capital that far exceeds expected NSCC collateral deposit requirements and regulatory-required capital levels.[542] For example, on January 28, 2021, Charles Schwab had a total NSCC deposit requirement of approximately $1.1 billion and maintained excess net capital of approximately $3.1 billion.[543] TDA's NSCC deposit requirements on January 28, 2021 were approximately $1.75 billion and the firm maintained excess net capital of approximately $4.1 billion.[544] Thus, even on days that witnessed extreme market volatility, both firms maintained excess net capital far in excess of levels that would potentially trigger an Excess Capital Premium charge.

A risk management approach that does not require granular planning for Excess Capital Premium charges may be suitable for larger, more robustly capitalized firms that have easy access to public markets and other funding sources. However, it may be unsuitable for firms less able to maintain large excess net capital buffers and whose business practices and client base make them more likely to experience the kind of volatility that may lead to spikes in its NSCC collateral requirements.

The Committee's investigation has revealed little consistency across the industry in terms of how member firms anticipate, predict, and plan for NSCC collateral deposit requirements and, in particular, the prospect of Excess Capital Premium charges, even though existing FINRA guidance calls attention to the importance of firms having robust funding and liquidity management.[545] Generally speaking, firms across the industry have a limited understanding of how to calculate the precise level of Excess Capital Premium charges applicable to their firm. This likely has resulted in insufficient planning from a liquidity and funding perspective. Furthermore, neither the SEC, NSCC, or FINRA provides rules or other focused oversight to guide individual member firms' internal collateral planning processes.[546]

While these blind spots may prove benign for larger firms that are capitalized well enough to fund unexpected Excess Capital Premium charges, they present far more significant risks when

[539] Interactive Brokers call with Committee staff (Jul. 08, 2021).
[540] Interactive Brokers briefing with Committee staff (Jun. 14, 2021).
[541] *Id.*
[542] Email from counsel for Schwab/TDA to Committee staff (Aug. 05, 2021).
[543] *Id.*
[544] Email from counsel for Schwab/TDA to Committee staff (Aug. 05, 2021).
[545] FINRA, *Regulatory Notice 10-57* (Nov. 2010); FINRA, *Regulatory Notice 21-12* (Mar. 18, 2021).
[546] The Committee understands that this was a stated priority for FINRA and SEC examinations for 2021 and continues to be for 2022.

associated with firms that have more limited capital and liquidity buffers and whose business models are built on attracting a large number of clients and transactions. Such firms are particularly ill-prepared to fund the Excess Capital Premium charges that they are more likely to trigger due to the higher volatility risk profile of their customer base, as was the case with Robinhood on January 28, 2021. As a general matter, firms did not appear to have explicit plans in place to address collateral deposit requirements in volatile environments because they do not specifically plan for, nor do many firms understand on a granular level, how significantly Excess Capital Premium charges might impact such requirements.

Furthermore, Committee staff found no specific industry-wide practice regarding the establishment of written contingency plans to guide how individual broker-dealers will adopt trading restrictions when market volatility may warrant their introduction. Several clearing brokers Committee staff interviewed confirmed that the specific actions they took to limit the impact of volatility on their trading platforms during the height of the Meme Stock Market Event represented the best judgment of their operations professionals under exigent market circumstances. No such firm had in place a pre-established and written contingency plan or playbook to outline what specific trade restrictions they would adopt to ameliorate the impact of extreme market volatility and when specific measures might be triggered.[547]

The lack of pre-established, written, and publicly disclosed contingency plans that address the prospect of trading restrictions may exacerbate the risk of error by operations professionals when attempting to address market volatility in challenging and fast-paced circumstances. Rather than being forced to rely on their individual experience and discretion to make *ad hoc* decisions, operations professionals may benefit from the ability to consult a written contingency plan. In addition, the absence of such pre-established written contingency plans that can be publicly disclosed to the market, by definition, means that the market may struggle to establish with sufficient precision how trading restrictions may impact market activity during periods of volatility.

[547] Although several clearing brokers cited their customer agreements in support of their contractual right to actually impose the relevant trading restrictions, typically neither these customer agreements nor written supervisory procedures detail the range of measures that could be adopted to combat market volatility and what specifically might trigger the imposition of such restrictions.

Key Finding #4: The Depository Trust & Clearing Corporation (DTCC) waived $9.7 billion of collateral deposit requirements on January 28, 2021. The DTCC lacks detailed, written policies and procedures for waiver or modification of a "disincentive" charge it calculates for brokers that are deemed to be undercapitalized and has regularly waived such charges during periods of acute volatility in the two years before the Meme Stock Market Event.

On January 28, 2021, after consulting with several member-firms, senior risk professionals at the DTCC determined, based on their qualitative judgment of market risk that it was appropriate and prudent to waive the application of Excess Capital Premium charges across the board for all member firms. Such use of their discretion is permissible under NSCC rules.[548] In other words, waivers from the Excess Capital Premium charge were not granted to a single firm, or a handful of firms that had specifically requested it and warranted it due to their individual responses and countermeasures adopted, but rather the Excess Capital Premium charge component was removed from the daily collateral deposit requirement of any member firm that was assessed this charge on January 28, 2021.[549]

The Depository Trust & Clearing Corporation (DTCC) waived $9.7 billion of collateral deposit requirements on January 28, 2021. The DTCC lacks detailed, written policies and procedures for waiver or modification of a "disincentive" charge it calculates for brokers that are deemed to be undercapitalized and has regularly waived such charges during periods of acute volatility in the two years before the Meme Stock Market Event.

Six member firms were assessed an Excess Capital Premium charge that morning, aggregating approximately $9.7 billion. According to NSCC rules, each firm would have been required to pay these Excess Capital Premium charges as part of its daily clearing fund requirements by 10 a.m. EST.[550] Two of these six member firms, including Robinhood, had specifically requested to receive a modification of, waiver of, or other relief from, their overall margin charges from the NSCC on the morning of January 28, 2021.[551]

Furthermore, of the six member firms that received an Excess Capital Premium charge on the morning of January 28, 2021 the NSCC had previously subjected four of those member firms

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[548] DTCC briefing with the Committee on (Jun. 17, 2021); DTCC briefing with the Committee (Jul. 22, 2021).
[549] DTCC briefing with the Committee on (Jun. 17, 2021); DTCC briefing with the Committee (Jul. 22, 2021).
[550] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021). The six firms that received the Excess Capital Premium charge on January 28, 2021, were Robinhood Securities, LLC, Axos Clearing LLC, Instinet, LLC, Wedbush Securities Inc., LEK Securities Corporation and Vision Financial Markets LLC.
[551] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021).

to Enhanced Surveillance.[552] Enhanced Surveillance is an NSCC program that identifies member-firms which the NSCC has specific concerns about regarding liquidity and capitalization, operational concerns, or other matters.[553] Once placed on Enhanced Surveillance, member firms are subject to heightened monitoring and surveillance. Robinhood Securities was first placed on Enhanced Surveillance in March of 2020 and has continuously been subject to this status through the date that this report was submitted for publication.[554] Unfortunately, the NSCC's ongoing surveillance proved insufficient to identify potential liquidity constraints at certain firms, including Robinhood.

At the time of the events described in this report, becoming subject to Enhanced Surveillance triggered heightened review of the relevant member-firm by NSCC staff, which when prompted by concerns about financial health, are designed to ensure that such firms are adequately capitalized, have adequate liquidity, and otherwise address the concerns of NSCC staff.[555] It should also be noted that even when firms are placed on Enhanced Surveillance due to other factors, such as operational concerns, such firms would also be subject to greater review from a liquidity and capitalization perspective as part of carrying out Enhanced Surveillance.[556] In other words, greater scrutiny of a member firm's liquidity and capitalization is a routine element of Enhanced Surveillance irrespective of what triggers it.[557] Thus, the NSCC had pre-existing concerns with respect to four member firms that ultimately attracted Excess Capital Premium charges on January 28, 2021, which illustrates that those elements of Enhanced Surveillance review that focus on liquidity and capitalization may not be sufficiently robust.[558] Furthermore, NSCC member firms are not actually informed when they are placed on Enhanced Surveillance.[559] Not informing member firms that they are under Enhanced Surveillance may impede effective oversight of these members or at least misses an opportunity to convey the need to adopt remedial measures to such firms.

Senior NSCC officials explained to Committee staff that they believed an across-the-board waiver of Excess Capital Premium charges for January 28, 2021 was appropriate due to concerns that applying the charge in this instance could have caused systemic risk and therefore proven to be counterproductive.[560] NSCC officials confirmed that, had the Excess Capital Premium charges not been waived, several NSCC member firms could have simultaneously been unable to meet their collateral deposit requirements, which could have had knock on effects on the clearinghouse

[552] *Id.;* DTCC briefing with the Committee (Jun. 17, 2021).
[553] Email from General Counsel for DTCC to Committee staff (Aug. 03, 2021) DTCC briefing with the Committee (Jun. 17, 2021).
[554] DTCC briefing with the Committee (Jul. 22, 2021).
[555] DTCC briefing with the Committee (Jul. 16, 2021), DTCC briefing with the Committee (Sept. 10, 2021).
[556] DTCC briefing with the Committee (Sept. 10, 2021).
[557] *Id.*
[558] *Id.*
[559] *Id.*
[560] DTCC briefing with the Committee (Jul. 22, 2021).

if it was forced to cease clearing trades for such firms and liquidate their inventory.[561] NSCC risk managers believed an across the board waiver was an appropriate step to take because they are focused on the market as a whole and the ability of member firms to make margin calls over an extended period of time, rather than on a particular day.[562] Nevertheless, this resulted in a situation in which the NSCC was forced to waive the application of the Excess Capital Premium charge—designed to deter risk—at precisely a time when the need to disincentivize individual member firms from accumulating excessive risk in their trading books was most urgent.

After waiving the Excess Capital Premium charges for January 28, 2021, NSCC risk managers engaged in further review and analysis.[563] NSCC risk managers held conversations with specific member firms to determine what countermeasures the firms were adopting to address volatility in their trading books as well as to raise capital or otherwise access liquidity.[564] NSCC risk managers received additional information from member firms regarding the imposition of trade restrictions, capital raising plans, and other steps individual member firms believed would mitigate volatility in their trading books and drive down volatility-based collateral deposit requirements.[565]

The NSCC waived Excess Capital Premium charges for all member firms through close of business on Monday, February 1, 2021.[566] According to the DTCC, because the NSCC operates on a T+2 basis, the elevated, directional trading activity in meme stocks that occurred on January 27, 2021 and that NSCC expected to continue on January 28, 2021, which had generated the unusually high Excess Capital Premium charges for certain firms with significant exposures to meme stocks, would not settle until February 1, 2021.[567] For context, during the entire period between January 25, 2021 and February 2, 2021, the height of the Meme Stock Market Event, eight NSCC member firms in total were assessed Excess Capital Premium charges aggregating approximately $21.9 billion, and five of these firms were subject to Enhanced Surveillance by the NSCC.[568]

On the morning of January 28, 2021, Timothy Cuddihy, Managing Director of Financial Risk Management for the DTCC, determined that waiving the penalty charges would promote market stability by mitigating the risk that impacted firms could default due to the application of a non-core charge that was, in this case, caused by extraordinary market volatility. Cuddihy has the ultimate authority to authorize waivers of the Excess Capital Premium charges, and in theory he does not need to consult with anyone to authorize a waiver. On January 28, 2021, however, the

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561 *Id.*; DTCC briefing with the Committee (Jul. 06, 2021). It should be noted that in the event that a liquidation procedure of a member firm results in uncovered losses, the NSCC is able to mutualize losses amongst other member firms by calling for them to make contributions to fund such losses. This, in turn, may introduce systemic risk by straining the capital requirements of non-defaulting member firms.
562 DTCC briefing with the Committee (Jul. 06, 2021); DTCC briefing with the Committee (Jul. 22, 2021).
563 DTCC briefing with the Committee (Jul. 06, 2021).
564 *Id.*
565 *Id.*
566 DTCC briefing with the Committee (Jun. 17, 2021).
567 Email and attachment from General Counsel for DTCC to Committee staff (Jun. 20, 2022).
568 Email from General Counsel for DTCC to the Committee (Aug. 4, 2021); DTCC briefing with the Committee (Jul. 22, 2021).

recommendation to waive Excess Capital Premium charges originated with midlevel risk management professionals. Moreover, according to the DTCC, given the magnitude of the charges, the number of firms impacted, and the high level of market volatility, Cuddihy consulted with the DTCC's Group Chief Risk Officer, the Head of Clearing Agency Services, and the Management Risk Committee before ultimately issuing the waiver [569] Though many brokers restricted trading in meme stocks in an effort to reduce their collateral deposit requirements, Cuddihy informed the Committee that he first learned of Robinhood's trading restrictions in meme stocks by reading about them on Bloomberg.[570] Robinhood executives told the Committee that while the NSCC engaged them in conversation on January 28, 2021, the clearinghouse never explained the basis for the waiver of the Excess Capital Premium charge to them in detail.[571]

a. ***The NSCC regularly waives Excess Capital Premium charges on its member firms and, in particular, for certain member firms that tend to be repeat offenders in attracting this charge***

As part of the Committee's investigation, we reviewed historic trends associated with DTCC's waiver of Excess Capital Premium charges. From January 1, 2019 through February 12, 2021, 22 of the NSCC's 147 member firms had incurred one or more Excess Capital Premium charge.[572] In aggregate, Excess Capital Premium charges were incurred on 307 occasions in this timespan.[573] Approximately ninety percent (90%) of these charges were incurred by eight member firms (LEK Securities, Corporation, Instinet, LLC, Wedbush Securities, Inc., ITG, Inc., Vision Financial Markets, LLC, Velox Clearing, LLC, Axos Clearing, LLC, and Virtu Americas, LLC (277 of the 307 charges)) and approximately seventy-five percent (75%) were incurred by three member firms (LEK Securities, Instinet, LLC, and Wedbush Securities, Inc. (229 of the 307 charges)).[574] Of these 307 occasions when an Excess Capital Premium charge was incurred, the charge was ultimately applied without modification approximately seventy-eight percent (78%) of the time, was applied in a reduced amount approximately ten-percent (10%) of the time, and was not imposed at all in approximately twelve percent (12%) of the time.[575] The waiver or modification of Excess Capital Premium charges comes into play more often during periods of acute volatility; the higher the calculated Excess Capital Premium charges for a particular day, the more likely the NSCC is to waive it, as illustrated in the chart below.

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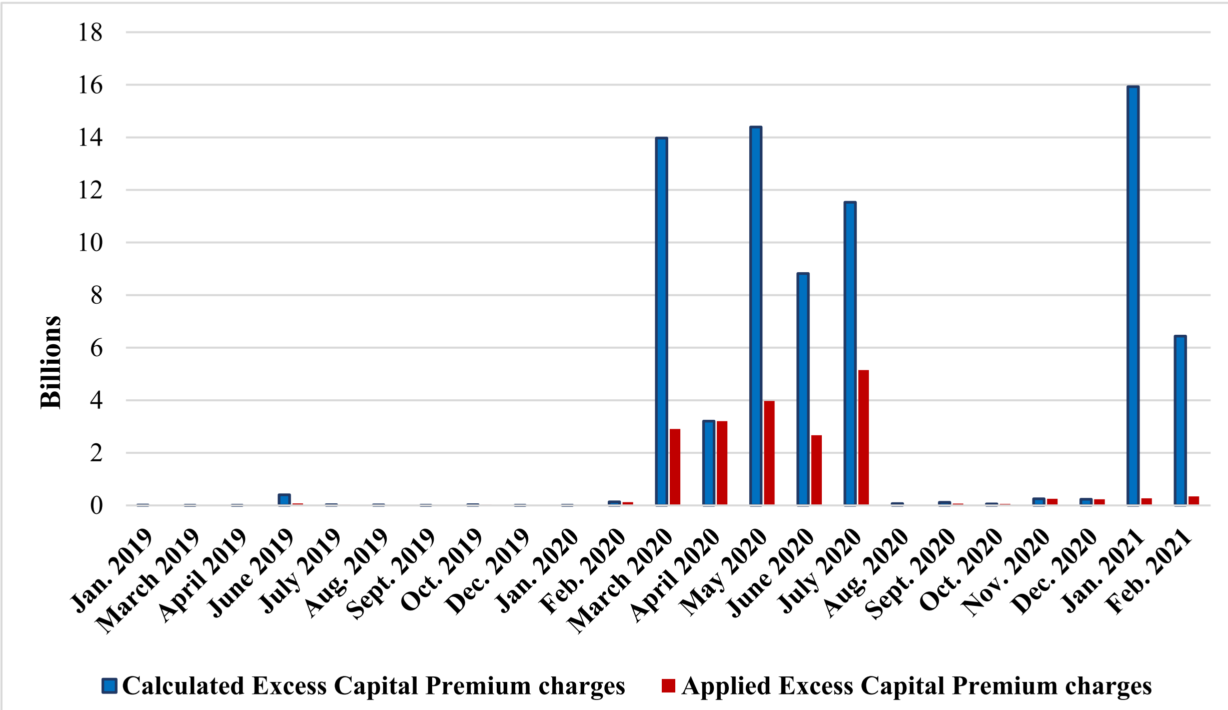
569 Email and attachment from General Counsel for DTCC to Committee staff (Jun. 20, 2022).
570 DTCC Briefing with the Committee (Jul. 22, 2021).
571 Interview with J. Swartwout (Robinhood) (May 05, 2021); Interview with J. Swartwout (Robinhood) (May 21, 2021); Interview with G. Howard (Robinhood) (Jun. 11, 2021).
572 DTCC, NSCC Equity Clearing & Settlement Overview: Presentation to House Staff, at slide 15 (Jun. 17, 2021); Email and produced attachment from General Counsel for DTCC to Committee staff (Aug. 03, 2021) (on file with the Committee).
573 Email and produced attachment from General Counsel for DTCC to Committee staff (Aug. 03, 2021) (on file with the Committee).
574 DTCC, NSCC Equity Clearing & Settlement Overview: Presentation to House Staff, at slide 5 (Jul. 22, 2021); Email and produced attachment from General Counsel for DTCC to Committee staff (Aug. 03, 2021) (on file with the Committee).
575 DTCC, NSCC Equity Clearing & Settlement Overview: Presentation to House Staff, at slide 15 (Jun. 17, 2021).

Excess Capital Premium Charges Calculated vs. Applied
(January 01, 2019 – February 12, 2021) [576]



Most of the occasions when the NSCC did not impose the Excess Capital Premium charge at all took place either during the market volatility events of March 2020, which were associated with the outbreak of the COVID-19 pandemic and the rollout of lockdowns and other social distancing restrictions across the United States and the world, or during the period from January 25, 2021 through February 1, 2021, which was the height of the Meme Stock Market Event. The NSCC's regular waiver of Excess Capital Premium charges disproportionately benefits clearing brokers that attract the largest aggregate Excess Capital Premium charges.

[576] Email and produced attachment from General Counsel for DTCC to Committee staff (Aug. 4, 2021) (on file with the Committee). This chart includes Excess Capital Premium charges calculated and / or assessed from January 8, 2019 through February 12, 2021 for all NSCC member firms. The considerable increase in Excess Capital Premium charges in March of 2020 and then again in January and February of 2021 were caused by volatility induced by the COVID-related lockdowns and meme stock volatility, respectively. Data excludes an Excess Capital Premium charge calculated on March 19, 2019, due to an internal data reporting error within the NSCC.

Table 1: Excess Capital Premium charges calculated vs applied (in $ billions)
January 1, 2019 – February 12, 2021[577]

Entity	ECP Calculated	ECP Applied	% Applied
Instinet, LLC [578]	$ 66.98	$ 17.05	25.46%
Robinhood Securities, LLC	$ 2.51	$ 0.02	0.92%
ITG, Inc.	$ 1.54	$ 0.28	18.30%
Axos Clearing, LLC	$ 1.08	$ 0.16	14.63%
Virtu Americas, LLC	$1.06	$0.21	19.44%

The eight member firms that incurred 90% of these Excess Capital Premium charges differ in their capacity to fund potential Excess Capital Premium charges, for instance through support from a parent company.[579] Regardless, given the profile of this subset of member firms, which includes both clearing brokers specialized in servicing rapidly growing fintech startups as well as those servicing larger institutional clients that can produce very large collateral deposit requirements, the apparent repeated failure of the Excess Capital Premium charge to deter such firms from accumulating excessive risk and its failure to encourage them to maintain adequate excess capital buffers, is concerning.

Of the 277 times these firms received an Excess Capital Premium charge during the period from January 1, 2019 to February 12, 2021, the Excess Capital Premium charge was either not applied or reduced 63 times.[580] In interviews with Committee staff, NSCC officials stated that at least one member firm made a business decision to engage in trading activities that will result in the application of the charge because they are either comfortable that the amount of the charge itself will be manageable or feel confident that it would likely be waived. For instance, consider Robinhood Financial President and Chief Operating Officer, David Dusseault's comment "we are to(o) big for (the NSCC) to actually shut us down."[581]

The Excess Capital Premium charge is meant to be easy to understand and simple to implement——a one-size-fits-all for all of NSCC member firms and the diverse business models

[577] This list represents the top five NSCC member firms with the highest aggregate calculated Excess Capital Premium charges from January 8, 2019 through February 12, 2021. It is worth noting that 3 of the 4 times an Excess Capital Premium charge was calculated for Robinhood was during the Meme Stock Market Event. Email and produced attachment from General Counsel for DTCC to Committee staff (Aug. 4, 2021).
[578] Instinet, LLC is a subsidiary of Nomura Holdings, one of the largest listed Japanese financial services conglomerates. In addition to acting as the independent equity trading arm of its parent group, it executes trades for asset management firms, hedge funds, insurance companies, mutual funds and pension funds.
[579] DTCC briefing with the Committee (Jun. 17, 2021);
[580] DTCC, NSCC Equity Clearing & Settlement Overview: Presentation to House Staff (Jun. 17, 2021).
[581] DTCC briefing with the Committee (Jul. 06, 2021); RH_HFSC_00007111 (on file with the Committee).

among them.[582] Nevertheless, the Meme Stock Market Event exposed a lack of understanding of the Excess Capital Premium charge regime and/or a failure to take it seriously by several NSCC member firms which, in turn, led to a failure to adequately prepare to fund such charges and to capitalize their businesses accordingly.

This represents a moral hazard that undermines the deterrent value of the Excess Capital Premium charge. Specifically, these firms may not be deterred from riskier trading practices because they are comfortable that the Excess Capital Premium charges that they incur may be modified or waived, particularly when the risk of default is greatest. As NSCC officials explained to Committee staff, part of the purpose of the Excess Capital Premium charge is to encourage member firms to maintain reasonable excess capital buffers.[583] In other words, by maintaining an excess capital buffer, individual firms will avoid the application of the Excess Capital Premium charge as a penalty.[584] The effectiveness of this policy and the positive result that it is designed to achieve could be undermined by what appears to be the regular, nearly predictable, waiver of Excess Capital Premium charges during periods of acute volatility in the two years before the Meme Stock Market Event. The existence of repeat offenders may act as a signal to other member firms to not take the Excess Capital Premium charge as seriously as they should. It is worth noting that the Committee reviewed Excess Capital Premium charges as calculated and assessed in a period that includes both the heightened volatility brought about by the onset of the COVID-19 pandemic and the acute volatility of the Meme Stock Market Event. While these events may not be representative of periods of lower market volatility prior to March 2020, many experts the Committee spoke with over the course of its investigation expected to see periods of acute volatility more regularly going forward.

[582] DTCC briefing with the Committee (Jul. 22, 2021).
[583] DTCC briefing with the Committee (Jul. 06, 2021).
[584] *Id.*

IV. POLICY RECOMMENDATIONS

The extraordinary growth in ordinary retail investor participation in the stock market will likely accelerate with the continued rise of mobile trading applications that gamify investing, offer fractional share trading, and other products designed to encourage the frequency of trading. Growth in ordinary retail investor participation in the market has the potential to increase opportunities for wealth creation if coupled with a robust framework of investor protection and high-quality information that prevents abuse and fraud. However, market institutions, regulations, and policy considerations must be designed with attention to the interests of ordinary retail investors at the forefront and must attempt to anticipate and plan for the potentially disruptive impacts of new technologies.

Industry participants and experts that the Committee spoke to, including witnesses appearing on behalf of the clearing brokers that are addressed in this report, expressed concerns about a trading environment that simultaneously invites increased retail investor participation coupled with the advent of social media driven trading activity. DTCC's Managing Director for Financial Risk Management, for instance, indicated that the Meme Stock Market Event represented a new kind of risk that regulators must be prepared for in the future.[585]

The DTCC and industry participants are making efforts to move to a T+1 settlement cycle from the current two day settlement cycle, which the DTCC estimates could reduce the volatility component of NSCC margin requirements by 41% and alleviate some of the issues described in this report related to the magnitude of collateral deposit requirements.[586] The SEC has now also endorsed this shift to T+1 settlement and has proposed a rule to shorten the settlement cycle.[587] Reducing the settlement time may help mitigate collateral requirements imposed by the clearinghouses, but given that the Meme Stock Market Event occurred after the NSCC shortened its settlement cycle from T+3 to T+2 in 2017,[588] merely shortening the settlement cycle without making other changes is not a panacea and does not address all of the problematic issues illuminated by the Meme Stock Market Event.

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[585] DTCC briefing with the Committee (Jul. 22, 2021).

[586] Members of Congress, consumer advocates, and regulators discussed the pros and cons of shortening DTCC's settlement cycle in all three hearings the Committee held on the meme stock market event, with most witnesses advocating a shorter settlement cycle. For additional detail, see Appendix II: Hearings and Legislation in Response to Meme Stock Market Event.
DTCC, *DTCC PROPOSES APPROACH TO SHORTENING U.S. SETTLEMENT CYCLE TO T+1 WITHIN 2 YEARS* (Feb. 24, 2021); DTCC, *Advancing Together: Leading the Industry to Accelerated Settlement* (Feb. 2021).

[587] SEC, *SEC Issues Proposal to Reduce Risks in Clearance and Settlement*, (Feb. 09, 2022). The SEC's proposal also includes rules that would require broker-dealers and registered investment advisors to shorten the process of confirming and affirming the trade information used to prepare a transaction for settlement such that the process can be completed by the end of the trade date. The proposed rule would also introduce new requirements related to "straight-through processing"—applicable to certain clearing agencies that provide central matching services—which assist the processing of institutional trades between broker-dealers and institutional customers.

[588] DTCC, *SIFMA, ICI AND DTCC LAY OUT PATH TO SHORTEN U.S. SECURITIES SETTLEMENT CYCLE TO T+1* (Dec. 01, 2021).

In addition, the Committee's investigation has revealed several potential areas for attention and reform to help ensure that the retail trading infrastructure operates smoothly in the face of a rapidly changing trading environment and that the supervision of retail oriented clearing brokers is updated to meet contemporary challenges. This report's policy recommendations are set forth below. While several of these policy recommendations can be implemented by the NSCC, FINRA, or the SEC directly under existing authority, Congress can also mandate many of these recommendations through legislation.

1. Understanding the Influx of Retail Traders

a. Congress should adopt legislation mandating key regulators, including the SEC and FINRA, to study how existing market rules and supervision will need to evolve to address new technological developments, including the possibility of social media driven market activity.

The Meme Stock Market Event highlights the need for current rules and market frameworks to modernize to address novel issues presented by new technology platforms and the emergence of coordinated market activity by investors using social media. The SEC will need to consider how to best proceed from an enforcement perspective to protect the market from potentially manipulative trading coordinated on social media platforms. In addition, the ability to remain anonymous on platforms such as Reddit while advocating for certain trading strategies may also provide an avenue to engage in manipulative conduct (for instance, sophisticated investors could potentially anonymously pose as retail traders and use their outsize financial resources to promote and advertise certain investments). Such anonymity may undermine the ability of market regulators to police manipulative and distortionary practices.

Additionally, the new generation of "superbroker" trading platforms provide near immediate access to customers to trade sophisticated and risky investment instruments like options and margin,[589] and encourage active trading that may be financially beneficial to the broker and economically damaging to the retail trader through various digital engagement "gamification" techniques. This business model can exacerbate volatility and stress the capital base of such firms. Finally, the rapid pace at which accounts can now be opened on various online trading platforms, which may be only a matter of seconds, also presents issues relating to the nature and adequacy of due diligence and know your client (KYC) procedures that such broker-dealers are conducting.

b. The SEC should consider ways to implement trading halts tailored to respond to concentrated volatility in a limited number of stocks.

Because market wide trading halts are more equitable than restrictions applied *ad hoc,* firm-by-firm, the SEC should consider ways to devise trading halts that specifically address prolonged, concentrated volatility in select stocks. This may reduce the need for individual broker-dealers to place restrictions on their customers. In instances when a particular stock has exhibited

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[589] FINRA, *Letter of Acceptance, Waiver, and Consent* (No. 202006971201) (Jun. 30, 2021).

repeated volatility in a single day (i.e., GameStop was halted 19 times on January 28, 2021) the SEC should consider different ways to structure incremental trading halts.[590] Perhaps after a stock has been halted several times, or several times within an hour, the stock can be halted for progressively longer periods of time. If the stock continues to exhibit abnormal volatility, the stock could potentially be halted for the duration of the trading day.

2. Enhancing Supervision of Retail Facing "Superbrokers"

c. Congress should adopt legislation requiring brokers that execute above a pre-determined threshold of customer orders to establish and maintain a connection to a public market.

The Meme Stock Market Event exposed certain fragilities in the stock market. On January 28, 2021, as Robinhood faced operational and liquidity concerns, the broker-dealer remained wholly reliant on its market makers to execute trades for its customers as the firm was not a member of or connected to a public market such as Nasdaq or the NYSE. Nearly all the market makers Robinhood routinely routed orders to were unable to execute trades on certain meme stocks. Had all these market makers been unable to execute trades, Robinhood would have been unable to execute trades on behalf of its customers. While Robinhood was connected to only six market makers for equities on January 28, 2021 (functionally providing only six sellers for equities), a connection to a public stock exchange would have connected the company to thousands of buyers and sellers from whom to source liquidity. Requiring broker-dealers above a certain size to obtain and maintain a connection to a public market would promote market resilience and bolster price discovery in the market.

d. Congress should adopt legislation subjecting broker-dealers that make markets and provide above a pre-determined threshold of liquidity to other broker-dealers to Regulation SCI.

Regulation SCI currently applies to self-regulatory organizations such as FINRA and the MSRB, as well as stock and options exchanges, clearing agencies, and others. The regulation requires institutions to maintain "written policies and procedures reasonably designed to ensure that their systems have levels of capacity, integrity, resiliency, availability, and security adequate to maintain their operational capability and promote the maintenance of fair and orderly markets."[591] During the acute volatility in late January 2021, certain market makers such as Virtu and Wolverine experienced severe operational strain and were unable to execute trades for wide swaths of securities. During this period, Wolverine had no written policies or procedures in place

[590] SEC briefing with the Committee (Jul. 14, 2021); SEC, Staff Report on Equity and Options Market Structure Conditions in Early 2021, Securities and Exchange Commission (Oct. 14, 2021); The New York Stock Exchange briefing with the Committee (Aug. 19, 2021).
[591] Commissioner Kara M. Stein, *Statement on Adoption of Rules to Increase the Operational Transparency of Alternative Trading Systems (ATS)* (July 18, 2018).

for determining when to restrict trading for volatile stocks. On the other hand, Citadel Securities became a vital location for broker-dealers to source liquidity in certain meme stocks as its competitors faced system outages and other operational concerns. Had Citadel Securities also faced a system outage during the height of the trading volatility, the impact on retail trading and the stock market would have been severe. Such a vital role in the market demands greater oversight, as would be provided by subjecting Citadel Securities and other market makers above a certain size to Regulation SCI. Additionally, market makers should be required to maintain thorough written policies and procedures to provide guidance on how to maneuver operational strain whether they qualify to be subject to Regulation SCI or not.

e. The SEC and FINRA should enhance large, retail facing broker-dealer examinations and mandate stress tests that focus on liquidity management, including to account for the prospect of social media driven market volatility.

The SEC and FINRA should consider augmenting the routine examination programs of broker-dealers to assess the adequacy of firm liquidity arrangements and liquidity management practices more regularly. While it is reviewed regularly by risk monitoring staff, this focus on liquidity management should be a more regular component of examinations, including in cases where risk monitoring does not indicate an examination. The SEC and FINRA should also consider rulemaking to mandate that broker-dealers conduct supplemental stress tests to test their preparedness for extreme market volatility, including testing their ability to pay Excess Capital Premium charges triggered by such volatility.

While it may not be possible to predict how precisely social media driven market volatility may play out in the future, the events of January and February of 2021 show how concentrated trading activity in a handful of securities can disrupt the stock market. Individual clearing brokers should expect, and be prepared for, future instances of such concentrated market activity. This prospect constituted another blind spot in the existing supervisory framework, largely because the events of January and February of 2021 were, at the time, unprecedented.

f. The SEC and FINRA should introduce a requirement for clearing brokers to establish written contingency plans to address extreme market volatility and fully disclose both the contingency plans and any trading restrictions to the market in real time. Such written contingency plans should be reviewed regularly by the SEC and FINRA.

As detailed in this report, the response by relevant clearing brokers to the extreme market volatility witnessed during the Meme Stock Market Event was often an *ad hoc* exercise in risk mitigation by operations professionals exercising their best judgment during exigent circumstances. Similarly, efforts by some firms to seek out additional capital and funding, including Robinhood and Apex, were also *ad hoc* and had the quality of an unplanned fire drill.

Several relevant clearing brokers did not have written contingency plans in place describing, or setting standards for, how risk managers should implement various risk mitigation measures, such as trading restrictions. They also did not have in place specific continency funding plans, other than the general availability of limited credit facilities, which in the case of the relevant firms proved insufficient. Clearing brokers that Committee staff spoke to, for instance, did not have in place detailed contingency equity fundraising plans which could have been activated in an emergency scenario.[592] As a result, it appears that there was a great deal of market confusion and uncertainty regarding both the nature of trading restrictions and the stability of certain broker-dealers, including speculation as to whether Robinhood was on the verge of insolvency.[593] In addition, retail investors exhibited a great deal of frustration with the lack of clarity around trading restrictions imposed by broker-dealers, trading halts implemented by an exchange or a regulator, and IT outages on January 28, 2021. [594]

The SEC and FINRA should study the possibility of introducing requirements for clearing brokers to adopt written contingency plans addressing how they will react to extreme market volatility. Such contingency plans could establish standards and expectations for when various trading restrictions, such as increased margin requirements, limitations on options trading or PCO restrictions, might be triggered. Such plans also could minimize the prospect of mistakes and facilitate speedy action. Such contingency plans could also require the establishment of emergency fundraising plans and protocols that could facilitate a more rapid capital raising process should that become necessary. Furthermore, prior public disclosure of such contingency plans to the market may help prevent speculation as to how relevant actors will react to extreme market volatility and may have a stabilizing and calming influence on market activity. Such written contingency plans should be reviewed regularly by the SEC and FINRA once introduced. The SEC and FINRA should study the viability of mandating the adoption of such written contingency plans by clearing brokers and the benefits of their public disclosure. In addition to prior public disclosure of such contingency plans, the SEC should also consider mandating real time information, perhaps through in-app notifications, regarding the cause of a trading restriction when implemented as this could provide valuable information to investors and support price discovery in the market.[595]

g. Congress should adopt legislation that directs FINRA to conduct more thorough supervision of the broker-dealer industry and the SEC should conduct more thorough oversight of FINRA's activities and any corrective actions FINRA may propose.

According to GAO's periodic reviews of the SEC's oversight of FINRA, the SEC does not have documented policies and procedures for tracking FINRA deficiencies or any corrective actions FINRA takes in response to the SEC's recommendations for improvements. FINRA is not under a requirement to implement corrective actions if no rule violation was identified by the SEC,

[592] Interview with J. Warnick (Robinhood) (Jun. 10, 2021); Interactive Brokers briefing with the Committee (May 25, 2021); Interview with Chief Compliance Officer (Apex Clearing Corporation) and Chief Corporate Development and Legal Officer (Peak 6 Investments), at 23-24 (Jun. 16, 2021).
[593] Andrew Ross Sorkin et al., *Why Robinhood Had to Risk Infuriating Its Customers* (Jan. 30, 2021); Robert Duff, *Odds Favor Robinhood Will Not Declare Bankruptcy in 2021* (Feb. 01, 2021); Mohit Oberoi, *Will Robinhood Survive, Go Bankrupt, or Eventually Be Acquired?* (Jan. 28, 2022).
[594] Andrew Ross Sorkin et al., *Why Robinhood Had to Risk Infuriating Its Customers* (Jan. 30, 2021).
[595] The New York Stock Exchange briefing with the Committee (Aug. 19, 2021).

and there is little federal law controlling how FINRA must carry out its obligations. Therefore, Congress should act and provide the statutory mandate that is currently lacking to specify how FINRA should carry out its obligations and authorize the SEC to direct corrective actions when it identifies problems with FINRA's examinations and other mandated activities. Until the enactment of such legislation, the SEC should follow GAO's recommendations to develop performance measures for its FINRA oversight, develop policies and procedures for tracking deficiencies and corrective actions, and develop procedures for identifying and communicating the significance of oversight findings.

FINRA has taken several actions to respond to both the volatility from the onset of COVID-19 and the Meme Stock Market event, which includes new and revised protocols and procedures including the adoption of a Supplemental Liquidity Schedule. However, the Committee's investigation also identified multiple areas in which FINRA could have additional rules to guide its oversight of broker-dealers. For instance, during the course of the investigation, Committee staff learned that the SEC and FINRA do not require firms to notify them of trading restrictions, to maintain written plans for emergency capital raisings or liquidity arrangements, or to conduct stress tests to specifically determine broker-dealers' ability to offer market access to customers during periods of peak volatility.[596] FINRA reviews capital and liquidity information from broker-dealers, but does not currently collect it on a contemporaneous basis unless a broker-dealer is experiencing significant financial or operational difficulty. The SEC recently approved enhancements to FINRA's liquidity reporting framework, and FINRA has discussed with the SEC additional improvements to Federal and SRO oversight of liquidity.[597]

h. When individual firms introduce trading restrictions, they should be required to notify the SEC and FINRA. Once introduced, FINRA should engage in enhanced monitoring to ensure that such trading restrictions are appropriate, tailored, and in place no longer than necessary.

The Committee's investigation reveals how individual broker-dealers impose trading restrictions according to their own risk management calculus with limited oversight and review of those decisions by applicable regulators. Upon inquiry, Committee staff were told that trading restrictions likely only would be policed in the context of a possible nexus to market manipulation and that individual broker-dealers have business incentives to be cautious about the introduction of trading restrictions, specifically because the introduction of trading restrictions tends to alienate customers.[598] Firms should be required to notify the SEC and FINRA prior to the adoption of trading restrictions. In addition, FINRA should engage in enhanced monitoring and review of trading restrictions, when they are adopted by individual broker-dealers, to ensure that they are as narrowly tailored as possible. Such oversight is important to ensure that broker-dealers do not abuse their discretionary authority to impose trading restrictions, whether intentionally to protect

[596] FINRA briefing with the Committee (Jul. 09, 2021); FINRA briefing with the Committee (Aug. 05, 2021).
[597] FINRA briefing with the Committee (Aug. 05, 2021).
[598] FINRA briefing with the Committee (Jul. 09, 2021).

their own interests over those of their customers, or even unintentionally, for instance due to insufficient attention or poor decision-making.

FINRA and the SEC should consider the adoption of rules and supervisory practices accordingly. In addition, such a notification requirement would provide relevant regulators at the SEC and FINRA with important information that would support a more holistic view of how the market is responding to acute volatility in real time.

Perhaps at some point in the future, trading restrictions at broker-dealers could generate an automated notice to FINRA and the SEC as restrictions are being implemented. Such real-time, market wide information could provide regulators greater visibility and transparency into the market during periods of acute volatility.

3. Strengthening Capital and Liquidity Requirements and Oversight

i. The SEC should introduce enhanced capitalization requirements for clearing brokers.

The SEC and FINRA should consult with each other to develop enhanced capitalization requirements (in addition to Rule 15c3-1 under the Securities Exchange Act (the "Uniform Net Capital Rule") to provide clearing brokers that support retail trading activity with an additional monetary buffer to navigate market volatility without the need to resort to remedial measures such as the adoption of trading restrictions, which could negatively impact ordinary retail investors. Because FINRA more frequently interacts with broker-dealers, enforcing both SEC and FINRA regulations, by expanding upon the SEC's existing capital and liquidity requirements, the SEC could further empower FINRA to oversee the securities industry more comprehensively by expanding FINRA's authority to issue binding guidance.

j. The SEC should introduce a liquidity rule for clearing brokers and FINRA should establish a rules-based framework governing liquidity planning for clearing brokers.

The SEC should devise a liquidity rule that either updates or complements its net capital rule and capitalization requirements. FINRA, working with the SEC, should introduce a complementary rules-based framework establishing liquidity management requirements. In combination, a liquidity rule and the creation of specific rules governing how firms should manage their liquidity planning to satisfy the liquidity rule, could better stabilize and strengthen clearing brokers, and better equip them to handle market volatility in a manner that does not unfairly prejudice ordinary retail investors.

At present, collateral planning and liquidity management practices vary widely from firm to firm and are significantly self-regulated. While FINRA periodically issues non-binding guidance on adequate liquidity planning and may choose to inspect elements of a firm's collateral planning process in its examinations, there is an absence of specific rules focused on collateral planning and liquidity management practices by clearing brokers.[599] FINRA cannot establish a liquidity deficiency in an examination outside of mandating compliance with the SEC's Net Capital Rule. Therefore, abiding by FINRA's liquidity guidance is effectively voluntary. The introduction of detailed and prescriptive rules around collateral planning and liquidity management practices by the SEC or FINRA would provide FINRA with a more detailed framework that could be policed and enforced as part of FINRA's supervision of clearing brokers to ensure that they are adequately prepared to fund collateral deposit requirements on an ongoing basis.

FINRA, the NSCC, and the SEC should jointly study the prospect of establishing more detailed rules specifically focused on the collateral planning and liquidity management practices of clearing brokers. Such rules should involve the conduct of regular reviews to ensure that individual clearing brokers understand the components of their potential collateral requirements, are tracking their likely magnitude through the use of appropriate analytical tools tailored to capture the risks inherent in their respective business models, have a sufficient number of specialist personnel managing liquidity planning, and have in place adequate contingency sources of funding to meet prospective funding requirements.

k. The DTCC and its subsidiary, the NSCC, should revisit how it conducts surveillance of member firms that may pose greater risk, and FINRA should focus more systematically on assessing the sufficiency of liquidity planning by clearing brokers.

The NSCC has proposed various changes to its Watch List and Enhanced Surveillance List, such as combining the two into a single list.[600] In addition to simplifying such categorizations, the NSCC should substantively modify its member surveillance practices to further emphasize liquidity and capitalization related reviews. Liquidity and capitalization requirements could also be made part of NSCC's membership requirements.

A more robust process for evaluating the liquidity and capital position of firms that continually present heightened risk may help preempt future market events like the Meme Stock Market Event from occurring. The NSCC should also inform member firms when it is on the Watch List and provide them with concrete recommendations and timelines to implement them. In addition, FINRA should also focus more systematically on liquidity planning in its various examinations of clearing brokers. When certain liquidity related issues or observations are raised in a FINRA examination, they should be followed up on consistently in subsequent examinations to ensure that any such issues have been adequately addressed.

l. The DTCC, its subsidiary the NSCC, the SEC, and Congress should introduce an emergency backstop funding facility for NSCC member firms that provide emergency liquidity to the NSCC.

[599] FINRA briefing with the Committee (Aug. 05, 2021).
[600] DTCC briefing with the Committee (Jan. 21, 2020).

The NSCC, alongside the SEC, should study the prospect of establishing an emergency backstop funding facility that can be drawn upon by member firms who are unable to meet collateral deposit requirements by the relevant deadline. Such a facility can be structured to be expensive and punitive to use with financing costs serving as a form of fine or penalty for member firms. This lender of last resort solution would avoid the risk of trading restrictions or the cessation of trading operations by member firms that struggle with the deadline and would therefore avoid the need to rely on the loss absorption waterfall embedded in the NSCC rules as it would avoid losses being triggered.[601] Penalties could also be imposed on firms that draw on such a facility after the fact. A variety of options can also be considered to fund such a backstop facility, including periodic contributions from NSCC member firms and third-party credit providers.

m. The DTCC and its subsidiary, the NSCC, should introduce clear written policies and procedures and establish transparency around the circumstances under which an Excess Capital Premium charge may be waived; such decisions should be subject to review by the SEC.

DTCC officials conveyed to Committee staff that they use a balancing test when determining whether to waive Excess Capital Premium charges.[602] Specifically, they weigh whether the charge will serve its intended purposes to disincentivize risk taking in the market against the possibility that applying the charge may be counterproductive and introduce risk if a member firm is unable to fund the Excess Capital Premium charge.[603]

At present, however, there appears to be a limited concrete framework prescribing when a waiver from an Excess Capital Premium charge is appropriate.[604] It may be necessary to occasionally Excess Capital Premium charges, but discretion unfettered by precise standards, policies, and procedures creates opacity with respect to the charge and may contribute to undermining it by enhancing the likelihood of speculation or miscalculation by clearing brokers as to its application. Creating more clarity on when the charge may be waived will help clearing brokers plan accordingly and may limit overreliance on the broad discretionary waiver authority of the DTCC Risk Committee. This could promote better capital and liquidity planning by member

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[601] Because the NSCC is designated as a Systemically Important Financial Market Utility (SIFMU) under Dodd-Frank, the Financial Stability Oversight Council (FSOC) should study the potential systemic risk of the NSCC's regular waiver of collateral charges during periods of acute volatility.
[602] DTCC briefing with the Committee (Jul. 22, 2021).
[603] DTCC briefing with the Committee (Jul. 22, 2021).
[604] NSCC, NSCC Rules and Procedures - Procedure XV I(B)(2) (Jan. 01, 2021). Footnote 7 to Section I.(B)(2) of Procedure XV (Clearing Fund Formula and Other Matters) of NSCC Rules specifies the circumstances in which NSCC may exercise discretion to waive an ECP charge. The text of the footnote is reproduced in its entirety as follows:
"The Corporation [i.e., the National Securities Clearing Corporation] has identified the following guidelines or circumstances, which are intended to be illustrative, but not limited, where the premium will not be imposed: (a) where the premium results from charges applied with respect to municipal securities trades settling in CNS, where the member has offsetting compared trades settling on a trade-for-trade basis through DTC; and (b) management will look to see whether the premium results from an unusual or non-recurring circumstance where management believes it would not be appropriate to assess the premium. Examples of such circumstances are a member's late submission of trade data for comparison or trade recording that would otherwise reduce the margined position if timely submitted, or an unexpected haircut or capital charge that does not fundamentally change its risk profile."

firms of the clearinghouse who may view the prospect of having to fund an Excess Capital Premium charge more seriously. In addition, for prudential reasons, it may be appropriate to require that waivers be subject to review by select senior DTCC officials prior to being granted. The DTCC, in conjunction with its regulator, the SEC, should consider the adoption of a more detailed framework establishing specific criteria for when a waiver from an Excess Capital Premium charge will be entertained, such that this can be communicated to member firms, and they can be educated accordingly.

Another possibility is for the DTCC to consider introducing a system in which firms that incur an Excess Capital Premium charge are required to always maintain an additional capital reserve. This would serve the dual purpose of penalizing the offending member firm and disincentivizing it from accumulating excessive risk in its trading book in the first place. This system also would bolster the stability of such firms to help them withstand market volatility.

APPENDIX I: GLOSSARY

Broker-dealers: Broker-dealers are firms that engage in trading securities on behalf of clients and may also trade for themselves. Some broker-dealers act only as an introducing broker and contract with a third-party clearing broker to provide clearing services. (*See* "Introducing Broker" and "Clearing Broker" *below)*.

Clearing Brokers: Clearing brokers are entities that are responsible for executing and processing trades, which includes handling buy and sell orders and maintaining custody of investor securities and assets. They are also member firms of clearinghouses.

Clearing fund requirements (also known as "margin requirements" and "collateral deposit requirements"): Clearing fund requirements are the daily amount of funds, also known as margin, that are required to be maintained by member firms with the DTCC as collateral to limit the clearinghouse's exposure to a potential default of that member. Clearing fund requirements consist of various components, which include the calculated Value-at-Risk (*See* "Value-at-Risk charge"), mark-to-market charges, certain charges designed to capture risks of variations in a member firm's unsettled portfolio which rely on historical information, and Excess Capital Premium charges, if applicable.

Clearinghouse: A clearinghouse acts as a central counterparty in the execution of trades and protects buyers and sellers from risk in the case that one entity does not successfully deliver cash or securities in connection with such trade. The DTCC and its subsidiaries are clearinghouses. (*See* "DTCC" *below).*

Depository Trust and Clearing Corporation (DTCC): The DTCC is a financial services company that processes, clears, and settles securities transactions. It exchanges securities on behalf of buyers and sellers and acts as securities depository by holding custody of the relevant securities. Its subsidiary, the **National Securities Clearing Corporation (NSCC)**, provides clearing, settlement, risk management, and information services for equity securities.

Excess Capital Premium charge (ECP): The Excess Capital Premium charge is imposed on an NSCC member firm when the member firm's "core" margin requirement exceeds its excess net capital as specified in SEC Rules. If imposed, it is a component of member firms' overall collateral deposit requirement, and the charge is calculated based on DTCC and NSCC rules.

Excess Capital Ratio: The ratio of a broker-dealer firm's "core" margin requirement to its excess net capital.

Excess Net Capital: The amount by which a firm's available capital exceeds its regulatory net capital as specified in SEC rules.

Introducing Brokers: Brokers that interface with individual clients and assist them in opening accounts but do not maintain custody of funds and securities belonging to customers. Introducing brokers instead rely on third parties for back-end operations and the execution of trades (*i.e.,* Webull is an example of a broker that acts as only an introducing broker and, in its case, relies on a contractual arrangement with Apex to clear and process trades initiated by Webull's customers on its platform).

Lit Exchange: A "lit" exchange or a lit pool is a public stock exchange where the amount of liquidity posted for bids and offers for securities are openly displayed to all traders. Examples of lit exchanges include the New York Stock Exchange and Nasdaq. Lit exchanges are the opposite of "dark" pools in which prices are not displayed to all market participants.

Market Makers: Market makers are brokers that quote buy and sell prices of securities for itself and other market participants. They 'make the market' by infusing liquidity into the market by ensuring trades can be bought and sold. Market makers also provide investors with the ability to trade securities with immediacy and transparency.

Meme stocks: Meme stocks are stocks that experience increased trading volume activity by retail investors because of heightened social media discourse (*i.e.,* on Reddit, Twitter, and TikTok) surrounding the stock. Examples of meme stocks from the Meme Stock Market Event include GameStop (GME), AMC Entertainment Holdings Inc. (AMC), and Naked Brand Group Ltd. (NAKD).

Meme Stock Market Event: The volatility experienced in the pricing and trading of meme stocks during January and February of 2021 and the related actions taken by various broker-dealers.

Payment for Order Flow (PFOF): Payment for Order Flow is the payment a broker-dealer receives for directing orders to a market maker for trade execution. The broker-dealer receives payment in the form of a PFOF rebate, usually fractions of a penny per share, as compensation for routing orders to market makers.

Uniform Net Capital Rule or **Net Capital Rule:** SEC Rule 15c3-1; This rule allows the SEC to directly regulate the ability of broker-dealers to meet their financial obligations to customers and other creditors by requiring them to maintain a minimum net capital based on the requirements set out in the rule.

Short selling: To "short" a stock, an investor borrows shares of a stock or asset that they believe will decrease in value. The investor then sells these borrowed shares to buyers willing to pay the market price. Before the investor returns the borrowed shares to the lender, the trader is betting that the price will drop and so they can purchase the shares at a lower cost.

Short squeeze: A short squeeze occurs when the market price of shorted stock rises above the price at which the stock was borrowed, forcing short sellers to purchase the stock at a higher price. This creates a self-reinforcing upward pressure on the price of the stock, which then causes increasingly higher losses for the entity that had shorted the stock initially.

Slices: Regular, periodic information the NSCC communicates to each of its member firms throughout the day outlining the total potential deposit requirement applicable to that member firm, broken down by each of its components. Slices are sent to the firms intraday.

Superbroker: As used in this report, the term "superbroker" refers to a new generation of retail-facing self-directed broker-dealers that are incentivized to push their customers to make as many trades as possible through digital engagement features that include "game-like features and celebratory animations," lenient extension of margin trading to their customers, increased access to fractional shares, and related practices.

Value-at-Risk (Value-at-Risk or VaR) Charge: The Value-at-Risk charge is an NSCC requirement that is based on a complex formula which measures the volatility and risk within each clearing broker's daily book of business and on the broker-dealers previous day's activity. It is used to mitigate the NSCC's risk of exposure to a member firm's portfolio. These risks are laid out in Procedure XV of the NSCC's Rules and Procedures.

<u>APPENDIX II:</u> HEARINGS AND LEGISLATION IN RESPONSE TO MEME STOCK MARKET EVENT

1. Introduction

In early 2021, the Financial Services Committee convened a series of three hearings to explore the increased trading activity in "meme stocks" that generated significant market volatility in January 2021, which ultimately led several introducing brokers to restrict trading for customers (Meme Stock Market Event). Meme stocks are stocks that generate immense investor interest due to activity on social media and online forums, and not necessarily on analysis of a company's fundamentals.[605] The U.S. House Committee on Financial Services (Committee) convened the hearings to establish the facts about the events that occurred and to evaluate whether existing regulatory measures are sufficient to promote integrity and uphold fairness, transparency, and accountability within our capital markets. These hearings are part of the Committee's efforts to ensure that the regulatory architecture of U.S. capital markets is designed to provide a level playing field for ordinary retail customers and does not provide undue advantages to sophisticated market participants, including hedge funds, and financial intermediaries.

2. Hearing Series Overview

a. Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part I

On February 18, 2021, the Committee received testimony from representatives of institutions involved in the Meme Stock Market Event.[606] The witnesses were:

- **Mr. Vlad Tenev**, CEO and Co-Founder; Robinhood Markets, Inc.;
- **Mr. Kenneth Griffin**, CEO, Citadel;
- **Mr. Gabriel Plotkin**, CEO, Melvin Capital;
- **Mr. Steve Huffman**, CEO and Co-Founder, Reddit;
- **Mr. Keith Gill**, retail investor a.k.a. "roaringkitty"; and
- **Ms. Jennifer Schulp**, Director of Financial Regulation Studies, Cato Institute.

In her opening statement, Chairwoman Waters stated that the market frenzy leading up to the Meme Stock Market Event "illuminated potential conflicts of interest and the predatory ways that certain funds operate" while also demonstrating "the enormous potential power of social media."[607] During the hearing, lawmakers focused on the trading restrictions Robinhood placed

[605] Nasdaq, *Ride the Renewed Meme Stock Wave With This New ETF* (Jun. 2, 2021).
[606] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[607] *Id.*

on certain meme stocks, including placing several equities in "position closing only" (PCO) in which investors could liquidate their stock but not open new positions.[608] Mr. Tenev explained that Robinhood Securities established restrictions so that the company could meet increased collateral deposit requirements issued by the National Security Clearing Corporation (NSCC) in response to increased risk in Robinhood's cleared portfolio as a result of concentrated activity in meme stocks.[609] Melvin Capital CEO Gabriel Plotkin testified that because of the "unprecedented" events, the company closed its positions on GameStop and other meme stocks and that the company and its investors "suffered significant losses."[610] Chairwoman Waters confirmed with Citadel Securities CEO Kenneth Griffin that the market maker executed above 40% of the country's retail trade, and expressed concerns about Citadel Securities' business model.[611] Citadel Securities makes use of dark pools and other off-exchange trading and has access to key non-public information such as the direction of trade volume at counterparty broker-dealers.[612]

b. Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II

On March 17, 2021, the Committee convened a second hearing focused on market structure issues that may have contributed to the volatile trading environment leading up to the Meme Stock Market Event such as payment for order flow (PFOF, the practice by which a broker-dealer routes a customer order to a market maker and in return the market maker pays the broker-dealer a fee or offers a rebate for that order and as such the broker-dealer profits from selling its users' order), the systemic risks posed by market makers, and the duration of the trade settlement cycle.[613] Chairwoman Waters called for capital market experts to provide their perspectives. The witnesses were:

- **Mr. Sal Arnuk**, Partner, Themis Trading LLC;
- **Mr. Michael Blaugrund**, COO, New York Stock Exchange;
- **Dr. Vicki Bogan**, Professor, Cornell University;
- **Ms. Alexis Goldstein**, Senior Policy Analyst, Americans for Financial Reform;
- **Mr. Dennis Kelleher**, President and CEO, Better Markets;
- **Mr. Alan Grujic**, CEO, All of Us Financial; and
- **Mr. Michael Piwowar**, Executive Director, Milken Institute.

[608] *Id.*
[609] *Id.*
[610] *Id.*
[611] *Id.*
[612] *Id.*
[613] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).

In her opening statement, Chairwoman Maxine Waters stated she had convened the hearing to hear perspectives from capital markets experts and investor advocates.[614] The Meme Stock Market Event had "cast a spotlight on gaps in regulation of our capital markets," and Part II of the hearing series would provide an opportunity to "assess what legislative steps may be necessary."[615] Ms. Alexis Goldstein, Mr. Sal Arnuk, and Mr. Dennis Kelleher argued that PFOF should be prohibited or changed.[616] Witnesses also expressed concerns regarding the systemic risk posed by Citadel Securities' market maker subsidiary, which executes over 40% of retail trading for U.S. listed equities.[617] Mr. Kelleher testified that Citadel Securities and other major market makers do not have sufficient transparency, regulation, oversight, and accountability.[618] Ms. Goldstein testified that Robinhood's decision to halt trading was arbitrary and harmed investor confidence.[619] Mr. Arnuk highlighted the advantages that institutional investors and accredited investors enjoy at the expense of retail investors and those who save for retirement.[620]

c. Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III

On May 06, 2021, the Committee held a third hearing analyzing the regulatory response to the Meme Stock Market Event.[621] The witnesses were:

- **The Honorable Gary Gensler**, Chairman, U.S. Securities and Exchange Commission (SEC);
- **Mr. Michael Bodson**, President and Chief Executive Officer, the Depository Trust & Clearing Corporation (DTCC); and
- **Mr. Robert Cook**, President and Chief Executive Officer, Financial Industry Regulatory Authority, Inc. (FINRA)

In her opening statement, Chairwoman Maxine Waters emphasized that, "it is critical for our cops on the block at the SEC to protect investors and ensure that our markets are transparent and fair."[622] Regulatory leaders shared their evaluations of how existing standards protect consumers in a market undergoing rapid change in the face of new technologies such as stock trading platforms that feature gamification, the application of typical elements of game playing such as animations, point scoring, leaderboards, and a free random stock upon signup.[623] SEC Chairman Gary Gensler argued that while new user technology has "expanded access to capital" and made it "easier for [an] investor to sign up, start trading, and learn about investing," the SEC

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[614] *Id.*
[615] *Id.*
[616] *Id.*
[617] *Id.*
[618] *Id.*
[619] *Id.*
[620] *Id.*
[621] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
[622] *Id.*
[623] Sarah E. Aberg and Shane J. Killeen, *Game On: FINRA Hints at Upcoming Gamification Sweep,* The National Law Review (Jun. 1, 2021).

would continue to consider aspects of new technology applied to retail trading like “[gamification], behavioral prompts, and predictive data analytics.”[624] FINRA CEO Robert Cook testified that after the Meme Stock Market Event, FINRA established an internal working group that would devote “significant resources to investigating whether it’s broker-dealers members comply with SEC and FINRA Rules.”[625] DTCC CEO Mr. Michael Bodson also provided insight into the settlement clearing process and the clearinghouse’s ongoing efforts to implement a reduced duration of settlement clearing.[626]

3. Key Issues

The hearings brought attention to several significant factors at play during the Meme Stock Market Event.

a. Gamification

Lawmakers expressed concerns regarding Robinhood’s gamification of stock trading through the design of its app and the company’s lack of retail investor protections. Representative Cynthia Axne (D-IA) discussed the negative behavioral implications of the Robinhood app’s design, arguing that features like virtual confetti celebrating an investor’s trade or constant push notifications encouraged “more frequent trading” and did not help “people build equity through smarter investing.”[627]

Representatives Emanuel Cleaver (D-MO), Sean Casten (D-ILL), Ritchie Torres (D-NY) and James Himes (D-CT) cited the passing of Robinhood retail investor Alex Kearns as a tragic example of the consequences of inadequate consumer protection and regulations over trading processes.[628] Mr. Kearns had taken his own life after three unsuccessful attempts to contact Robinhood’s customer service and believing that he had a negative balance of $730,165 on his account.[629] Ms. Alexis Goldstein from Americans for Financial Reform also questioned “the way that Robinhood may be enticing people who may not have the needed expertise to trade.”[630] Mr. Keith Gill testified that, from his perspective as an investor, “increased transparency could help” in understanding the market and would be “beneficial to retail investors.”[631]

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[624] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
[625] *Id.*
[626] *Id.*
[627] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[628] *Id.*
[629] Maggie Fitzgerald, *Robinhood sued by family of 20-year-old trader who killed himself after believing he racked up huge losses*, CNBC (Feb. 08, 2021).
[630] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).
[631] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).

At the March 17, 2021 hearing, Dr. Vicki Borgen shared that trading app's interface and design "influence the type of decision that a retail investor makes almost on an unconscious level" and could elicit "particular behaviors [that are] not beneficial for retail investors."[632] At the May 6, 2021 hearing, SEC Chair Gensler testified that the SEC would continue to review the effects of gamification on retail investors, stating some broker-dealers, like buildings in "Las Vegas and Atlantic City… [are] using psychological prompts and behavioral prompts to get investors to trade more."[633]

b. Payment for Order Flow

At the February 18, 2021 hearing, members of Congress questioned Robinhood's revenue model, particularly the share of revenue the company derives from PFOF. Representative Axne stated that this arrangement resulted in retail investors serving as Robinhood's "product," which was sold to its "customer," Citadel Securities and other market making firms that could result in a hidden cost to customers if it resulted in higher charges than what could be obtained from other market makers.[634] Representatives Brad Sherman (D-CA), Torres, and Alexandra Ocasio-Cortez (D-N.Y.) highlighted that PFOF established a "hidden cost to investors" which could potentially conflict with broker-dealers' duty to its customers of best trade execution.[635]

At the March 17, 2021 hearing, Mr. Sal Arnuk, a partner at Themis, LLP, argued that PFOF "distorts order routing" because it does not account for odd lot orders that retail investors using apps like Robinhood primarily trade.[636] He also stated that due to PFOF arrangements, Robinhood "abandoned its … education and its suitability requirements … because it has this massive incentive to do so."[637] Mr. Kelleher stated that the app's "primary function is not to get people to invest, it's to get people to trade" and suggested that the SEC should declare that PFOF "violates or facilitates the violation of the best execution duty."[638] Since retail investors compete with institutions that have maximal resources at their disposal, Mr. Kelleher also remarked that retail investors "lose consistently … because they're paying more for every single one of their orders."[639] Alternatively, Ms. Goldstein pointed out that broker-dealers could pass the payment to consumers or permit them to opt out.[640]

At the May 6, 2021 hearing, regulators weighed in on whether PFOF inherently presents a conflict of interest. Chairman Gensler argued that there could be an "inherent conflict [] if a broker-

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[632] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).
[633] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
[634] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[635] *Id.*
[636] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).
[637] *Id.*
[638] *Id.*
[639] *Id.*
[640] *Id.*

dealer has arrangements … on payment to order flow" which could oppose upholding consumers' interests.[641] Mr. Robert Cook also stated that PFOF "does create a conflict," expressing concerns over whether an order is routed a certain way because of a rebate or because of actual best execution and asking whether these concerns are "adequately addressed through disclosure."[642]

c. Social Media and Market Manipulation

At the February 18, 2021 hearing, Representatives David Scott (D-GA) and Josh Gottheimer (D-NJ) raised concerns about social media's role in influencing trades, spreading misinformation, and market manipulation.[643] Reddit CEO Steve Huffman assured lawmakers in his testimony that the company "ensure[s] the authenticity of [its] communities" and did not discover evidence of manipulation on the platform.[644] Melvin Capital CEO Mr. Gabe Plotkin discussed how investors, coordinating through social media, can collectively drive stock prices, and that the "whole industry will have to adapt." [645]

At the May 6, 2021 hearing, Chairman Gensler responded to questions about the SEC's role in preventing market manipulation, especially on social media. He stated that the SEC's protective measures would not interfere with "somebody's free speech rights on social media" but would seek to "root out" the attempts of large institutions, individuals, or even computer technology to manipulate capital markets for the purposes of defrauding or misleading Americans.[646]

d. Short Selling and Securities Lending

At the February 18, 2021 hearing, Melvin CEO Mr. Gabriel Plotkin testified that before the company closed its meme stock positions and incurred losses, his firm had been "shorting GameStop since Melvin's inception six years earlier," and that the company conducts extensive research before entering a short position for "the long term."[647] Members including Carolyn Maloney (D-NY), Sherman, Nydia Velázquez (D-NY), and San Nicolas (D-GUAM) expressed concerns with the lack of transparency surrounding short-selling.[648]

At the March 17, 2021 hearing, the New York Stock Exchange's Chief Operating Officer, Mr. Michael Blaugrund, argued that the market on which short-selling depends is "opaque and inefficient" and aggregate data collected by regulators like FINRA is "insufficient for market

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[641] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
[642] *Id.*
[643] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[644] *Id.*
[645] *Id.*
[646] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
[647] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[648] *Id.*

participants or regulators to understand how supply and demand are changing for stock loans."[649] Mr. Kelleher also urged for increased disclosure on short positions to inform market participants.[650]

At the May 6, 2021 hearing, Mr. Cook responded to Representative Sherman's question about FINRA's disclosure protocols, noting that FINRA is committed to analyzing disclosure around short positions and soliciting comments to change its procedures around short selling.[651] Chairman Gensler emphasized that appropriate disclosure regimes and other forms of transparency are "at the heart of investors being able to take risks and understanding their risks."[652] Chairman Gensler testified that he has asked SEC staff to propose measures so there is "greater transparency in the short-selling side."[653]

e. Role of Market Makers

Throughout the series of hearings, Committee members and witnesses expressed concerns with the imbalanced concentration of market makers executing trades, particularly Citadel Securities, and how that factors in with PFOF, market stability, and investor protection. At the February 18, 2021 hearing, Chairwoman Maxine Waters (D-CA) raised concerns about the systemic implications of Citadel Securities executing nearly half of all retail trades in the United States at the time of the hearing.[654] Chairwoman Waters argued that Citadel Securities, and similar market makers' "business strategy is designed intentionally to undermine market transparency and skim profits from companies and other investors."[655] At the March 17, 2021 hearing, Representative Al Green (D-TX) raised concerns about the possibility of Citadel Securities and other market makers being able to trade ahead of their customers because they "get to see unfulfilled orders from customers" and could anticipate the movement of a stock with this data. Goldstein argued "inherent structural advantages" benefit large players, especially Citadel Securities, because of its "systemic significance to the financial system."[656] Because PFOF protects and furthers these market makers, Mr. Kelleher also argued that retail investors receive "the worst deal" and only by leveling the imbalance and creating a more transparent, accountable, and fair system would retail investor confidence increase.[657]

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[649] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).
[650] *Id.*
[651] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
[652] *Id.*
[653] *Id.*
[654] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[655] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide* (Feb. 18, 2021).
[656] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).
[657] *Id.*

At the May 6, 2021 hearing, Chairman Gensler emphasized that trading ahead of a customer's order was already prohibited.[658] He also noted that PFOF enabled "one or two wholesalers to have a dominant share in the retail market" and this concentration leads to concerns over market fragility and "competitive advantage[s] on the rest of the market" that may be gained by these entities from the data they collect.[659]

f. Settlement Clearing Cycle

Across all three hearings, Committee members were interested in learning more about the DTCC's trade settlement clearing process (which currently operates on a "T+2" timeframe consisting of two business days to clear and settle a trade after it is executed) and how its collateral requirements are impacted during periods of significant market volatility.

At the March 17, 2021 hearing, Mr. Piwowar argued that shortening the cycle could lead to operational risks.[660] Ms. Goldstein disagreed, however, stating that existing capital deposit requirements were the primary reason Robinhood established restrictions, alleging that it was "Robinhood's inability to manage its own risk and not any fault of any regulation."[661] Dr. Bogan stated that had Robinhood "not been able to make [the] deposit requirement … SIPC… Securities Investor Protection Corporation … would take over" to protect investors.[662]

At the May 6, 2021 hearing, DTCC CEO Michael Bodson testified that the organization's clearing process "protects both firms and their customers against default … risk" by "collecting margin … which is money that clearing members post as collateral."[663] Mr. Bodson also discussed the correlation between increased market volatility and margin requirements due to higher risks in a member's portfolio.[664] The day before the Meme Stock Market Event, Mr. Bodson stated that the NSCC processed an unprecedented amount of 474 million transactions (versus approximately 200 million on a normal day).[665]

Lawmakers also inquired about the implications of a reduced settlement cycle. Mr. Bodson asserted that reducing the settlement clearing time would decrease the value of capital clearinghouse members needed to maintain on deposit with the NSCC.[666] Mr. Bodson testified that a shortened cycle would "enhance market resilience," reduce margin requirements by forty percent, and "lower costs for investors."[667] Since the Meme Stock Market Event, the DTCC has

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658 House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
659 *Id.*
660 House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).
661 *Id.*
662 *Id.*
663 House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).
664 *Id.*
665 *Id.*
666 *Id.*
667 *Id.*

engaged with the Securities Industry and Financial Markets Association (SIFMA) and the Investment Company Institute (ICI) to advance "in-depth analysis on the next steps to achieving T+1," and expects to shorten its settlement cycle to T+1 within the timespan of a few years.[668]

g. Regulatory Solutions and Further Considerations

At the March 17, 2021 hearing, industry experts suggested several ways that regulators could reduce systemic risks and ensure that retail investors are protected. Mr. Piwowar believes that the SEC should address rulemaking changes through its cost-benefit analysis and review Rule 605 reports from market maker firms to understand the execution quality of trades.[669] Rule 605 requires market makers to provide certain order execution information such as effective spreads for customers routed to a market center and the extent to which market centers provide executions at prices different from public quotes to investors.[670] Ms. Goldstein encouraged regulators to use enforcement actions and conduct investigations to ensure consumers are adequately protected notwithstanding the use of payment for order flow.[671] She also suggested that Treasury Secretary Janet Yellen could restart the working group at the Financial Stability Oversight Council (FSOC) dedicated to analyzing risk in the system caused by hedge fund activity and to also enhance the tools that can identify systemic risks overall in the system.[672]

Mr. Kelleher emphasized that the SEC should investigate market makers and not exclude them from Regulation SCI.[673] Regulation SCI currently applies to self-regulatory organizations such as FINRA and the MSRB, as well as stock and options exchanges, clearing agencies, and others—the regulation requires entities to maintain "written policies and procedures reasonably designed to ensure that their systems have levels of capacity, integrity, resiliency, availability, and security adequate to maintain their operational capability and promote the maintenance of fair and orderly market."[674]

At the May 6, 2021 hearing, regulators shared their efforts post-January 28, 2021 to assessing whether the existing regulatory framework can protect investors against future market volatility. Chairman Gensler testified that the SEC was working on recommendations and releasing a report that would detail the activities surrounding the events in January 2021.[675] FINRA CEO Mr. Cook mentioned that the organization has "established an internal working group …

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[668] Michael Bodson et al., *A Shorter Settlement Cycle: T+1 Will Benefit Investors and Market Participant Firms by Reducing Systemic and Operational Risks*, DTCC (May 4, 2021); DTCC, *DTCC Proposes Approach to Shortening U.S. Settlement Cycle to T+1 Within 2 Years* (Feb. 24, 2021);

[669] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).

[670] FINRA, *SEC Rule 605* (accessed on. Jul. 14, 2021).

[671] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021).

[672] *Id.*

[673] House Committee on Financial Services, *Virtual Hearing – Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Mar. 17, 2021); SEC, *Responses to Frequently Asked Questions Concerning Regulation SCI* (last modified Aug. 21, 2019).

[674] SEC, *Responses to Frequently Asked Questions Concerning Regulation SCI* (last modified Aug. 21, 2019).

[675] House Committee on Financial Services, *Virtual Hearing - Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III* (May 06, 2021).

investigating whether it's broker-dealers members comply with SEC and FINRA rules" and "issued regulatory notices reminding firms of relevant duties and responsibilities in this area."[676] In response to Robinhood's customer service and transparency issues, FINRA is also looking at "the minimum levels of support customers might need."[677] The DTCC continues to work on decreasing the settlement time to T+1.[678]

4. *Proposed Legislation*

Based on its detailed and focused consideration of the Meme Stock Market Event, and building upon lessons learned from public hearings, this investigation and policy analysis, the Committee drafted legislation to address many of the issues highlighted by these market events, specifically:

- **H.R. 4618, Short Sale Transparency and Market Fairness Act, to amend the Securities Exchange Act of 1934 to modernize reporting requirements under section 13(f) of such Act, and for other purposes:**
    - **Summary:** This bill modifies the reporting requirements applicable to certain institutional investment managers that have more than $100 million in assets under management and that are required to file ownership reports with the SEC, by (1) reducing the reporting window from 45 days to 10 days after the end of each month for such asset managers, and (2) expanding such reports to require reporting of direct or indirect derivative positions or interests (including short positions). The bill also requires the SEC to (1) issue rules for the public disclosure of short sale activity by institutional investment managers, and (2) report on the standards and criteria determining whether confidential treatment applies to certain reports filed by institutional investment managers.
    - **Status:** Introduced in the House of Representatives and referred to the House Committee on Financial Services on July 22, 2021. Consideration and Mark-up sessions held on July 28, 2021, and July 29, 2021. Ordered to be Reported in the Nature of a Substitute (Amended) by the Yeas and Nays: 27—22 on July 29, 2021.
- **H.R. 4685, Trading Isn't a Game Act, to require the Government Accountability Office to carry out a study on the impact of the gamification, psychological nudges, and other design techniques used by online trading platforms, and for other purposes:**
    - **Summary:** This bill would require the GAO to conduct a study on the impact of gamification, psychological nudges, and other design techniques by online trading platforms, including whether such techniques are detrimental to investors or empower, inform, and educate them, among other potential impacts. The Comptroller General of the GAO would be required to issue the report within 270 days to the Office of the

676 *Id.*
677 *Id.*
678 *Id.*

Investor Advocate of the SEC and the Congress. The Investor Advocate shall then review the report and issue any regulatory or legislative recommendations within 90 days.

- **Status:** Introduced in the House of Representatives and referred to the House Committee on Financial Services on July 26, 2021. Consideration and Mark-up sessions held on July 28, 2021, and July 29, 2021. Ordered to be Reported in the Nature of a Substitute (Amended) by the Yeas and Nays: 28—23 on July 29, 2021. Reported (Amended) by the House Committee on Financial Services and placed on the Union Calendar, Calendar No. 165 on January 20, 2022.

- **H.R._____, to amend the Securities Act of 1934 to establish certain requirements with respect to retail investor options trading, and for other purposes:** this discussion draft would require enhancements for retail customers who engage in options trading, including preventing broker dealers from offering retail customers monetary and non-monetary incentives that encourage options trading; and would require broker dealers to disclose to customers the percentage of the broker dealer's retail client accounts that lose money on such options trading.

- **H.R. 4617, to require the Securities and Exchange Commission to carry out a study on payment for order flow, to require the Investor Advocate of the Commission to provide recommendations on payment for order flow, and for other purposes:**

  - **Summary:** This bill would require the SEC to carry out a study on payment for order flow received by brokerage firms for routing customer orders to market centers. The SEC would be required to issue the report with all findings and determinations to the Congress within 180 days. The SEC shall then issue rules consistent with the results of the study within 18 months, including to prohibit or limit payment for order flow if warranted. The SEC may issue such rules before the completion of the study if the SEC determines it necessary or appropriate.

  - **Status:** Introduced in the House of Representatives and referred to the House Committee on Financial Services on July 22, 2021. Consideration and Mark-up sessions held on July 28, 2021, and July 29, 2021. Ordered to be Reported in the Nature of a Substitute (Amended) by the Yeas and Nays: 28—22 on July 29, 2021.

- **H.R. 4619, to amend the Securities Exchange Act of 1934 to prohibit trading ahead by market makers, and for other purposes:**

  - **Summary:** This bill would statutorily prohibit market makers from "trading ahead"; require the CEO of each market maker to annually certify that the CEO has performed reasonable due diligence during the reporting period to ensure the market maker has not traded ahead; and would impose personal liability on any associated person of a market maker who knowingly and willfully trades ahead, directs another associated person to trade ahead, or is personally unjustly enriched by trading ahead. The bill requires the SEC to issue rules carrying out the legislation within 90 days.

- **Status:** Introduced in the House of Representatives and referred to the House Committee on Financial Services on July 22, 2021. Consideration and Mark-up sessions held on July 28, 2021, and July 29, 2021. Ordered to be Reported in the Nature of a Substitute (Amended) by the Yeas and Nays: 27—22 on July 29, 2021.

<u>APPENDIX III:</u> THE U.S. GOVERNMENT ACCOUNTABILITY ORGANIZATION (GAO) FOUND SIGNIFICANT GAPS IN THE SEC'S OVERSIGHT OF FINRA IN CONGRESSIONALLY MANDATED REPORTS

Section 964 of the Dodd-Frank Act (Section 964) requires the U.S. Government Accountability Organization (GAO) to periodically evaluate the SEC's oversight over FINRA and submit a report to the House Committee on Financial Services and the Senate Committee on Banking, Housing, and Urban Affairs.[679] The GAO's reports have been duly issued and submitted to Congress in 2012, 2015, 2018, and 2021 and have regularly found deficiencies and opportunities for improvement in the SEC's oversight of FINRA.[680]

December 2021 GAO Report

The GAO submitted its most recent report to Congress in December 2021 (GAO-21-576SU) and found material actions the SEC could take to improve its oversight of FINRA.[681] The GAO reviewed all 69 SEC inspections or examinations that the SEC conducted of FINRA in fiscal years 2018, 2019, and 2020.[682] SEC oversight focused on FINRA's policies and procedures and the execution thereof, as well as issues such as timeliness, staffing, and training.[683] The SEC's

[679] The statute requires the SEC to conduct oversight of national securities associations registered under Section 15A of the Securities Exchange Act of 1934. FINRA is currently the only national securities association and self-regulatory organization registered with the SEC under Section 15A of the Securities Exchange Act of 1934. H.R. 4173, 111th Cong. (2010).

[680] *Id.* These statutorily mandated reports are required to evaluate the SEC's oversight of FINRA with respect to 10 specified areas—governance, examinations, executive compensation, arbitration services, advertising reviews, cooperation with States, funding, employment of former employees, rules, and transparency—as well as any other issue determined by the GAO to have an impact on FINRA's effectiveness.

[681] GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 18 (Dec. 2021) (GAO-22-105367).

[682] GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 8 (Dec. 2021) (GAO-22-105367).

[683] According to the 2021 report, FSIO issued deficiency letters to FINRA listing suggestions for improvements in its operations and the deficiencies it found. For 11 of 13 FINRA program inspections reviewed by FSIO, 43 out of 81 findings were for deficiencies and about 50% of all findings related to maintaining inadequate policies or procedures. FSIO had also determined that there were instances when FINRA staff had not correctly applied its own sufficient policies and procedures. For all 10 thematic oversight examinations conducted by FINRA in the period reviewed, 95 of 112 findings were for deficiencies. Most findings of deficiency related to examiners incorrectly executing examination procedures (58 out of 112). FSIO also discovered instances where FINRA inadequately defined the scope of examinations (43 out of 112), with some examinations excluding reviews of transactions and registered persons that were relevant and should have been considered. There were 37 findings related to FINRA's insufficient documentation or retention of materials associated with examination decisions and files. FSIO additionally identified 24 instances where FINRA's policies and procedures were found to be inadequate and 12 broker-dealers rule violations missed by FINRA in its initial examination of firms. 76 deficiency findings were noted in 36 of 44 FINRA single oversight examinations. FSIO similarly determined that in single oversight examinations FINRA had conducted, the SRO maintained inadequate policies and procedures, poorly documented and retained materials, and missed 24 rule violations during its initial review of firms. GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 10 (Dec. 2021) (GAO-22-105367).

program for examining FINRA, known as the FINRA and Securities Industry Oversight Examination Program (FSIO), highlighted multiple areas of concern with FINRA's program inspections, thematic oversight examinations, and single oversight examinations conducted in the aforementioned period.

GAO Report (GAO-21-578SU) Chart of Findings in FSIO Reviews of FINRA

Figure 1: Findings in FSIO Reviews of FINRA, Fiscal Years 2018–2020

	Program inspections	Thematic examinations	Single oversight examinations
Total findings[a]	**81**	**112**	**76**
Finding component			
Missed rule violations	NA	12	24
Inadequate examination scope	NA	43	43
Inadequate examination execution	NA	58	31
Inadequate policies and procedures	46	24	16
Inadequate examination documentation/records retention	22	37	19
Unacceptable delays	7	6	0
Inadequate communication	4	4	0
Procedures not correctly applied	24	NA	NA
Other	14	4	7

FINRA: Financial Industry Regulatory Authority, Inc.
FSIO: FINRA and Securities Industry Oversight
NA: Not applicable

Source: GAO analysis of Securities and Exchange Commission documentation. | GAO-21-576SU

Note: Finding components marked "NA" represent findings that were not relevant to a certain type of review. For example, program inspections generally did not evaluate rule violations or examinations, and thematic and single oversight examinations did not assess program operations.

[a]This row represents the total number of findings presented separately in FSIO's inspection and examination documentation. Some findings had more than one component, such as a finding identifying both inadequate examination scope and execution. As a result, column totals for the finding components do not sum to total findings.

The GAO's 2021 review found that the SEC frequently identified deficiencies in FINRA activities, and in response FINRA typically proposed corrections to those deficiencies.[684] However, the GAO found that the SEC lacked important components of a risk-based program the GAO had previously recommended.[685] The GAO stated that the SEC performance measures were task-oriented instead of outcome-oriented and therefore not in keeping with leading best practices.[686] More critically, the GAO found that the SEC did not have documented policies and procedures for tracking FINRA deficiencies and corrective actions.[687] SEC officials informed the

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684 GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 11 (Dec. 2021) (GAO-22-105367).
685 GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 11-12 (Dec. 2021) (GAO-22-105367).
686 GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 13 (Dec. 2021) (GAO-22-105367).
687 GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 15 (Dec. 2021) (GAO-22-105367).

GAO that FINRA is not under a requirement to implement corrective actions if no rule violation was identified by the SEC, and there is little federal law controlling how FINRA must carry out its obligations.[688] Therefore, SEC oversight often results in observations ranging from minor to noteworthy that are intended to improve FINRA's processes or procedures but which are not consistently tracked outside of the formal examinations system.[689] The GAO recommended that the SEC develop performance measures for its FINRA oversight, develop policies and procedures for tracking deficiencies and corrective actions, and develop procedures for identifying and communicating the significance of oversight findings.[690]

April 2015 and July 2018 GAO Reports

In its April 2015 (GAO-15-376), the GAO recommended enhancements to the SEC's oversight of FINRA, largely regarding the adoption of a risk-management framework.[691] The GAO found that the SEC had successfully incorporated elements of this framework into its FINRA oversight, but that it still lacked certain components.[692] Specifically, the SEC needed to develop performance targets in order to monitor its goal of improving oversight of FINRA; formalize and document its FINRA oversight objectives; and assess its own internal risks (e.g., staff availability, competing priorities) in order to achieve its oversight goals.[693] In 2015, the GAO declared that a proper assessment of the SEC's oversight of FINRA could not be assured because the SEC had not fully implemented a risk-management framework in line with general auditing principles used

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688 *Id.*

689 GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 14 (Dec. 2021) (GAO-22-105367).

690 In its comment letter responding to the GAO's analysis, SEC noted that findings are tracked in a spreadsheet and are communicated through an informal process but that it would develop policies and procedures to formalize both processes. GAO, *Securities Regulation – SEC Could Take Further Actions to Help Achieve Its FINRA Oversight Goals*, at 18-19 (Dec. 2021) (GAO-22-105367).

691 GAO, *Securities Regulation – SEC Can Further Enhance Its Oversight Program of FINRA*, at 29-30 (April 2015) (GAO-15-376).

692 GAO, *Securities Regulation – SEC Can Further Enhance Its Oversight Program of FINRA*, at 10 (April 2015) (GAO-15-376).

693 GAO, *Securities Regulation – SEC Can Further Enhance Its Oversight Program of FINRA*, at 30 (April 2015) (GAO-15-376).

by other agencies.[694] Apparently satisfied by the SEC's progress toward this end, the GAO's July 2018 report provided no recommendations for improvement.[695]

May 2012 GAO Report

In its May 2012 report (GAO 12-625), the GAO identified multiple opportunities for the SEC to improve oversight of FINRA.[696] First, the GAO found that, other than FINRA regulatory programs relating to examinations, surveillance, and enforcement, the SEC conducted little to no oversight of other FINRA operations.[697] As a result, the GAO found that, of the 10 major areas identified for evaluation in Section 964 of the Dodd-Frank Act, the SEC conducted annual or continuous oversight in only 3 of those areas, only occasional oversight in 4 areas, and no oversight at all in 3 areas.[698]

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[694] GAO's April 2015 report noted substantive improvements to the SEC's oversight of FINRA. The SEC created the new role of "Senior Counsel-FINRA and New Markets" to monitor FINRA generally and coordinate FINRA oversight. SEC inspections of FINRA in 2014 were conducted largely as planned, and the SEC had adjusted its oversight of certain Section 964 areas of evaluation with the aim of addressing them all by year 2015. However, the GAO failed to elaborate on details of these adjustments. The GAO stated that the SEC had recently completed inspections of each Section 964 area of evaluation, but GAO reviewed key inspection documents for only 4 out of the 10 Section 964 areas, and the GAO stated that it did not attempt to assess the validity of any of the inspections. The GAO stated that because the SEC had not fully implemented and documented the risk-management framework recommended by the GAO, the SEC's fulfillment of its oversight responsibilities may not be fully assured. However, extensive analysis was provided on whether SEC oversight of FINRA was consistent with accepted government auditing standards. The GAO's only concluding recommendations were regarding the implementation of risk-management practices.

[695] The GAO's July 2018 report (GAO-18-522) identified no major areas for improvement. The GAO found that from October 2014 to April 2018, the SEC had conducted oversight of FINRA in each of the 10 areas of evaluation specified in Section 964 and selected the SEC guidance used to examine FINRA adhered to generally accepted government auditing standards. However, the GAO stated that it reviewed examinations only to determine if the SEC followed certain guidelines, and the GAO did not evaluate the content of the examinations. The only Section 964 area of focus in the GAO's July 2018 report was the SEC's inspections of FINRA governance. The GAO concluded that the SEC's inspections of FINRA governance were consistent with SEC's internal guidance regarding inspections; and the results of the five governance inspections by the SEC of FINRA from 2015 to 2017 were summarized positively but with little analysis. GAO, *Highlights of Securities Regulation – SEC Inspections of Financial Industry Regulatory Authority's Governance Were Consistent with Internal Guidance*, at 11-12 (July 2018) (GAO-18-522).

[696] GAO, *Highlights of Securities Regulation – Opportunities Exist to Improve SEC's Oversight of the Financial Industry Regulatory Authority* (May 2012) (GAO-12-625).

[697] GAO, *Securities Regulation – Opportunities Exist to Improve SEC's Oversight of the Financial Industry Regulatory Authority*, at 7 (May 2012) (GAO-12-625).

[698] The thrust of the SEC's oversight was on FINRA's 16 regulatory programs enforcing securities laws and FINRA rules, and 29 such inspections of FINRA district offices were conducted from 2005 to 2010. However, oversight of other, non-regulatory programs occurred even less frequently than planned. For instance, the SEC planned to inspect FINRA's regulation of broker-dealer advertising once every four years, but the most recent inspections had occurred only in 1998 and 2005; and the SEC planned to review FINRA's arbitration program on a two-year cycle, but inspections had occurred only in 2000, 2005, and 2010. That stated, the GAO determined that the inspections that were completed, although infrequent, were executed well.[698] For its part, the SEC stated that the lack of inspections in non-regulatory areas was due to competing priorities or a lack of resources. The GAO also found significant gaps in the SEC's oversight of FINRA rulemaking. A proposed FINRA rule subject to approval by the SEC undergoes a

formal process to determine if the rule is consistent with securities laws and regulations as well as if the proposed rule complies with requirements for providing adequate information for public comment. However, neither SEC nor FINRA had a formal process of conducting retrospective reviews of FINRA rules. Therefore, neither SEC nor FINRA were in a position to systematically assess whether FINRA rules were efficacious and, if not, whether to modify or repeal rules as appropriate. The GAO also recommended that the SEC revise its oversight of FINRA from a routine, cycle-based approach to a risk-management framework, which emphasizes those areas that present the greatest potential risk to an organization. The SEC stated that it was in the process of implementing such an approach in its oversight. However, the GAO found that while the SEC had collected and analyzed a substantial amount of information toward completing this process, the implementation of all elements of a risk management framework had not been fully articulated or documented. GAO, *Securities Regulation – Opportunities Exist to Improve SEC's Oversight of the Financial Industry Regulatory Authority* (May 2012) (GAO-12-625).