

**WHO WINS ON WALL STREET? GAMESTOP, ROBINHOOD, AND
THE STATE OF RETAIL INVESTING**

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ROBINHOOD, AND THE STATE OF RETAIL
INVESTING

HEARING
BEFORE THE
COMMITTEE ON
BANKING, HOUSING, AND URBAN AFFAIRS
UNITED STATES SENATE
ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

ON

EXAMINING THE PRACTICES THAT ENCOURAGED THE VOLATILE ACTIVITY IN
STOCKS, HOW IT AFFECTS OUR ECONOMY IN THE LONG TERM, AND WHO
BENEFITS AND WHO LOSES FROM THIS “TECH-INDUCED” STOCK MARKET
VOLATILITY

MARCH 9, 2021

Printed for the use of the Committee on Banking, Housing, and Urban Affairs



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WHO WINS ON WALL STREET? GAMESTOP, ROBINHOOD, AND THE STATE OF RETAIL INVESTING

TUESDAY, MARCH 9, 2021

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
Washington, DC.

The Committee met at 10:02 a.m., via Webex, Hon. Sherrod Brown, Chairman of the Committee, presiding.

OPENING STATEMENT OF CHAIRMAN SHERROD BROWN

Chairman BROWN. The Banking, Housing, and Urban Affairs Committee will come to order. This hearing is in the virtual format. A few reminders as we begin. Sorry to those of you who have to hear this every hearing.

Once you start speaking, there will be a slight delay before you are displayed on the screen. To minimize background noise, please click the mute button until it is your turn to speak or to ask questions.

You should all have a little box on your screens labeled “Clock” that will show you how much time is remaining. For witnesses, you will have 5 minutes for opening statements. For Senators, the 5-minute clock still applies to your questions.

At 30 seconds remaining for your statements and questions, you will hear a bell ring to remind you your time has almost expired. It will ring again when your time has expired.

If there is a technology issue, we will simply move to the next witness or the next Senator until it is resolved. And, fortunately, because of Cameron and Charlie’s work, we rarely have technical problems, but one never knows. To simplify the speaking order process, Senator Toomey and I have agreed to go by seniority for this hearing.

Last February, as the world came to the collective realization that we were confronting a global pandemic, the U.S. stock market suffered its fastest drop in history, plummeting, as we recall, 34 percent in 33 days.

This was followed by the fastest stock market rebound in history, recovering all of those losses by mid-August.

It was clear what most working people had suspected for a long time: The stock market is detached from the economy and the reality of most Americans’ lives.

The coronavirus was spreading, widespread testing was not available, and we did not know if the hope of a vaccine was months or, for that matter, years away.

Unemployment soared, reaching 23 million jobs lost by April. Almost a year later, only about half of those jobs have been recovered. Families and small businesses had no certainty about what their lives would look like in a few weeks, let alone next year.

But the stock market continued to go up and up. Those lucky enough to own investments reaped the profit.

To some, this looked like a new development. But to millions of Americans, to millions of workers who have watched the stock market reach new heights while their own paychecks never kept up, it looked pretty familiar.

Families have not been too surprised by this state of affairs. A whole lot of them never recovered from foreclosure or from losing their savings during the last crisis, but they watched Wall Street pocket its bailout and go on to record highs just a few short years later.

That is because when you look at who truly benefits, it is clear that the stock market's gains funnel wealth to a tiny sliver of people, often at the direct expense of American workers. We discussed this last week in our hearing "Wall Street vs. Workers."

According to Federal Reserve data, the wealthiest 1 percent hold 53 percent of stock and mutual fund investments. The bottom 90 percent own less than 12 percent.

The bottom 90 percent own less than 12 percent.

Between workplace retirement accounts and personal investments, about half of American households have at least one financial account tied to the market, but only one in six directly own stocks.

None of this reflects the actual makeup of the country. Only 31 percent of Black families and 28 percent of Hispanic families own any stock investment.

The wealthy are far more likely to have these accounts, of course, than middle-class families, who in turn are far more likely to be in the market than working-class families or poor families.

So when the stock market soars, most people barely notice. They are just trying to keep up with the cost of living within their paychecks.

In recent years, the growth of fintech in financial services has given rise to trading platforms that offer free stock trades. Firms like Robinhood and others claimed to "democratize" stock trading with flashy marketing and easy-to-use features.

And in one sense, it worked. They attracted millions of customers, many of them young and new to investing.

The frenzied stock trading this January, when shares of GameStop went from \$18 to over \$400 in a matter of weeks, showed how millions of retail investors could engage with each other and create a sort of sensation.

But it also lays bare serious risks.

There are real people who got caught up in the frenzy who suffered real consequences. If the people who are busy working, watching their kids, or living their lives cannot make sense of the stock market's booms and busts, they will continue to lose faith in

the market. And hedge funds and insiders will continue to reap the vast majority of the profit.

That is really bad for everyone in the long run.

Robinhood tried to blame its decision to cutoff its customers from being able to purchase GameStop and other stocks on industry-wide standards for processing stock purchases. Of course, the SEC and others should examine and consider how to reduce risk in the financial system by cutting the time it takes to complete stock purchases. Everyone would benefit from that.

But it has become clear that firms like Robinhood were founded on a model that exploits small investors by encouraging fast and loose trading, and then sells their trades to big market players.

In a few short years, Robinhood violated the law, failed to respond to customers when they needed help, and when it got in trouble, cutoff customers to save itself. Robinhood attracted new customers to investing, encouraged them to trade, profited off of them, and then broke their trust—precisely when they needed the company to have their backs.

It is also obvious that the David versus Goliath story—to mix metaphors, perhaps—we first heard in January was not the whole picture. Well-funded, sophisticated hedge funds made big profits alongside the people trading at home. We know they always had better access and information than any of us ever will. No one thinks that is fair.

Some have tried to blame the small-time investors. They scold people just trying to make some extra money in the worst job market we have seen in most of our lifetimes.

Because of the Robinhood business model and other reasons, we have all learned the new term “gamification.”

But let us be clear: We have seen Wall Street treat the markets as a game for decades—a game they always win, at the expense of pretty much everyone else.

Wall Street has never been friendly to the little guy. Surely this time is no different.

Yes, some regular people have had success. But, fundamentally, the system is set up to funnel more wealth to the already wealthy. Just like in Las Vegas, the house always wins.

The economy and the markets should work for everyone, not just the well-connected. They should reflect the economy we all want—with broadly shared prosperity and a growing middle class that all workers have the opportunity to join.

When that happens, people will have confidence the markets can actually work for them, not just Wall Street. We will see more Americans save and invest for the future.

This hearing will examine not only the volatile activity in a dozen stocks early this year, but also the practices that encouraged that activity. We will see how it affects our economy in the long term. We will see who benefits and who loses from this “tech-induced” stock market volatility.

I look forward to the testimony from all five of our witnesses.
Senator Toomey.

OPENING STATEMENT OF SENATOR PATRICK J. TOOMEY

Senator TOOMEY. Thank you, Chairman Brown. Welcome to all of our witnesses.

This January's volatility in the stock market understandably captured everybody's attention. We saw extraordinary trading volumes in GameStop and other stocks, and we also saw some brokers limit stock purchases during this period of volatility. So it is entirely appropriate to examine these events and try to understand what happened and whether any response is needed.

However, I urge my colleagues and regulators to avoid any knee-jerk reaction to impose unnecessary restrictions and burdens on investors. We have yet to see any evidence of wrongdoing or that the regulatory regime failed to function as intended. And Congress and regulators should avoid new laws and regulations that could end up limiting investors' access to and choices in the stock market.

One reason to tread cautiously is that new developments have made it a great time to be a retail investor. Today a person of modest means can invest in the stock market at zero or minimal cost. Two developments particular stand out: zero commission trading platforms with no minimum account balance required, and a user-friendly trading technology such as mobile apps. Zero commission trading is the culmination of a decline in investor costs since the SEC abolished fixed commissions in 1975 and forced brokers to compete against each other.

In the 1980s and 1990s, it could cost you close to \$100 to buy several thousand dollars worth of stock. By the 2000s, online trading sites offered lower costs, but they could still cost you \$30 for a trade. Competition from market makers allows brokers under their best execution obligation to obtain a better price for investors than current market price, even after receiving a payment for order flow, and they can charge zero to investors.

Similarly, new technology like app-based trading platforms make it easier to access the market, including buying through fractional shares. And it is not just Robinhood attracting new investors. The Wall Street Journal reported that 2020, despite the volatility, was a record year for new individual accounts, and these developments have, of course, contributed to broader investment in the stock market.

According to the Federal Reserve, in 1989, less than one-third of U.S. households owned stocks. Three decades later, in 2019, a majority of American households did. And the most rapid growth is among low- and middle-income households. Now, let us not forget about the millions of others, including police officers, firefighters, teachers, and other workers indirectly invested through pension funds.

This allows everyone to share in the tremendous wealth gains generated by the stock market, which used to be available only to wealthy individuals and institutional investors.

Despite these positive developments, some see the state of retail investing only in negative terms. Rather than celebrating the fact that it is cheaper and easier for average Americans to invest in the stock market, some claim that the market is somehow rigged against retail investors.

So to my colleagues who say that, I would like to hear why they believe that. Does the retail investor not receive dividends like institutional investors do? Is the retail investor not entitled to best execution on trade like institutional investors? When a stock goes up in value, does the value of a retail investor's share not go up like wealthy individuals?

Of course, the answer to all of these questions is obviously no. And if the market is rigged, then why did some hedge funds lost their shirts shorting GameStop while some retail investors hit pay dirt for buying it?

I am also incredulous at the idea that it somehow hurts retail investors to have access to investing technologies that are inexpensive and pleasant and easy to use. Retail investing does not need to be expensive and miserable and difficult to experience, nor should we want it to be. I would like to see more U.S. households have the opportunity to benefit from the financial gains that are available through the stock market.

Your average American does not need Big Government coming in to limit her access to and choices in the stock market. The fact is risk is a fundamental part of investing. All investors, whether they are small retail investors or big hedge funds, can gain or lose money by investing. But what we know is for sure over time long-term investors investing in U.S. stocks, it is the exact opposite of going to the casino. Investors win, and when you go to the casino, you lose. Investors in GameStop and a few other stocks took a lot of risk, but they represent a very, very small fraction of retail investors. And investors should understand that if they make a very risky investment, they might lose money. Those who bought GameStop at its high very likely lost money. I certainly hope they did not invest money they could not afford to lose, but it is not the Government's job to tell people which stocks they can and which they cannot buy.

In my view, there is one action that regulators should pursue, and Chairman Brown alluded to this, and that is to finish the work that it started in 2004 for a faster settlement cycle, including same-day cycle or maybe even real-time settlement. A faster settlement cycle will reduce risks for clearing agencies because there will be fewer unsettled trades and a reduced time period of exposure. And a faster settlement cycle will also require less collateral for clearing agencies, which may reduce margin charges and other fees that are inevitably passed on to investors.

When the SEC moved to T+2 back in 2017, the SEC said it wanted to make settlement even faster, and last month, Ranking Member McHenry from the House and I wrote to the SEC asking that they follow through on this longstanding objective.

Let me close by just repeating: I think Congress and the regulators should tread very cautiously here. We should want to make sure that all parts of American society can participate and share in the gains of the stock market, and we should avoid taking actions that would undermine that goal.

I look forward to today's testimony.

Chairman BROWN. Thank you, Ranking Member Toomey.

I will introduce today's five witnesses. Gina-Gail Fletcher, professor of law at the Duke University School of law. Professor

Fletcher is a scholar of complex financial instruments and market regulation. Her research focuses on the interplay of public regulations and private ordering in enhancing market stability and integrity. Welcome, Professor Fletcher.

Rachel Robasciotti is the founder and chief executive officer of Adasina Social Capital, an investment firm that seeks to serve as a bridge between financial markets and social justice movements. Welcome, Ms. Robasciotti.

Dr. Teresa Ghilarducci is an economist, nationally recognized expert in retirement security. Dr. Ghilarducci holds the Irene and Bernard Schwartz Chair in Economic Policy Analysis in the Economics Department at The New School for Social Research. She directs the Schwartz Center for Economic Policy Analysis that focuses on economic policy research and outreach. Welcome, Dr. Ghilarducci.

Commissioner Michael Piowar is the executive director of the Milken Institute Center for Financial Markets. Commissioner Piowar served as a Commissioner at the U.S. Securities and Exchange Commission from August of 2013 to July of 2018 and was Acting Chair from January to May 2017. Previously, he was the Republican Chief Economist for the

U.S. Senate Committee on Banking, Housing, and Urban Affairs under Senators Crapo and Shelby. Welcome back, Commissioner Piowar.

Andrew Vollmer is a senior affiliated scholar with the Mercatus Center at George Mason university. From 2014 to 2019, he taught securities regulation. He is the director of the John W. Glynn, Jr. Law & Business Program at the University of Virginia School of Law. Prior to that, Mr. Vollmer was a partner in the securities litigation and enforcement practice at Wilmer Cutler Pickering Hale and Dorr, and he also served as Deputy General Counsel at the SEC from 2006 to early 2009. Welcome, Mr. Vollmer, to our Committee.

Professor Fletcher, would you begin your testimony, please, for 5 minutes? Thank you.

**STATEMENT OF GINA-GAIL S. FLETCHER, PROFESSOR OF LAW,
DUKE UNIVERSITY SCHOOL OF LAW**

Ms. FLETCHER. Chairman Brown, Ranking Member Toomey, Committee Members, thank you for inviting me to testify today. I am a professor of law at Duke University, where my research focuses on capital markets, financial regulation, and market manipulation.

Our capital markets exist to channel investors' capital into its best uses, ideally forming companies to increase sales and create jobs, but also providing investors with reasonable returns, allowing them to save for retirement or to send their children to college.

We are here today because we are seeing trading activity that seems to be divorced from this essential purpose. Since the start of the year, GameStop's stock has gone through quite a bit of volatility. It started at a little under \$20 a share at the beginning of the year, went up to \$400, down to \$40, and now as of yesterday was a little bit under \$200 per share, all of this occurring over just a few weeks.

As the company's stock price yo-yos back and forth, it is clearly not a good-faith reflection of the fundamental value of a company with real stores, employees, and sales. The volatility in GameStop's stock is just one of a growing number of examples of market price gyrations which seem to be impacting not only meme stocks but also some penny stocks, special purpose acquisition companies, and even cryptocurrencies.

Financial innovation has made it easier than ever for retail investors to trade more complex, leveraged, and risky assets than ever before. These developments have generally expanded retail participation in the markets, and in some ways this is great. For example, a recent study has estimated that the racial gap in individual stock ownership has been halved in less than 5 years because of greater lower-cost market access. However, recent market events have raised questions about the integrity and long-term stability of the markets.

Now, while my written remarks cover several topics, I wish to highlight a few key points here.

First, to the extent that asset values are subject to wild swings and are divorced from any semblance of fair market values, market participants will increasingly view the markets as rigged and unreliable. This will in the long run deter investment and harm our economy.

Second, Congress and regulators should act to ensure that those who deliberately distort prices may be subject to regulatory or prosecutorial discipline.

Third, Congress and regulators should address the incentives and market structures that have created the modern trading markets. This includes the proliferation of payment for order flow practices, the segmentation of retail orders, and the overall impact on trading costs for all investors, not just retail investors but pension funds and other institutional investors. It is clear that retail brokers and market makers are making quite a bit of money from these practices, but it is also increasingly clear that retail and institutional investors are paying the price.

Fourth, Congress and regulators should review whether and how investors should access complex leveraged products, such as call options. Opening options trading accounts used to take weeks, and still does with some brokers. Yet it may take just a few minutes with other brokers. It should not take a suicide for us to realize that many investors in current markets do not fully comprehend the products that they are trading or the risks that they are taking.

Fifth, finally, and perhaps most importantly, Congress and regulators must acknowledge that events like what we are seeing with GameStop and other assets are no longer outlier events, but are instead regular features of our current system. Unless action is taken, these events will continue to expand and evolve. This means that brokers need to be better prepared to stand behind their customers' risky trading, and to the extent brokers cannot, the answer ought not to lie with limiting retail participation, as seems to have happened recently when some broker-dealers suspended trading in highly volatile stocks.

Additionally, regulators should consider shortening the settlement cycle so that fewer things can go wrong between the time of trade execution and when parties match up securities and cash.

Today it is easier, cheaper, and faster to trade more complex and leveraged financial products than ever before. This new market reality requires that we rethink the risks that accompany these developments and in so doing consider how to create a market that is fair, accessible, and stable for investors and the rest of the economy.

Thank you.

Chairman BROWN. Sorry, I was having trouble with the mute. Thank you, Professor Fletcher.

Welcome, Ms. Robasciotti. Speak for 5 minutes. Thank you.

**STATEMENT OF RACHEL J. ROBASCIOTTI, FOUNDER AND
CHIEF EXECUTIVE OFFICER, ADASINA SOCIAL CAPITAL**

Ms. ROBASCIOTTI. Mr. Chairman Brown, Ranking Member Toomey, and Members of the Committee, good morning, and thank you for inviting me to testify before this Committee. It is my great honor.

My name is Rachel Robasciotti, and I hold leadership positions at two SEC Registered Investment Advisory firms. I am the founder and CEO of Adasina Social Capital, where we manage an exchange-traded fund with the ticker symbol JSTC. It holds over 800 stocks and is accessible to everyday investors at a price of about \$16 per share. I am also the director of advocacy and engagement for Abacus Wealth Partners, which is a firm with \$3.8 billion in assets under management but no minimum account size for its clients.

I serve hardworking, everyday Americans, so your constituents and my clients are the same people.

I have worked in financial services for almost 22 years, so I take the long view of market events, and I have seen everything from the ill-fated dot-com boom of 2000 through the Great Recession and the most recent GameStop–Robinhood episode in January and February. So I understand the players in the market, and in this most recent situation, there are really three groups for us to consider.

First is the hedge funds. These are institutions that primarily manage money for the wealthy, accredited investors, and they are known for their risky strategies and high returns.

Two, the Redditors, these tech-enabled young people who use commission-free trading and banded together to outwit the hedge funds they felt had an unfair advantage.

Third—and these are the folks that I am here for today—are the everyday Americans, hardworking people with long-term retirement savings invested in the stock market. These people rely on Government institutions and financial professionals to look out for them.

When the GameStop–Robinhood episode occurred in January, I was immediately reminded of the MIT Blackjack Team of the 1990s, when a group of students banded together to break the bank at several large casinos. They realized that if they worked together, they could win substantially more money than the average gambler. So using their math skills and their technology, they coordi-

nated to quickly and strategically place large bets against the house.

It is pretty easy to see the obvious similarities between the two situations. Like the MIT students, the Redditors in January were young, knowledgeable people with high appetites for risk who chose to collectively speculate by making quick bets against a larger player with a perceived advantage.

On the other hand, like the casino owners, the hedge funds are these large institutions with specialized knowledge about the game who some say routinely use their size to tip the odds in their favor.

What is not obvious, whether in the casino or in the stock market, is what the wealthy institutions and upstarts have in common. They are all fast-moving, high-risk speculators with more skills and tools than the average person.

But there is a problem here for the stock market, which is supposed to be a place where a person can grow wealth by investing in companies that have good prospects. But when fast-moving, high-risk speculators dominate, we have a classic recipe for market disruptions. What we saw in January with GameStop and Robinhood is what we saw during the Great Recession with Wall Street churning out subprime, mortgage-backed securities.

Market disruptions like this are a problem because, as stated by SEC Commissioners in January, “. . . extreme stock price volatility has the potential to expose investors to rapid and severe losses and undermine market confidence.”

Now, unfortunately, this volatility does not impact everyone equally, and let me paint the picture of what the everyday investor experienced. Imagine a two-job household with a couple of kids, adults working hard to make ends meet and save enough for the future. They do not have a pension to fall back on for retirement because so few pensions now exist. They know that Social Security benefits their parents receive are not enough to cover most retirees’ basic needs. And for several decades now—and this is key—the economy has only offered these savers historically low interest rates, which means that putting their money in low-risk savings accounts, CDs, or bonds barely makes them enough to keep up with inflation.

This leaves investing in the stock market as their only option. It is the only way their savings can grow enough to provide for the future. So they are forced into the “stock market casino” with their life savings. And they are required to play against armies of sophisticated, high-risk hedge funds and Redditors duking it out for dominance. For everyday Americans with smaller amounts that represent all that they have to invest, sustaining significant losses—or even the perception of losses—is devastating. It makes them lose confidence and want to opt out altogether. But we know they cannot leave the casino.

As an investment professional who works for everyday investors, and as Senators with these same people as your constituents, we must fix the system for them. We need to maintain fair, orderly, and efficient markets that serve as a reasonable place for the average American to invest their life savings. And we have a duty to protect these investors from the crossfire of fast-moving, high-risk speculators.

Chairman BROWN. Thank you, Ms. Robasciotti.
Ms. Ghilarducci.

**STATEMENT OF TERESA GHILARDUCCI, BERNARD L. AND
IRENE SCHWARTZ PROFESSOR OF ECONOMICS, THE NEW
SCHOOL**

Ms. GHILARDUCCI. Hello. Thank you for inviting me, Chairman Brown and Ranking Member Toomey, and hello to the Members of the Committee.

I am a professor of economics at The New School. I teach behavioral finance and labor markets. I also taught at the University of Notre Dame for 25 years. I received my Ph.D. from UC Berkeley, and I have published four books on how workers acquire wealth. The latest one was "Rescuing Retirement" with my co-author Tony James.

I also am a court-appointed trustee overseeing \$60 billion of the retiree health care trust fund money for auto workers, and that money is invested to last over 80 years.

Now, as a professor, my office hours are typically quiet moments huddled over equations and numbers. But over the past few years, I have seen another trend. Students are coming to me bubbly because they want to know about trading on their phone app, Robinhood. Now, the young are told to buy stocks and they are told to hold them, but these students have absorbed the first point but they have not absorbed the second.

Trading on Robinhood is a game, and it has psychologically powerful intermittent rewards. The trading is disconnected from long-term wealth accumulation. Phone apps makes trading easy, and they are cheaper, and superficially they seem to open securities markets to many more people. But trading apps do not produce wealth.

I welcome today's hearing seeking to protect retail stock buyers, seeking to protect my students. And I am here to testify where Americans really get their wealth.

So I am going to huddle over a few numbers in the next few minutes, and I draw my data from the gold-plated data from the University of Michigan, the Health and Retirement Survey, and I am looking at households where people are still working, they are over the age of 52. They have gone through their life cycle. They have accumulated their wealth, and we are going to take a snapshot of what their wealth looks like.

So averages hide differences, so I am going to report my numbers in terms of the bottom half of the wealth distribution, the middle class and the next 40 percent, and what the top 10 percent of the wealth distribution have.

Now, you probably have already guessed that home equity, the net wealth from their homes, and retirement wealth, including Social Security, are by far the largest component of wealth for everybody. Those components make up 88 percent of the wealth held by households in the lower half of the wealth distribution, 78 percent for the middle class, and 43 percent for those in the top 10 percent.

I am going to make a side track note to note what Social Security means to households. I am always surprised to see that Social Se-

curity is the most important source of wealth for households nearing retirement.

In contrast to home equity, retirement wealth, and Social Security, directly owned stocks and bonds make up a small share of these households' wealth. The average is only 8 percent. Only 24 percent of older households own stocks directly, outside of their retirement accounts, and that ownership, that 24 percent, is concentrated way at the top. Only 10 percent of people below the median own stocks directly, and it is a small amount, and less than a third of the middle class owns stocks directly.

And the wealthy, 70 percent of them do own stocks directly outside of their retirement wealth. But it is only 13 percent of their wealth.

As Nobel Prize winner Robert Shiller the economist's recent book just points out, stock trading feeds a narrative. It feeds a story about wealth. Stories about getting rich on stocks produce a fiction that stock trading creates wealth, when, in fact, retail investors fuel bubbles, as the witnesses have testified to.

Defenders of Robinhood and widespread trading have purchase because the COVID recession has produced wealthy people who have gotten wealth. Their gains heighten the fear of missing out, or FOMO. The reality is that most Americans are being left out because they do not have access to retirement accounts, which is where most of us who own stocks. Retirement accounts are invested in diversified portfolios managed by institutional investors and professionals. It is those professionals that can handle the complex instruments for investments, and it is those professionals that accumulate savings, hard-earned savings by workers, and invest them in diversified portfolios.

We need innovations in public policy to give more Americans access to what we know works: professionally managed retirement coverage that allows everyone to benefit from the stock markets the same way you and I do in the Thrift Savings Plan, in private or public defined benefit plans—as Senator Toomey mentioned, the firefighters and the teachers—or in my pension plan, the Teachers Insurance Annuity Association. We all need a piece of diversified, well-managed, professional accounts.

Thank you very much.

Chairman BROWN. Thank you, Dr. Ghilarducci.

Commissioner Piowar, please proceed for 5 minutes.

Thank you.

STATEMENT OF MICHAEL S. PIOWAR, EXECUTIVE DIRECTOR, MILKEN INSTITUTE CENTER FOR FINANCIAL MARKETS

Mr. PIOWAR. Good morning. Thank you, Chairman Brown, Ranking Member Toomey, and members of the Committee for inviting me to testify today.

My name is Mike Piowar, and I am the executive director of the Milken Institute Center for Financial Markets. I had the pleasure of serving on this Committee's staff as Republican Chief Economist for Senator Shelby and Senator Crapo. I also served as a Visiting Academic Scholar, Senior Financial Economist, Commissioner, and Acting Chairman of the Securities and Exchange Commission.

I am glad you called this hearing today on the state of retail investing. As we have heard, on the one hand, retail investors have never had it better. They enjoy more choices and face lower costs when investing their hard-earned savings than ever before. They can invest directly in securities through brokerage accountable, and competition among brokers has led to commission-free trading. Competition among exchanges, alternative trading systems, and market makers has led to the best market quality environment for publicly traded securities in history. Transaction costs are low, market depth is high, and execution speeds are fast. Retail investors can make their own investment decisions, or they can seek the advice of well-regulated investment professionals through a broker-dealer or investment adviser.

Alternative, they can achieve low-cost diversification and professional management by indirectly investing in the stock market through passively and actively managed mutual funds and exchange-traded funds. Competition among these funds has brought fees and expenses down to their lowest levels in history. The availability of retirement savings accounts such as 401(k) plans and individual retirement accounts also allows low-cost access to the stock market.

Now, retail investors have taken advantage of these beneficial trends over the past few decades. As Senator Toomey, mentioned, the percentage of U.S. households that own stocks—directly or indirectly—increased from 32 percent in 1989 to 53 percent in 2019. Now, low-income households saw the biggest gains over the period, but they still lag high-income households in public stock ownership rates.

Now, as we have also heard, on the other hand, the January trading frenzy in GameStop and other meme stocks and the related difficulties faced by some brokerage customers highlighted a few areas that require the SEC's and this Committee's immediate attention.

Now, the SEC has already said that they are reviewing actions taken by regulated entities to determine whether they may have disadvantaged investors or otherwise unduly inhibited their ability to trade certain securities. The SEC has also said they are investigating whether abusive or manipulative trading activity prohibited by the Federal securities laws occurred during this episode.

Having worked at the Commission for the better part of my career, I have complete confidence that the Commission and the staff will identify and pursue any evidence of noncompliance or wrongdoing. Accordingly, I focus my testimony on the market structure and infrastructure policy issues that have been raised in the aftermath of the January trading.

In summary, I recommend that the SEC should: one, evaluate whether and how to move to a shorter trade settlement cycle; two, study how payment for order flow is working in a zero commission environment with a focus on order routing and best execution requirements; three, evaluate various alternatives to increase regulatory reporting and public transparency in securities lending; and, four, consider amending the accredited investor definition to achieve more equitable access to investing in private companies across all income levels.

Now, my written testimony provides an in-depth discussion of each of these issues, and I am happy to answer any questions you may have.

Thank you for bringing attention to these critical issues and for the opportunity to testify here today.

Chairman BROWN. Thank you, Commissioner Piwowar, and welcome back again to the Committee.

Mr. Vollmer, you are recognized for 5 minutes. Thank you for joining us.

STATEMENT OF ANDREW N. VOLLMER, SENIOR AFFILIATED SCHOLAR, MERCATUS CENTER AT GEORGE MASON UNIVERSITY

Mr. VOLLMER. Well, thank you for inviting me, Chairman Brown, and to you and Ranking Member Toomey and the Members of the Committee, good morning.

My written statement makes three points, and I end with my view that what we know so far about the events surrounding the GameStop trading does not provide a sufficient basis for new legislation or regulation.

So the first topic I cover is the trading in GameStop by the users of the WallStreetBets social media forum. Based on the public information I have seen, misconduct probably did not occur in the trading of GameStop. The SEC is investigating, but my understanding is that the main group of individuals trading GameStop did not make material false or misleading statements to the securities markets and were not deceived by others.

Another concern has been whether a securities manipulation occurred. The leading definition of securities manipulation, which comes from the Supreme Court, is securities trading that is artificial or not genuine. The traders using the WallStreetBets site actually bought GameStop and the other stocks and, therefore, did not engage in a manipulation.

Let us look at the effects of the GameStop trading on the larger secondary markets for securities. At the moment, those effects do not appear to be widespread or severe. The trading activity in GameStop, AMC, and the other securities was limited to a few companies and was short term. Some investors made money in GameStop, and some lost money.

Overall, at least so far, we have not seen strong evidence of securities violations or harm to the markets for buying and selling equities on stock exchanges. There have been some questions about short sales, and I hope we are able to get into that topic during the questioning.

My second point in my written statement, I discuss the role of the broker-dealer Robinhood. It has come under scrutiny because of the WallStreetBets traders using it and because it has certain features that make buying and selling securities easier and more attractive, like commission-free trades or accounts with no minimum dollar amounts.

The criticisms of Robinhood fail to give appropriate weight to the benefits of its business model. The Robinhood brokerage service is innovative, and it makes significant positive contributions to society and the economy. It reduces costs for consumers, makes securi-

ties trading simpler and easier. It increases consumer choice and lowers barriers to participation in the market for the common stock of companies listed on stock exchanges. It, therefore, opens the securities markets and equity securities ownership to a much larger part of the population and to people with less income and wealth than are typically associated with participation in the equity markets. That is all to the good and serves a variety of goals that I have heard from everyone who is participating in this hearing.

My final point is that the information currently available has not revealed a problem of sufficient severity to justify Congress imposing new regulations in these areas. New information could change that, but any deliberations about possible additional legal restrictions Congress should give weight to and respect the personal liberty interests involved. I have not heard individual civil liberty mentioned as a factor so far today, but I think individual liberty is an important tradition in our country, and Congress should not restrain personal freedom unless it has a strong reason.

That is a summary of my written statement. I would be happy to answer questions.

Chairman BROWN. Thank you very much, Mr. Vollmer. I thank all five witnesses.

I will start with Ms. Robasciotti. Why do people get discouraged even as some stocks are going up? Do people think the market is fair? What are you hearing from your clients?

Ms. ROBASCIOTTI. You know, we hear from our clients regularly. They ask us literally the casino question, like is it actually the best way for me to save long term? And what you and I know is that they do not have any other options if we are going to outstrip inflation. And so I do see, particularly in the younger generation, an increasing set of people that do not want to participate in financial markets specifically because they do not see them as fair or efficient.

Chairman BROWN. OK. Thank you.

Professor Ghilarducci, the research on stock ownership shows, as you pointed out—and those numbers were helpful—that half of U.S. households are investing in the market; many are not. I appreciated your recounting where people's wealth—how people hold their wealth and home equity and Social Security, and that is the preponderance of wealth for most people. How does the fixation on Wall Street and stock market performance distract us from the actual economic reality for most families?

Ms. GHILARDUCCI. As I said, I teach behavioral economics, and psychologically, we are wired to look at the most recent events, and when people get rich around us, who are much richer, we see them through the lens of the media, we feel that we are afraid, and fear actually causes anxiety and might cause pulling back. It might cause coming back in. And it fuels bubbles. And as Robert Shiller's great new book says, it produces a narrative about economics and a narrative is a fiction. Stockholdings, direct stockholdings, does not create wealth, and I really appreciate what Rachel said, that we wish we had a better option. I wish everybody could be in the kinds of funds that we are in. But they will not get that by directly trading stocks.

I hope I answered your question.

Chairman BROWN. You did. Professor Fletcher, Robinhood and others brokers' business models based on selling customers' orders to large trading firms and receiving so-called payment for order flow, if these intermediaries are willing to pay brokers and provide them a service, it suggests they are getting a better deal than the broker's customers, the retail customers.

Explain why these conflicts are so problematic.

Ms. FLETCHER. Thank you, Senator Brown. So payment for order flow, just as you explained, allows some brokers to say that they are operating zero-commission trading to retail investors, and these commissions are then being subsidized by wholesalers. But the payment for order flow model undermines the relationship between a broker and their client because it pits the broker's primary revenue source directly against the clients to whom they owe a duty of best execution.

So under the payment for order flow model, brokers are incentivized to put their own profit-seeking interests above their clients' in deciding where to route orders, and this greatly undermines the broker-investor relationship, likely leaving retail investors in a worse position.

Chairman BROWN. Thank you, Professor Fletcher.

Commissioner Piwowar, I appreciate your work at the SEC in 2017 with Commissioner Stein to reduce the time it takes to complete stock transactions, reduce risk in the system. Ranking Member Toomey commented on that, too. Robinhood has suggested real-time settlement as a solution to the difficulties it had in January.

Is that realistic? What other changes would be necessary? Comment on that, if you would.

Mr. PIWOWAR. Thank you, Senator Brown, for that question. And as you pointed out, the move toward shorter trade settlements, like in 2017 from T+3 to T+2 was overwhelmingly bipartisan at the time. There were two of us at the Commission—Commissioner Kara Stein, who used to work for Senator Reed, who is on this, and myself. It was one that we viewed as a slam dunk to move to T+2.

For reasons I stated in my testimony, I think the SEC should absolutely consider moving to T+1. I am happy to go into these details. But you asked me about real-time settlement. I think that is a bridge too far at this particular point in time. As we shorten the trade settlement cycle, we reduce risks like market risk, liquidity risk, and systemic risk, but we also have the opportunity—or we have the challenge of increasing operational risk.

In order for real-time settlement to work, everything has to work perfectly all the time, and it is important to remember that the trade settlement cycle for securities does not operate in isolation. We also have to make sure the cash gets there, and that brings into account banking payment systems; it brings into account foreign exchange settlements systems for cross-border transactions; and all of those have to be calibrated to make sure that it works perfectly.

And so at this point, I think absolutely the SEC should look at shortening the trade settlement cycle, perhaps as one, but I think real-time settlement is just a bridge too far at this point.

Chairman BROWN. Thank you, Commissioner.

Ranking Member Toomey.

Senator TOOMEY. Thank you, Mr. Chairman.

Dr. Piwowar, you know, when I graduated from high school in 1980, the Dow Jones Industrial Average had a low that year of 759, and it traded at a high of about 1,000. The last time I checked this morning, the Dow was at 32,000. And I guess my question for you is: If a retail investor took whatever amount of savings he or she could and regularly invested in a broadly diversified portfolio through whichever mechanism, and did that over these last 40 years, is it likely that that investor would have earned very substantial returns on those investments? Or is it more accurate to think of the stock market as a zero-sum casino where that middle-income American is going to lose because there is a hedge fund out there somewhere that wins?

Mr. PIWOWAR. Yeah, thank you for that question, Senator. As Andy Vollmer pointed out in his testimony, the returns that retail investors get from long-term investing is exactly the same as an institutional investor who invests in the exact same securities. And what we know for long holding periods is that, you know, on average, the stock market tends to go up.

There are daily fluctuations, there are minute-by-minute fluctuations in individual securities, but what we know is that retail investors who hold diversified positions in low-cost mutual funds and other mechanisms over long periods of time will do quite well in increasing their wealth.

Senator TOOMEY. And those low-cost options are lower in cost and more available today than ever before. Isn't that true?

Mr. PIWOWAR. That is correct. You know, since the time that you graduated in 1980, not only do investors have the opportunity to invest in open-end mutual funds, but a new innovation, exchange-traded funds, has entered the landscape and has brought incredible competition to this industry and brought fees and expenses to their lowest rates in history.

Senator TOOMEY. Right. A quickly follow-up on the faster settlement cycle. I understood you to say that there might be some challenges, technical challenges, in real-time settlement. But would you distinguish between real-time settlement and same-day settlement? And do you think that it is feasible to move to same-day settlement? Or do you think we really should be happy with T+1 rather than the T+2 we have today?

Mr. PIWOWAR. Thank you for that question. First of all, I think what the SEC should do, which is what we did when we evaluated moving from T+3 to figure out should we go to 2, to 1, or real-time settlement, was we took a look at the way the world existed in terms of the markets and technologies 4 years ago, and we said let us look at it on a cost-benefit analysis. And we said, all right, in terms of moving from 3, do we get any benefits? And what are the costs from going to 2 to 1 or real-time settlement?

At that time, 2 was the clear winner. What we heard from the industry was that the cost would be low. It would be pretty much speeding up existing back-office products. Then we heard from buy side, sell side, the clearinghouse, exchanges, even retail investor brokers and securities traders.

Moving to 1 had additional challenges. Not only the costs were higher, but as I mentioned in answer to Chairman Brown, you

have to get the bank regulators involved to make sure that all the bank payment systems also line up so that you make sure that they settle correctly.

Moving to zero, you know, at that time, whenever we asked people, said, “Well, how do you get to real-time settlement?” and the answer was always, “Blockchain.” And we said, “Well, can you explain how that works?” And they would just repeat back louder, “Blockchain.”

And so we may get to a point where blockchain technology or digital ledger technology gets us to a point where we can achieve real-time settlement, but I do not think we are there just yet. That is just my opinion.

What I think the SEC should do is put out for public comment a rule proposal proposing to move to a shorter trade settlement cycle and put it out for public comment and evaluate the costs and benefits.

Senator TOOMEY. Thanks. And, Mr. Chairman, if I have time for one more quick question?

Chairman BROWN. Yes, proceed.

Senator TOOMEY. Mr. Vollmer, recently the CEO of Robinhood testified that the restrictions that they imposed on purchasing GameStop and a few other stocks were driven by margin requirements required by the DTCC in compliance with the SEC’s capital rule. So two questions.

One, is that a plausible explanation in your mind for the restrictions they put in place? And, two, is it really optimal to have the opacity about how those capital rules work that prevent us from knowing clearly in advance exactly what they are?

Mr. VOLLMER. Thank you, Senator Toomey. I think the explanation that I heard from the CEO sounded reasonable. The collateral call from DTCC was sudden and in a large amount. That took Robinhood by surprise and caused them to impose trading restrictions. By the way, the trading restrictions were only one way, only on buys, not on sells. So customers could sell. They entered into the discussions. They talked to DTCC. They reduced the collateral call because they had imposed these trading restrictions.

The SEC is in a position to look at these areas to see if the process could be improved and smooth, because I agree with the theme in your question, and that is, I do not think either Robinhood or the customers should have been taken by surprise quite as much as they were, and if there is a way that we could smooth that out, I think that would be better for the broker-dealers and better for the markets.

Senator TOOMEY. Thank you very much.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Toomey.

Senator Menendez is recognized.

Senator MENENDEZ. Thank you, Mr. Chairman.

Dr. Fletcher, I want to follow up on the questions that the Chairman raised with you in terms of order flow issues. Doesn’t it create a conflict of interest or at least an appearance of a conflict when a broker receives a payment from a third party—in this case, a market maker—to fulfill their customers’ orders?

Ms. FLETCHER. Thank you for that question, Senator. Yes, it absolutely creates that conflict of interest because brokers are now—with this payment for order flow model, brokers are incentivized to put their own profit-seeking interests above the interests of customers when deciding where or how to route these orders.

This also should raise concerns for us in terms of customers being able to get the best execution from their brokers. And so, yes, I agree with your question that this does raise these questions for us.

Senator MENENDEZ. And so how does an investor know that their broker is working to find the best execution quality for their investor, not simply working with the market maker that pays them the most?

Ms. FLETCHER. So currently under SEC rules, there are some disclosure out—there are disclosure obligations on retail brokers to state what their price improvement is from having routed their orders through different—to different wholesalers or market makers. But the retail investor really has very little information in terms of knowing the price at which their order is executed or what exactly that price improvement was. So retail investors do have less information, and so we do need more or better disclosure for retail investors to be able to evaluate this information.

Senator MENENDEZ. Are there other costs that payment for order flow imposes on investors?

Ms. FLETCHER. One of the things that we want to probably be thinking about with regards to payment for order flow is whether or not retail investors are truly receiving a best execution when they are trading, meaning if there are quotes that are—so, for example, there are quotes that are available that are odd lot quotes that are typically not included when we think about what the best price is available for an order. And right now one of the things that I would recommend is that the SEC think about amending some of their rules to include these odd lot quotes such that truly the best price available is included when we think about the execution of more retail investor orders.

Senator MENENDEZ. Thank you. I would like to turn our attention to racial inequity in the stock market. Historically, stock ownership has been dominated by white Americans. According to the Federal Reserve, in 2019, only 34 percent of Black families and 24 percent of Hispanic families owned any equities compared to nearly 61 percent of white families. This disparity only grows larger when you look at the value of equities held. Among families with equity, the typical white family has over \$50,000 in holdings compared to just over \$14,000 for a typical Black or Hispanic family.

These equities represent funds that families can tap into in emergencies such as the pandemic. We have ample data showing that the pandemic is having a disproportionate effect on minority families, and the lack of savings is one reason why.

Dr. Ghilarducci, what are the consequences of disproportionately low participation in the stock market by Black and Hispanic families? And what are some of the challenges holding back minority families from owning equities?

Ms. GHILARDUCCI. Thank you so much for that question. A lot of my research at Notre Dame has been on non-white families with anthropologists exactly exploring that question.

What holds non-white families, Blacks and Hispanics, from having wealth is not having access to a retirement plan at work. Wherever these families have significant holdings, meaningful holdings in stocks and bonds and private equity and the kind of wealth that we have because we are workers who have a retirement plan at work, they do not have because of their workplaces. So if we worked to expand retirement coverage to all workers through an innovative pensions-for-all plan, they would have less.

Senator MENENDEZ. One last question, Dr. Ghilarducci. Is the lack of stock ownership among minority families an impending factor in their ability to build wealth?

Ms. GHILARDUCCI. Absolutely. They need Social Security, they need home equity, and they need access to financial instruments, but through professionally managed funds, not through trading on their phone.

Senator MENENDEZ. OK. Thank you very much.

Chairman BROWN. Senator Shelby from Alabama is recognized for 5 minutes.

Senator SHELBY. Thank you, Mr. Chairman.

I want to take a second here and welcome again Dr. Piwowar back to the Committee where he spent a number of years before he was a member of the Securities and Exchange Commission itself. Thank you for being here with us today.

I have a question for you following up on the area that Senator Toomey was involved in. I have always asked about cost-benefit analysis, how important that is when you are dealing with a new regulation or a proposed regulation. What has the SEC adopted a number of years ago and what do they do today when they are looking at a regulation, Dr. Piwowar?

Mr. PIWOWAR. Thank you, Senator Shelby, for that question, and thank you for your warm welcome back to the Committee. It is great to see you and the other members of the Committee again.

I think you are referring to the current guidance in economic analysis—

Senator SHELBY. Absolutely.

Mr. PIWOWAR. —that the Commission adopted in 2012. So then-SEC Chairman Mary Schapiro decided to enhance the role of economic analysis at the Commission. It was due in response to a couple things.

One, the Commission had lost some well-publicized cases in the courts for not following—doing proper cost-benefit analysis in accordance with the Administrative Procedures Act and some of their own statutory requirements. And, two, part of it was your leadership in terms of making sure that as the regulator implemented the various Dodd-Frank provisions, that they were doing cost-benefit analysis to evaluate how they were going to move forward.

What the guidance did was essentially give the Chief Economist at the Commission more authority over the rulemaking process, got the economists involved earlier in the rulemaking process to help standardize how they think through the rules. And so what it does is it forces the Commission to go through a very important exercise

of saying, all right, what is the justification of why you are thinking about going forward? It could be a mandate from Congress, or it could be a discretionary choice based on the fact that markets change. It forces them to adopt a baseline for the status quo, and then to look at various alternatives and evaluate each of those alternatives in terms of the costs and benefits, and that will then point them in the direction in terms of which is the most appropriate way for the Commission to move forward.

That guidance has been followed by every Chairman, both Republican and Democrat, and I was heartened to see in response to your question at the nomination hearing last week that Gary Gensler, if confirmed, would also continue to follow that guidance.

Senator SHELBY. Would you give us just a thumbnail sketch of if there is a proposal to come forth with a regulation, a mandate by the SEC dealing with the current problems, you know, order placement and so forth, what would be the steps to do this? How would you go about that if you did?

Mr. PIWOWAR. Yeah, thank you for that question. That is one of the great things about the regulatory process that we have, is it provides for valuable input from the public. So, first of all, the SEC would decide whether they want to put a rule proposal out; or maybe they are not there yet, maybe they are still contemplating whether to put out a formal rule proposal, so they could do a request for comment. And then what the SEC does is it puts out and provides to the public their own economic analysis in terms of what they think the costs and benefits are, and then they ask explicit questions of the public and ask them questions like: Did we get this right? Do you have any other numbers that would support or contradict our finding? Or do you have any other numbers that would help us make this decision?

It is a very public process. They go through open meetings. The public can participate. It is on their website. Anybody can submit comments to this process. And then the procedures and the statutes that the SEC has to follow, they have to take into account those public comments. Then they go back and reformulate their economic analysis with this new information, and they can choose to either move forward, not move forward, or move in a different direction. So it is a very robust process.

Senator SHELBY. One question to Mr. Vollmer. Mr. Vollmer, in your opinion, did Robinhood perform in a rational, thoughtful way in dealing with their situation when everything was a little frenzied?

Mr. VOLLMER. Senator, they certainly reacted in a rational way, and they were as thoughtful as time permitted them. But they were under a great deal of time pressure with the sudden collateral call. And so they reacted quite well, and they did impose the trading restrictions, which they did not want to do, but they tried to relieve those when they could. But they collected collateral that they could put up to DTCC very rapidly.

Senator SHELBY. Mr. Chairman, thank you very much.

Chairman BROWN. Senator Tester from Montana is recognized.

Senator TESTER. Well, thank you, Chairman Brown, and I want to thank you and Ranking Member Toomey for holding this hear-

ing. And I want to thank everybody who has testified. I appreciate all of your time, and thanks for being here.

We have known for a long time that there are perverse incentives in our systems and that those systems influence where companies make investments, and sometimes more importantly whether to make cuts. Many of us here agree that there would be benefits to a system where companies focus on the long term and helping their communities and their workers not just on short-term profits.

Now, I want to be clear. I do not feel bad for those who have lost money trying to game the market. But I am worried about those regular folks who saw this and tried to get in on something like this and then get hurt.

The recent market volatility presents an opportunity to take a really hard look at our securities regulations and the systems that we have in place. Investing in companies in the stock market should not be something that can only be gamed by the wealthy. I think we all agree with that. So it is my view our system should work for everybody that is trying to invest in their future.

So it seems to me that something is not working here for companies and communities, and especially the retail investor.

So this question is for all of you, and I will ask you to try to make it short. Some of you have already addressed part of this. But if you were able to make any changes and were in charge of all of the decisions, whether that is in Congress or at the SEC and SROs everywhere, what would you do to approve how our system works for retail investors? And you can just go in the order that you presented your testimony.

Ms. FLETCHER. Thank you so much, Senator, for that question. So the thing that I would want to make our system work better for retail investors is better information for our investors as to what the true costs are for their trades and for the transactions that they are engaging in. Too many investors see this zero commission model and think that it truly is zero commission, and I think that there is information that they would need to truly evaluate the costs and the risks of these transactions.

Senator TESTER. Thank you.

Ms. ROBASIOTTI. Thank you for your question, Senator. If I could do one thing, it would be to impose a financial transaction tax. I believe that that is a very negligible cost to the everyday investor, and it is something that would stop the high-frequency traders from dumping gasoline onto the already roiling fires of mistakes or other market disruptions that come about.

Senator TESTER. OK. Just to be clear, the tax would be put on for the purpose of stopping the high-volume folks, correct?

Ms. ROBASIOTTI. Yes, I believe the tax—the purpose of the tax is to add an additional cost, and that additional cost would be an invitation for deliberation, which I believe is something that investment decisions always benefit from.

Senator TESTER. Thank you. Next?

Ms. GHILARDUCCI. Three things. The economic analysis should include behavioral economic analysis at the SEC. They should look at the way that the phone app looks like and to cut out the obvious

addictive aspects of the games. Economists should be smart about that.

Second, I agree with Dr. Fletcher that there should be a revelation just like we do in professional investing, what the true costs are.

And, third, Nobel Prize economists back up what Robasciotti just said, that sand in the works, slowing down the trading with a securities tax would help make the market work better.

Senator TESTER. OK. Next?

Mr. PIWOWAR. Thank you, Senator Tester, for that question. So a few things.

One, we already talked about, I think, shortening the trade settlement cycle would help everyone, allow retail investors to get access to their funds quicker, but also take risk out of the system.

Second, amending the accredited investor definition to achieve more equitable access to private companies across all income levels.

And, third, just a general one: better disclosures for investors. As you know, the SEC is a disclosure regulator, and so one of the most important things that the SEC can do is provide—is arm investors with information to make informed choices. And so one example of that, you know, Professor Fletcher had mentioned better information about order routing and best execution. I wholeheartedly agree. In my written testimony, I attempted to look to see whether Robinhood customers in particular, how their order executions were done, and, unfortunately, with the publicly available information, I could not do that directly. So I think better, more granular information about how and why brokers are routing their trades and the outcome from that could go a long way to protecting investors.

Senator TESTER. Mr. Vollmer.

Mr. VOLLMER. Thank you, Senator. I will be quick. Two things.

First, reduce the cost and complexity of public offerings.

Second, I am in broad agreement with Mike Piwowar. In private transactions, the difference between accredited investors and non-accredited investors should be eliminated, and instead in certain private offerings, there should be required short-form core disclosures.

Senator TESTER. Thank you all.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Tester.

The Senator from North Carolina, Senator Tillis, is recognized.

Senator TILLIS. Thank you, Mr. Chairman. And thank you all for being here. I have been in and out of this Committee. I have got two other committee meetings going on at the same time, so I am sorry I have not been here for all of your testimony.

I was here after Senator Shelby's and Senator Tester's questions, so I want to get right to the financial transaction tax. I know that that has been something that has been offered up in the wake of the Robinhood/GameStop saga. But there seems to be—I am trying to understand how we can avoid what appears to have been the consequence for financial transaction taxes that have occurred in other jurisdictions and then some countries have thought about it and backed off of it based on these experiences.

Reputable studies indicate that the FTT would actually reduce the value of a typical investor's 401(k) and maybe as much by 8.5

percent in the lifetime of savings. That looks like people may have to work an extra 2-1/2 years to make that up, to realize the same amount of savings.

So do you disagree, Professor Ghilarducci, that it would have that effect on potential savings?

Ms. GHILARDUCCI. Thanks a lot for bringing up that research, Senator Tillis. It is really pertinent. That data is a bit out of date, and it also is distorted. If 401(k) traders or pension funds traded all the time, the tax would reduce their savings. Also, that study was done on a tax that was much higher than the kinds of taxes that are produced now.

It is well known in the economic research that if you get the tax low enough, you do not hurt long-term investors, but that you slow down the high-frequency trading. So it has to be done right, but it is backed—the good effect is backed by many, many studies, not just that one study you are citing.

Senator TILLIS. Thank you. I know that CBO projects the FTT would result in a \$43 billion, almost \$44 billion first-year net loss of tax revenues and would immediately lower the value of financial assets. Are you just saying that these studies have set the mark too high? And so, in your opinion, what is the sweet spot that you think would actually affect the high-volume investors but not affect the individual investors that now a substantial number are in the market?

Ms. GHILARDUCCI. I just read a dissertation that had that number, that sweet spot—that is a really excellent question—meaning I will have to get back to you with what that number is, but there is a number. And the CBO study looks at the short-term effects. People will not be trading and realizing those capital gains, but we actually do not want them to. We want them to hold those gains longer. So I will get back to you with that number.

Senator TILLIS. Thank you.

Mr. Piwowar, thank you for being here, and I am sorry our time is limited. I will not be able to ask questions of all of the witnesses. But am I correct that the act of frontrunning that some worry market makers could engage in is already illegal?

Mr. PIWOWAR. That is correct.

Senator TILLIS. So should the discussion be more around enforcement of what we already have on the books, or do you think we need to go further than that?

Mr. PIWOWAR. No, I think you are absolutely right. I think it is enforcement of what we already have on the books, right? And so if I may just go into a little more detail on that, there is an inherent conflict of interest when—in the presence of payment order flow, and the SEC explicitly recognizes that, and that is why we have best execution requirements, and that is why the SEC actively enforces those best execution requirements. And also, if I may, if the SEC works a band payment for order flow, we would likely go back to commission trading. It would cost to trade. And what that does is it does not eliminate a conflict of interest; it just changes it.

So when I was in the private sector, I worked for an economic consulting firm, and we provided expert witness testimony on behalf of plaintiffs in the FINRA arbitration context where brokers

were churning the accountable of their customers. And so simply, you know, getting rid of payment for order flow just moves the conflict of interest, and, again, it has to be done through enforcement.

Senator TILLIS. Thank you very much.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Tillis.

Senator Warner of Virginia is recognized.

Senator WARNER. Well, thank you, Mr. Chairman, and I want to pick up where my friend Senator Tillis left off, and I want to start with Professor Fletcher, but I would like to hear from Michael on this as well.

On this question around payment for order flow, I think, you know, we have now seen evidence that about \$6 billion of payments to brokers and others within the payment for order flow, I remember, gosh, it has probably been 7 or 8 years ago, the Royal Bank of Canada had a chart that kind of blew me away about the bespoke nature of all this order flow payment. I think it is extraordinarily not transparent. I think \$6 billion generates an awful lot of profits, I think particularly when you have got only a few major firms that are on both sides of the trade around payment for order flow, and I want Michael to comment on this, but it really seems out of whack to me. And the argument that says payment for order flow is to increase liquidity, it just does not seem to be the case. I mean, if you look at the fact that of the 9,000 securities that are traded, the top 10 percent, less than 1,000 of them, account for about 77 percent of all that liquidity, it would say to me that, you know, you do not need that payment for order flow to increase liquidity because you have already got liquidity.

And I guess I would start with you, Professor Fletcher. I think you have raised these issues as well. You know, we see large enterprises with Fidelities and Vanguards that do not make payment for order flow, has that decreased liquidity? Why wouldn't we—if we need liquidity payment, why wouldn't we pay for, say, the bottom—payment for order flow for the bottom 90 percent but not the top 10 percent? And have we seen in countries like the U.K. and Australia, which have banned payment for order flow, any decrease, significant decrease in liquidity? Why don't we start with you, Professor Fletcher? I have worked with Michael in the past around here. I know he has got a different view. But, Professor Fletcher, would you start?

Ms. FLETCHER. So thank you so much for that question, Senator. So in terms of the impact of payment for order flow on liquidity, I do not think that payment for order flow is needed for us to achieve liquidity. We have a deep financial market that we have had before payment for order flow, and just as you noted, there are jurisdictions, such as United Kingdom and Australia, which have banned payment for order flow. And research that I read from the United Kingdom recently has not indicated that there has been any meaningful decline in their liquidity.

Indeed, what that research has demonstrated is that there has been better execution for retail investors at the best price in the absence of payment for order flow. So that would indicate that there is less conflict and investors are able to get better price execution in the absence of payment for order flow.

Senator WARNER. And we have not seen—by the way, if you are a Fidelity or Vanguard customer where they are not paying payment for order flow, are they getting less good execution terms than other retail investors?

Ms. FLETCHER. So the problem with that, Senator, is that we do not have information to even know that, right? And so one of the—this is something that I believe that we have some consensus about in this hearing, is that we do not have enough information to know whether or not retail investors like Fidelity that does not do payment for order flow have a better or worse execution than our retail investors with other brokers that do have payment for order flow. And so that is a point at which we do need more and better information.

Senator WARNER. And I would say that I fear—I have talked to our friends at Robinhood, and I have spent some time looking at this. I really do fear—and I am all for democratization of our market system, but increasingly I fear that oftentimes these retail investors are, frankly, not customers. I think they are the product, a la many of us being the product for Facebook. And I think we are—oftentimes that product is manipulative.

Michael, I want to give you a chance to respond to this. It just seems to me that—and I know the excuse is always the way you get to no-cost, you know, lack of brokerage fees, but, obviously, some of the large enterprises were able to do this without that payment for order flow, and I think there are inherent conflicts. In that last 10 seconds, do you want to give a bit of a rebuttal to my point?

Mr. PIWOWAR. Yes, thank you, Senator, for giving me 10 seconds to respond to that. I would start with agreeing with, again, Professor Fletcher, that this is an empirical question, right? The concerns that you have raised on the payment for order flow side are the same concerns that people have raised on the churning side when in the presence of commission-based trading. And it is ultimately an empirical question, and, unfortunately, right now we just do not have the data for that. And so that is why I think it is important for the SEC to consider getting better data, getting better transparency in this so we can actually evaluate what the proper policy alternatives or policy choices are.

Senator WARNER. I know my time is up, but, Mr. Chairman, I hope we would look at some of the questions around best execution, because I think I actually frankly have seen some evidence that there is some manipulation going on there, and it would be a subject that would be well worth this Committee looking into.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Warner.

Senator Hagerty from Tennessee is recognized for 5 minutes.

Senator HAGERTY. Chairman Brown, Ranking Member Toomey, thank you for holding this hearing today.

As noted, this hearing is an important part of Congress' oversight of our capital markets, and it is also a great opportunity to reaffirm support for retail investors' participation in United States capital markets and for maintaining our markets' fairness, our order efficiency, and global competitiveness.

Before turning to the specific market events that led to this hearing and the potential areas for improvement, we must not lose sight of the fact that our financial markets are the envy of the world, and for a very good reason. They are the most robust, most efficient, and they deliver the greatest liquidity and funding at the lowest cost of capital. They finance our great economic opportunities by connecting retail and institutional investors with American individuals and families that are looking to achieve the American dream, including higher education, homeownership, and financial security in their retirement, and with our great businesses that need capital to thrive.

Our vibrant capital markets play a vital role catalyzing the economic growth of communities across America. We must not forget that, particularly as our economy is recovering from a pandemic-induced recession. Now is certainly not the time to impose unnecessary constraints on our capital markets and market participants that would only slow America's recovery from the pandemic.

Mr. Piwowar, I want thank you for your testimony. Today may be the golden age of investing for retail investors. I say "may" only because with the pace of our financial technology innovation, who knows what tomorrow will bring? Major brokerages now offer zero commission trading, but they must continue to follow all legal obligations to serve their customers.

Reams of financial and trading data can be immediately accessed at the touch of an app, and while stocks may not always go up, our major indices have repeatedly hit record highs over the past 4 years, in large part due to solid pro-growth policies.

So, Mr. Piwowar, having said that, many investors were caught off guard when Robinhood temporarily halted trading of certain shares. As a result, a lot more people now know about short selling, margin trading, clearinghouse deposit requirements, and settlement times.

Do you agree that the SEC, again, working together with the private sector, can accomplish more by focusing on investor education rather than engaging in just simply more Government paternalism?

Mr. PIWOWAR. Thank you, Senator Hagerty, for that question. I think in terms of the SEC's authority, I think the SEC already has all of the regular authority it needs to address a number of the issues that I identify in my testimony.

In terms of investor education, yes, it is extremely important. As I mentioned, the SEC is a disclosure agency, and one of the things—you know, as being one of the non-lawyer Commissioners at the SEC—that I worried about what that, you know, a lot of the disclosures were written by securities lawyers and only understandable by securities lawyers. So that is why I spent a lot of time with our Office of Investor Education and Advocacy to make sure that we are getting the word out to investors.

I also spent a lot of time working with our team that was given the authority—or clarified the authority in Dodd-Frank that the SEC could engage in investor testing and actually go out and do focus groups and surveys to make sure that the information that the SEC was giving to investors was understandable and digestible.

And then, finally, I would just add that when I was Acting Chairman, one of the major personnel changes I made was to add a position specifically focused on military outreach. One of the things that had happened during that time was that the military was moving from the old pension system to a defined contribution program, the TSP program that Professor Ghilarducci mentioned. And I had the opportunity to meet with some of the sailors on the USS Carl Vinson, and some of these sailors were fantastic at, you know, launching and catching planes landing on the aircraft carrier, but they did not know the first thing about investing for their future. And so we embarked on a specific initiative to make that information available to them and talk to them about the power of diversified, low-cost savings for the long term, the matching services and saving for their retirement, and I am happy to say that that has been a very successful initiative.

Senator HAGERTY. In the minute we have left, are there any specific actions that you would suggest for our retail investors today as you look at the evolving markets that we are in and the challenges ahead of us? Any specific guidelines that you would propose or suggest for our retail investors?

Mr. PIWOWAR. Yes. It would be the same advice that I gave when I was a professor of finance, which is: Do your homework. There is an incredible amount of information that is out there for investors that we have never had before, whether it is on the Internet or whether it is through educational institutions and the like. And if I may talk a little bit about gamification, I am not a Robinhood customer. I have never seen the app. I do not know what type of gamification is involved there. But I do know that using games and simulations is a very effective way of educating students. I note that many business schools are moving away from the traditional case method and lecture method to move toward simulations in trading, and even in cybersecurity, training the next generation of folks working in cybersecurity, it is all through games.

So in terms of gamification, I urge caution in throwing the baby out with the bath water and that gamification could be used for effective education.

Senator HAGERTY. You got it. Thank you very much.

Chairman BROWN. Senator Warren was having technical issues. Is she able to join us?

We will come back to her. Senator Van Hollen of Maryland is next.

Senator VAN HOLLEN. Thank you, Mr. Chairman, Ranking Member Toomey. And to all our panelists, thank you for your testimony today.

We know that Wall Street has made an art of high-frequency trading and rank speculation that has fattened the wallets of a few while putting everyday investors at greater risk, and the market events of last January brought attention to Robinhood's practice of selling user data to hedge funds that do high-frequency trading.

As has been mentioned today, one way to deal with that and cut down on high-frequency trading and its risks to market stability would be to place a small fee, say 0.1 percent, on these Wall Street transactions. It would generate billions of dollars that we could invest in greater opportunity for other Americans. It would reduce

wealth and economic inequality and reduce volatility in the market. That is why Senator Brian Schatz and I plan to shortly reintroduce our bill to impose a financial transaction fee, a high-roller fee, and let me start with Ms. Robasciotti. I know you mentioned this. Could you just elaborate a little bit more on, first of all, the risks of high-frequency trading; and then, second, how a financial transaction fee of the kind I am talking about could reduce that and be a benefit?

Ms. ROBASCIOTTI. Certainly. Thank you so much for the question, Senator. I am happy to hear that you will be reintroducing that legislation.

In terms of the risks, I mostly see them as systemic. When we have that classic recipe for market disruptions, what we have seen time and time again, whether it is the Great Recession or the flash crash, is that high-frequency trading simply exacerbates that.

In terms of how the financial transaction tax actually shows up for regular Americans, if you will allow me, I would like to use myself as an example. I was born into rural poverty in a segregated town. I grew up in an all-Black family. We were very poor. I have been homeless multiple times as a child. Thankfully, I graduated at 15, went to college. Any of the extra money that I have made in my entire working career has gone either to my extended family or back into my business. But at the age of 42, I have managed to save \$100,000 in my retirement account.

I was looking at my average trades, and my average trade size is about \$9,000 on my own account. If the financial transaction tax that you are talking about of 10 basis points or 10 percent of 1 percent were to come about, that would cost me about \$9 per trade, and I have about 20 trades per year. And this is very similar to the situation that is true for most of my clients; \$9 is less than the \$9.95 that the discount brokers were charging when they were actually charging and trading—when they were charging the commissions for trades. And so to me, that seems very reasonable as a small amount of insurance for the price that I pay as a participant in an orderly, fair, and efficient market. And one of the ways that I know that that is happening is because it is significantly slowing down the non-human algorithmic high-frequency trading that has caused so much damage.

Senator VAN HOLLEN. Well, I appreciate that. As you say, it really would create a disincentive, a financial disincentive for that high-risk conduct that puts other people in the market at risk.

Professor Ghilarducci, you also mentioned this. Could you just elaborate a little more? Because this is going to be a big debate. I think as we consider different options for revenue, this will be an attractive one because, in addition to raising revenue, it has these other benefits. Could you just talk a little bit more about that?

Ms. GHILARDUCCI. Right. I think the economic research has been done. It is an idea whose time has come, especially if you reintroduce your bill. The costs and benefits have been evaluated since James Tobin at Yale in the 1970s proposed it. And economist after economist have rerun the numbers, and if it is too high, it will have bad effects on long-term savings. If it is too low, it will not have any effect. If you get it just right—and, actually, 0.1 percent is about right; thank you for reminding me of that—what it does

is it shifts from high-frequency trading—it changes behavior—towards more long-term holdings, exactly where all of us want people to be with their stocks.

So I think you are on very solid ground in terms of the academic research, that the costs are too high of a tax, and the benefits of just the right one encourages wealth accumulation.

Senator VAN HOLLEN. Well, thank you. I look forward to following up with you and others on the panel as we shape this and have the debate. Thank you all very much.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Van Hollen.

Senator Cramer of North Dakota is recognized for 5 minutes.

Senator CRAMER. Thank you, Mr. Chairman. And thank you to our witnesses. Like Senator Tillis and several of us, I apologize for coming in and out of the hearing while we cover other hearings, but I am grateful, so bear with me if you have answered this several times.

Dr. Ghilarducci, I wanted to get real basic with you if I can. In your testimony you stated the following, and I am going to read you the quote: “We need innovations in public policy to give more Americans access to what we know works—professionally managed retirement coverage that allows everyone to benefit from the stock markets the same way you and I do in [TSP] . . . in a defined benefit plan . . . [TIAA]” and so on.

Just so I am really clear, do you believe that all Americans should be required to pay for investment advice?

Ms. GHILARDUCCI. Investment advice. I think all Americans should be in a retirement account—oh, I see, and so if you are in a retirement account—

Senator CRAMER. Should they have to pay for it?

Ms. GHILARDUCCI. —you are paying for investment advice. You know what? Americans should have access to investment advice that is worth it. A lot of investment advice they get is from conflicted investors, and that is not good. But if we are going to hold our pension fund money in stocks, the advice about where to put it should be high value.

Senator CRAMER. And high value being high price, I assume.

Ms. GHILARDUCCI. No, well, just that the cost—the benefits from the cost, you know, outweigh it.

Senator CRAMER. Sure. All right. In some sense, this whole hearing is obviously fundamentally about the level of access that retail investors should have to own shares of companies, right?

Ms. GHILARDUCCI. Yeah.

Senator CRAMER. Some of your positions is that the system is rigged, that it is a casino. We have heard all the terms. Investors should have to rely upon professional advice for a fee to have access.

Let me ask you, Mr. Vollmer and Mr. Piwowar, do you believe retail investors in the marketplace benefit from direct retail investor access to the market? And if so, why?

Mr. VOLLMER. Shall I go first, Mike?

Senator CRAMER. Go ahead.

Mr. VOLLMER. I think that retail investors benefit hugely from direct access to direct ownership of the equities of operating compa-

nies, but they should do it with their eyes open, as Mike Piwowar said, and accept responsibility for the consequences. It is not a casino. The securities markets are not a casino. They have risk. There is significant risk to them. But as people have pointed out, stock markets in the medium and long term produce positive returns. Casinos, if you are in the medium or long term, you will lose money.

So, yes, they ought to have direct access, but they ought to be smart about it and recognize their limitations. And, clearly, investing in mutual funds or index funds is by far the better approach for nearly all retail investors.

Senator CRAMER. Including me, by the way.

Mr. Piwowar, would you have anything to add to that?

Mr. PIWOWAR. Sure, I agree with everything that Mr. Vollmer talked about. What I would add to that is it is important for investors to have the choice to do both, right? They have access to indirect investments through low-cost, professionally managed funds, and then investors have the opportunity to invest some of their money on their own, do their own homework, do their own due diligence on the firms. And over time what that does is, whether it is through wins or losses in the stock market, they learn. It gets them more engaged in the stock market.

You know, as I mentioned, in business schools we do—back when I was teaching, we even started doing some simulations in terms of, you know, paper money portfolios. And it is amazing how much students get involved in terms of the stock market and learning about companies when there is, you know, pretend money or real money on the line. So I think it really provides the opportunity for people to learn over time about the financial system.

Senator CRAMER. I appreciate that. I appreciate all of you, really. Every time I participate in one of these, I keep thinking, speaking of schools, several of you are professors or at least have been or get to be on an adjunct basis every now and then. I just think every business school ought to take some Senate hearings like this and just play them for students, because I think there is a lot to be learned. So I am grateful to all of you.

Thank you, Mr. Chairman. I yield back the rest of my time.

Chairman BROWN. Thanks, Senator Cramer.

Senator Warren from Massachusetts is recognized for 5 minutes.

Senator WARREN. Thank you, Mr. Chairman.

So in recent weeks, I sent letters asking questions of those at the center of the GameStop market chaos, and I have received responses from the SEC, FINRA, Robinhood, and Citadel, the giant hedge fund. I ask that those responses or lack of responses, Mr. Chairman, be entered into the record. Without objection? Mr. Chairman?

Chairman BROWN. I am trying to unmute. I did not see that coming, Senator Warren. Without objection, so ordered.

Senator WARREN. All right.

Neither side advertised it publicly, but Citadel Securities was Robinhood's go-to partner for handling retail trades. At the height of the GameStop trading mania, Citadel alone was handling more volume than all of Nasdaq. And while Citadel was raking in cash from executing GameStop trades with one hand, its hedge fund af-

filiate was bailing out another fund on bad GameStop bets with the other hand.

So I asked questions about Citadel and its relationship with Robinhood because this gets at the heart of what is wrong with Wall Street. It is riddled with conflicts of interest that allow the giants to win every single time.

Here is some of the information that Citadel would not provide: how much money Citadel made from GameStop trades; what information on trades Citadel receives from Robinhood about GameStop and about millions of other trades; and then how Citadel uses that information it gets, whether it passes it along to its affiliates, to make even more money.

Professor Fletcher, is this information important for understanding the role that Citadel played during the recent GameStop volatility? If, say, Citadel has executed the overwhelming majority of GameStop trades during the turmoil or had been receiving an information advantage from executing Robinhood orders, could that potentially hurt retail investors?

Ms. FLETCHER. Thank you, Senator Warren, for the question. Yes, so to just go right to your question, yes, this information about Robinhood and other retail brokers' customers trading is definitely essential to our understanding of these recent market events.

One of the things that we know is that Citadel does receive lots of information about customers' orders from Robinhood, but it would also be important to know whether and how that information is being used by Citadel and others in order to have a clearer understanding of the recent volatility and any role that they may play in the swings, in the price swings that the stock price experienced.

Senator WARREN. Thank you. You know, Robinhood gets more than half of its revenue from collecting fees for pushing its customers' orders to outfits like Citadel, and Citadel makes its money off the spread. They pocket the small difference between the buy and sell price of the trade, and—this is important—Robinhood also receives a percentage of the spread on each trade.

So, Professor Fletcher, both the number of transactions goes up and the spread tends to widen during periods of market turmoil. So am I understanding correctly that when share prices for GameStop or any other company undergo extreme swings, Citadel and Robinhood both stand to make more money while investors pay more to trade?

Ms. FLETCHER. Yes, Senator Warren. This is generally what happens in times of stress, and so it is also important to keep in mind that market makers like Citadel are both in the exchange trading markets and executing huge volumes of orders off the exchanges. So while pension funds and other institutional investors generally cannot interact with retail customers and retail customers are siphoned off and prevented from interaction with institutional investors, Citadel sits in the middle and is able to interact with all of them. And this benefits Citadel by being able to segment the markets in this way, which dilutes the number and quality of orders that we see on the exchanges. And the profitability is there for Citadel for doing so.

Senator WARREN. Right, and this is why the SEC needs to investigate the GameStop run-up. The stock market is supposed to be about capital formation creating long-term value for companies so they can grow and create jobs. This is good for the American economy and for American families. But when big sharks like Citadel and Robinhood come out ahead no matter what happens and when the information they gather is not disclosed and when it is secret how that information is used, it is easier for these giants to skim off the top at the expense of small investors and working families.

The SEC's job is to provide transparency about these companies' market tactics and make sure they do not rip off customers. They could start by following up on my questions to Citadel and Robinhood.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Warren.

Senator Cortez Masto from Nevada is recognized for 5 minutes.

Senator CORTEZ MASTO. Thank you, Mr. Chairman. Thank you, everyone, for being here. This is a great conversation.

First of all, let me just say I recognize that the SEC is undergoing an investigation as well, and I look forward to the results of that investigation. And then as the Senator from the great State of Nevada, born and raised in Las Vegas, I am listening to all of the comparisons with the casinos particularly across this country, but knowing one thing, our casinos do not allow anybody that is under the age of 21 to gamble, and there is a reason. We want to protect our youth.

So let me ask you this, because I am concerned about the gamification of the market and what we are seeing with some of these apps. It is clearly looking to target a particular area, I think, of our youth who are now more engaged in gaming apps than we have ever seen before.

So let me ask Professor Fletcher, should the design features of trading apps because regulated?

Ms. FLETCHER. At a minimum—so thank you very much for that question, Senator. I think at a minimum they have to be studied, right? Because one of the things, as Professor Ghilarducci has noted, is that there are certain behavioral economics at play here. And so when we have things like confetti raining from the skies for having done a trade, this raises concerns about the types of encouragement that we are giving traders for just doing trades, which may be problematic as we think about trying to encourage appropriate behavior within the capital markets.

Senator CORTEZ MASTO. Thank you. So let me also ask this then: Particularly for young adults, do retail broker-dealers provide enough education and disclosure to individual consumers or should there be more?

Ms. FLETCHER. Currently it does not seem I would be able to say—it does not seem as though these broker-dealers provide that type of education to retail investors. I know that this is a focus of Professor Ghilarducci's research, and so currently I do not believe that they provide this level of education for retail investors, which then allows them to profit right off retail investors engaging in risky behavior that is not wealth-maximizing for these investors.

Senator CORTEZ MASTO. So let me ask then, Ms. Robasciotti, do you think that anybody under the age of 21 should be allowed to engage in the stock market, particularly what we have seen with Robinhood, a young man who was only 20 years of age committing suicide because he felt he overextended himself?

Ms. ROBASCIOTTI. Thank you very much for the question, and it was very sad what happened with that particular young man. I do believe that, given that we have all transferred responsibility for our retirement from these defined benefit plans and pensions down to us all being responsible for ourselves, we need to get as early a start as possible. So, yes, I would recommend that people under 21 be able to invest, yet it is incumbent upon as a society in that transfer of responsibility for our long-term financial security, we need to also transfer the education. Right now it is just happening within families, mostly from father to son and wealthy families, and I believe that is a big underpinning reason for why there is such concentration of wealth where it is in the country.

Senator CORTEZ MASTO. Do you think that the payment for order flow models should be banned?

Ms. ROBASCIOTTI. I do, absolutely. I do, absolutely, and specifically because I tell my clients this constantly, that if you do not see what you are paying, you are probably paying more than you would be comfortable with. And payment for order flow is doing exactly that. The customer never sees it, and yet they are paying for it in terms of the price that they ultimately get.

One of the reasons that our markets are orderly, fair, efficient, one of the ways that they remain so is by ensuring that as much information and data is disclosed as possible, and that just seems like a huge gap.

Senator CORTEZ MASTO. Does anybody on this panel believe that it should not be banned?

Mr. PIWOWAR. If I may, I do not think it should be banned without proper study. As I mentioned in my testimony, if you ban payment for order flow, you are highly likely to go back to commission-based trading, and it just shifts the conflict of interest from best execution requirements to churning accounts, and then that is the best interest requirement in terms of customers. So we have to be careful in these things. It is best left for the SEC to study the issue. I agree with Professor Fletcher on that. The SEC absolutely should study it in a zero commission environment, you know, look at all the costs and benefits, and then make a decision based on that.

Senator CORTEZ MASTO. OK. Thank you.

And, Mr. Vollmer, you raised your hand, so you believe the same thing. Is that correct?

Mr. VOLLMER. I start with Mr. Piwowar and Professor Fletcher—we need to look carefully, we need to proceed cautiously here. Start from the proposition that every participant that provides services in the market deserves some reasonable, fair compensation—the broker-dealers, the wholesale broker-dealers who also act as internalizers, like Citadel Securities, and the exchanges. They all provide important services to our capital markets. They all deserve compensation.

Payment for order flow is a method of compensation. If you remove it, you need to find another mechanism. That is why Mr. Piwowar says you are going to reinstitute commissions on trades. So everything is interrelated here. All of these relationships are connected. So I think we need to proceed cautiously, and I strongly agree with let us look and gather evidence and data. But I do not like the payment for order flow because it is disruptive and it is not obvious to investors.

Senator CORTEZ MASTO. Thank you. Thank you all.

Chairman BROWN. Thank you, Senator Cortez Masto.

Senator Ossoff from Georgia is recognized. His camera is not on, and he can proceed with or without it. Senator Ossoff, are you there?

Senator OSSOFF. Thank you, Mr. Chairman. I appreciate that. On Saturday, with overwhelming bipartisan support, the Senate passed the American Rescue Plan, and unlike traditional monetary expansion which subsidizes investment banks and unlike other recent fiscal measures that have subsidized corporations and wealthy donors, zero percent of the stimulus checks and tax credits in this bill goes to the top 1 percent. And I would like to point out for colleagues on this panel who oppose the bill that, following Senate passage, the OECD has revised its growth forecast for the U.S. economy, doubling it from 3.2 percent to over 6 percent this year. And the OECD projects that this legislation will boost global growth by a full percentage point this year.

Ms. Robasciotti, the title of this hearing is "Who Wins on Wall Street?" We just passed an ambitious fiscal measure in the Senate. Given that the bottom 50 percent of American households by wealth possess just 1 percent of total national wealth held in the stock market, what, in your view, are the benefits of economic policy that gets cash directly to low-wealth households by fiscal measures versus economic policy that adds liquidity to financial markets via the banking sector like traditional monetary policy?

Ms. ROBASIOTTI. Thank you very much for the question, Senator Ossoff. The way that it actually occurs, when you give money to people who come from the kind of background that I have, they are more likely to spend it. We learned about this, you know, in economics textbooks as the marginal propensity to consume. But it is just true that if you give money to those who are more in need, they are going to be more likely to spend it and circulate it throughout the economy, and so it does not just help them. It is not just something that we want to do to help the vulnerable. It is actually something that creates a multiplier effect throughout the entire economy. So I believe it just makes good economic sense.

Senator OSSOFF. Thank you. And what, in your view, are the costs, Ms. Robasciotti, of economic stimulus like traditional monetary expansion, which adds liquidity to financial markets by allowing investment banks to access credit at extraordinarily low rates or just transfers cash to financial institutions' balance sheets by processes like quantitative easing?

Ms. ROBASIOTTI. Again, thank you for the question. Those who are doing well at this point with their outsize gains, particularly during the pandemic, do not need any more help. What it actually does is just sequesters that money in the hands of those who are

most wealthy and are not going to put it back necessarily into the economy. You know, we had that argument of trickle-down economics, and we can kind of see from where we all are that that is not actually what happened. And so it actually harms all of us to make sure that those types of economic stimulus are going to the wealthiest in the country rather than going where it is going to actually do us all some good.

Senator OSSOFF. Thank you, Ms. Robasciotti. Professor Fletcher, you opened your testimony by rightly noting, "A core purpose of the financial markets is to facilitate the efficient allocation of capital." I am curious for your perspective on this. Over the last 15 years, U.S. investment banks have required multi-trillion-dollar bailouts to avoid insolvency, and even after the acute credit crisis in 2007–08, central banks and the Federal Reserve have continued to grant investment banks access to credit at record low rates and engaged in sustained quantitative easing, adding trillions of dollars to financial markets. Do you believe, Professor Fletcher, that the U.S. financial system in its current configuration facilitates the efficient allocation of capital?

Ms. FLETCHER. Thank you so much for that question, Senator. I think that the U.S. capital markets are among some of the best capital markets in the world, but there are significant issues with the market structure that we have currently in that we have retail investors that are better able to make risky decisions without fully appreciating the cost of those decisions. Within our capital structure, we also have questionable valuations for some companies that may not be fully reflective of an efficient market. So do I believe that our markets are fully efficient, no, not quite; but do I believe that they are among the most efficient in the world, absolutely.

Senator OSSOFF. Thank you, Professor. Thank you, Mr. Chairman. I yield back.

Chairman BROWN. Thank you, Senator Ossoff.

Thank you to the witnesses for being here today, for your really incisive testimony. Thank you for that.

I will just make a brief announcement. For Senators who wish to submit questions for the record, these questions are due 1 week from today, Tuesday, March 16th. For witnesses, you have 45 days, if you would, to respond to any of those questions from me or from my colleagues. Thank you again for that.

A couple of comments. I appreciated Professor Ghilarducci making it clear that the stock market is not the economy. Making the markets fair is important, but equally important is remembering that half the country does not have any stocks at all. Most Americans get their money from a paycheck. Growing those paychecks, not growing stock prices, is the most important thing we can actually do to improve American families' lives. And when people's hard work pays off, the more they are able to put a little aside at the end of the month and invest for the future. We are never going to have fair markets or an economy that reaches its full potential until our economy and its rules reflect the dignity of work.

With that, the hearing is adjourned. Thank you all so much.

[Whereupon, at 11:55 a.m., the hearing was adjourned.]

[Prepared statements, responses to written questions, and additional material supplied for the record follow:]

PREPARED STATEMENT OF CHAIRMAN SHERROD BROWN

Last February, as the world came to the collective realization that we were confronting a global pandemic, the U.S. stock market suffered its fastest drop in history, plummeting 34 percent in 33 days.

That was followed by the fastest stock market rebound in history, recovering all of those losses by mid-August.

It was clear what most working people had suspected for a long time: that the stock market is detached from the economy and the reality of most Americans' lives.

The coronavirus was spreading, widespread testing wasn't available, and we didn't know if the hope of a vaccine was months or years away.

Unemployment soared, reaching 23 million jobs lost by April. Almost one year later, only about half of those jobs have been recovered. Families and small businesses had no certainty about what their lives would look like in a few weeks, let alone next year.

But the stock market continued to go up and up, and those lucky enough to own investments reaped the profit.

To some, this looked like a new development. But to millions of workers who have watched the stock market reach new heights while their own paychecks never kept up, it looked pretty familiar.

Families haven't been too surprised by this state of affairs—a whole lot of them never recovered from a foreclosure or losing their savings during the last crisis, but watched Wall Street pocket its bailout and go on to record highs a few short years later.

That's because when you look at who truly benefits, it's clear that the stock market's gains funnel wealth to a tiny sliver of people, often at the direct expense of American workers. We discussed this last week in our hearing Wall Street vs. Workers.

According to Federal Reserve data, the wealthiest one percent hold 53 percent of stock and mutual fund investments, and the bottom 90 percent own less than 12 percent.

Between workplace retirement accounts and personal investments, about half of American households have at least one financial account tied to the market, but only one in six directly own stocks.

And none of this reflects the actual makeup of the country. Only 31 percent of Black families and 28 percent of Hispanic families own any stock investment.

The wealthy are far more likely to have these accounts than middle-class families, who in turn are far more likely to be in the market than working-class or poor families.

So when the stock market soars, most people barely notice. They're just trying to keep up with the cost of living within their paychecks.

In recent years, the growth of fintech in financial services has given rise to trading platforms that offer free stock trades. Firms like Robinhood and others claimed to "democratize" stock trading with flashy marketing and easy-to-use features.

And in one sense, it worked—they attracted millions of customers, many of them young and new to investing.

The frenzied stock trading this January, when shares of GameStop Corporation went from \$18 to over \$400 in a matter of weeks, showed how millions of retail investors could engage with each other and create a sensation.

But it also lays bare serious risks.

There are real people who got caught up in the frenzy who suffered real consequences. If the people who are busy working, watching their kids, or living their lives can't make sense of the stock market's booms and busts, they'll continue to lose faith in the market. And hedge funds and insiders will continue to reap the vast majority of the profit.

That's bad for everyone in the long run.

Robinhood tried to blame its decision to cut off its customers from being able to purchase GameStop and other stocks on industry-wide standards for processing stock purchases. Of course, the SEC and others should examine and consider how to reduce risk in the financial system by cutting the time it takes to complete stock purchases. Everyone would benefit.

But it's become clear that firms like Robinhood were founded on a model that exploits small investors by encouraging fast and loose trading, and then sells their trades to big market players.

In a few short years, Robinhood violated the law, failed to respond to customers when they needed help, and when it got in trouble, cut off customers to save itself. Robinhood attracted new customers to investing, encouraged them to trade, profited

off of them, and then broke their trust—precisely when they needed the company to have their backs.

It is also obvious that the David versus Goliath story we first heard in January was not the whole picture. Well-funded, sophisticated hedge funds made big profits alongside the people trading at home, and we know they always had better access and information than any of us ever will. No one thinks that's fair.

Some have tried to blame the small-time investors. They scold people just trying to make some extra money in the worst job market we've seen in most of our lifetimes.

Because of the Robinhood business model, we've all learned the new term "gamification".

But let's be clear: We've seen Wall Street treat the markets as a game for decades—a game they always win, at the expense of pretty much everyone else.

Wall Street has never been friendly to the little guy. Surely this time is no different.

Yes, some regular people have had success. But fundamentally, the system is set up to funnel more wealth to the already-wealthy. Just like in Las Vegas, the House always wins.

The economy and the markets should work for everyone, not just the well-connected. And they should reflect the economy we all want—with broadly shared prosperity, and a growing middle class that all workers can join.

When that happens, people will have confidence the markets will actually work for them, not just Wall Street. And we'll see more Americans save and invest for the future.

This hearing will examine not only the volatile activity in a dozen stocks early this year, but also the practices that encouraged that activity. We will see how it affects our economy in the long term, and who benefits and who loses from this "tech induced" stock market volatility.

I look forward to our witnesses' testimony.

PREPARED STATEMENT OF GINA-GAIL S. FLETCHER

PROFESSOR OF LAW, DUKE UNIVERSITY SCHOOL OF LAW

MARCH 9, 2021

Chairman Brown, Ranking Member Toomey, Members of the Committee: Thank you for inviting me to testify at this hearing. I am a Professor of Law at Duke University, where my research focuses on financial regulation, market manipulation, and corporate law. Before becoming an academic, I practiced law at Gibson, Dunn, & Crutcher LLP, in the areas of securities regulation, banking, and mergers and acquisitions.

Introduction

A core purpose of the financial markets is to facilitate the efficient allocation of capital.¹ When functioning efficiently, the markets allow for capital to be put to its most profitable use, which enables firms to access capital and improves the allocation of finite resources within the markets and the economy. When the fundamental operation of the markets is undermined, there are far-reaching effects that extend beyond the capital markets, affecting consumer savings, investments, retirement plans, and the rest of the real economy.²

The recent market volatility stemming from trading in "meme stocks", most notably GameStop,³ has raised concerns as to the integrity, stability, and overall health of the markets. Over the course of a few weeks in early 2021, GameStop—a struggling retailer of video games—saw its share price increase 1,500 percent, crash, and then spike again.⁴ In the wake of the volatility of GameStop's stock price, many in-

¹ Gina-Gail S. Fletcher, "Legitimate Yet Manipulative: The Conundrum of Open-Market Manipulation", 68 *Duke L.J.* 479, 489 (2018).

² *Id.*; see Benjamin P. Edwards, "Conflicts & Capital Allocation", 78 *Ohio St. L.J.* 181, 184-85 (2017).

³ John Hyatt, "How GameStop (GME) Is Creating Volatility—and Opportunities—for Investors", NASDAQ (Jan. 29, 2021, 1:54 PM), <https://www.nasdaq.com/articles/how-gamestop-gme-is-creating-volatility-and-opportunities-for-investors-2021-01-29>.

⁴ Reuters Staff, "Timeline: The GameStop Battle—How It Unfolded for the Key Players Testifying", Reuters (Feb. 18, 2021, 1:20 AM), <https://www.reuters.com/article/us-retail-trading-gamestop-timeline/timeline-the-gamestop-battle-how-it-unfolded-for-the-key-players-testifying-idUSKBN2A10IQ>.

vestors (both large and small) have been left with significant losses⁵ and some market participants and members of the public wonder whether the GameStop volatility is the “new normal” for the markets.

The recent market events have raised questions as to the long-term health of the markets, specifically the effects of such extreme volatility and the conduct that drove it on public perception of the markets. Additionally, these market developments have brought to the fore some issues related to how the markets function and are regulated, such as efforts to promote market integrity and prevent market manipulation; the costs and impacts of conflicted brokers’ routing practices, including payment for order flow (PFOF); and the impact of larger numbers of small-dollar, higher risk trading in the markets.⁶

I. Market Integrity and Stability

A. Market Integrity: The Importance of Public Perception

Market integrity is key to the functioning of healthy capital markets.⁷ Market integrity is a broad term that refers to notions of market fairness, investor protection, and the absence of misinformation and market abuse. To the extent the public believes the markets are fair, investors are likely to participate in the markets. Conversely, if the markets are viewed as unfair, investors may refrain from participating in the markets altogether or, should they participate, discount all transactions to reflect the risk of dealing in an unfair market.⁸ Public perception of the fairness (or unfairness) of the market, underlies market integrity and, in turn, is crucial to the efficient allocation of capital.

The GameStop incident has highlighted public perception of the unfairness of the markets, on the one hand, and raised new concerns about the integrity of stock prices. As trading in GameStop gained momentum, a narrative of David vs. Goliath coalesced, with the individual, Reddit-led investors being cast as David against the short selling, hedge fund Goliaths.⁹ Many of these individual investors expressed the viewpoint that the markets were “rigged against the little guy” and saw their GameStop trades as a way to right the wrongs of the past.

While the realities of who was trading in which directions, how much, and when will take time to decipher, the views echoed in the GameStop incident are reflective of a larger narrative about the integrity and fairness of the markets. In recent years, an increasing view is that the markets are regulated for the benefit of Wall Street and to the detriment of Main Street.¹⁰ During the 2008 crisis, for example, banks received bailouts while ordinary citizens lost their jobs and homes, struggling to recover years later. Likewise, with the COVID-19 pandemic millions of Americans lost their jobs and their health, but public corporations earned unprecedented profits and the stock market continued to soar. The disparate impact of these two significant financial crises on ordinary citizens versus the economic elite, especially when coupled with the (seeming) lack of enforcement against corporate wrongdoing, have fomented the strong perception that the markets are tilted in favor of the wealthy, the banks, and the hedge funds.

⁵Harry Robertson, “Short-Sellers Are Nursing Estimated Losses of \$19 Billion in 2021 After Betting on GameStop’s Stock To Plunge”, *Markets Insider* (Jan. 30, 2021, 2:31 PM); Drew Harwell, “As GameStop Stock Crumbles, Newbie Traders Reckon With Heavy Losses”, *Washington Post* (Feb. 2, 2021, 5:34 PM), <https://www.washingtonpost.com/technology/2021/02/02/gamestop-stock-plunge-losers>.

⁶See, e.g., William Watts, “GameStop Saga Illustrates Rising ‘Noise-Trader Risk’ That Could Feed Market Volatility, Warns Quantitative Analyst”, *Marketwatch*, (Feb. 26, 2021, 1:55 PM), <https://www.marketwatch.com/story/gamestop-saga-illustrates-rising-noise-trader-risk-that-could-feed-market-volatility-warns-quantitative-analyst-11614365724>.

⁷Fletcher, *supra* note 1, at 493.

⁸*Id.* at 492-93.

⁹See, e.g., Associated Press, “GameStop Soars as Swarming Small Investors Face Down Hedge Funds”, *L.A. Times* (Jan. 25, 2021, 1:39 PM), <https://www.latimes.com/world-nation/story/2021-01-25/smaller-investors-face-down-hedge-funds-as-gamestop-soars>; Edward Helmore, “How GameStop Found Itself at the Center of a Groundbreaking Battle Between Wall Street and Small Investors”, *Guardian* (Jan. 27, 2021, 5:00), <https://www.theguardian.com/business/2021/jan/27/gamestop-stock-market-retail-wall-street>; “All Things Considered: Reddit Users Vs. Wall Street Giant in Fight Over GameStop Stock Value”, *NPR* (Jan. 27, 2021, 4:14 PM), <https://www.npr.org/2021/01/27/961279048/reddit-users-vs-wall-street-giant-in-fight-over-gamestop-stock-value>.

¹⁰See, e.g., Alexis Goldstein, “Opinion, The Trouble With GameStop Is That the House Still Wins”, *N.Y. Times* (Feb. 1, 2021), <https://www.nytimes.com/2021/02/01/opinion/gamestop-biden-wall-street-reddit.html>; Zachary Karabell, “How the GameStop Trading Surge Will Transform Wall Street”, *Time* (Jan. 28, 2021, 8:44 PM), <https://time.com/5934285/gamestop-trading-wall-street>.

The proliferation of these views indicates that many investors do not view the markets as honest, fair, or accessible. Increasingly, seemingly freed by this recognition of the apparent “unfairness,” many investors appear to be engaging in transactions that undermine capital allocation and distort asset prices to (attempt to) tilt the markets in their favor.

Yet, even for those who did not previously believe the markets are inherently rigged to favor insiders, the extreme volatility associated with meme stocks may nonetheless cause them to be concerned with the integrity and stability of the markets. This is particularly true if regulators and lawmakers fail to act—either by not addressing the underlying cause for the volatility or by not holding someone accountable for wrongdoing.

To safeguard the integrity of the markets, therefore, it is important that lawmakers and regulators undertake efforts to repair the market’s reputation and bolster investor confidence. Research has shown that when investors question the integrity of the markets, they withdraw from the markets, reducing the amount of capital available in the market in general.¹¹

Thus, failure to address the issues that GameStop trading highlights may, ultimately, weaken the markets.

While addressing these issues is neither simple nor straightforward, this ought not dissuade Congress and the SEC from investigating how to minimize the likelihood and impact of a future iteration of the volatility we witnessed earlier this year.

B. Market Manipulation: Was GameStop Stock Manipulated?

A common theme accompanying discussions about GameStop’s stock price was market manipulation. Many questioned whether the coordinated trading of Reddit-inspired investors constituted market manipulation from a legal standpoint and what if anything the SEC should or could do in response.

Among the initial motivators behind the adoption of the securities laws was the prevention of market manipulation. Although the purpose of financial market regulations and laws has since been extended, proscribing and punishing market manipulation remains one of primary goals of the SEC. Market manipulation imposes significant social and financial costs on the financial markets. Furthermore, it undermines the efficient allocation of capital by distorting prices and by contributing to the perception that the markets lack integrity.

Despite its centrality to securities laws, market manipulation is undefined in the securities laws.¹² Instead, the laws and associated regulations prohibit specific, named conduct such as price artificiality, fictitious trades, and fraud. Some have commented that the absence of a statutory definition is the reason that this area of the law is confusing and contradictory. But, as others have noted, given the unexpected ways in which the markets may develop, tying regulators to a fixed definition of manipulation may do more harm than good.¹³

In identifying manipulative conduct, courts have typically looked for evidence of willful misconduct, fraud, and/or an artificial price. Academics have also tried to define manipulation through conduct that has an improper effect on price or efforts to dominate supply and demand to artificially distort prices.

Notwithstanding the lack of an agreed upon definition, the SEC, FINRA, and the exchanges all have anti-manipulation provisions that proscribe and punish abusive practices that distort asset prices. But as decades of enforcement actions and litigation has demonstrated, proving market manipulation as a matter of law can be very difficult. Indeed, one person’s manipulation can be seen as another person’s exuberance, even if irrational.

Whether the GameStop incident rises to the level of legally recognized and punishable market manipulation is a fact-intensive inquiry, which is ongoing. But, beyond the stark question of whether this constitutes illegal manipulation, the GameStop incident highlights the ways in which social media and technology have combined to push the limits of market regulations. It also calls into question to what extent existing understandings of manipulation can adequately respond to and, ultimately, deter the type of misconduct that may have occurred. Regardless of the outcome of the pending investigations into possible market manipulation, there are two recommended actions Congress and the SEC should consider.

¹¹Emilios Avgouleas, “The Mechanics and Regulation of Market Abuse” *A Legal And Economic Analysis* 212 (2005).

¹²Fletcher, *supra* note 1.

¹³As one court opined: “Congress’ decision to prohibit manipulation without defining it apparently arose from the concern that clever manipulators would be able to evade any legislated list of proscribed actions or elements of such a claim.” In re “Soybean Futures Litig.,” 892 F. Supp. 1025, 1044 (N.D. Ill. 2015).

First, Congress and regulators should hold traders accountable for their words and actions, even in the absence of explicit fraud. Price distortion can occur without explicit fraud and, when it does, someone ought to be held accountable.¹⁴ There ought to be consequences for using internet platforms and social media to encourage others to buy/sell stock, if result is a price that is so distorted as to be completely divorced from the company's fundamentals.

Unfortunately, manipulation laws have become ossified, and courts have been somewhat hostile to new interpretations and applications of the law from regulators. This makes it somewhat challenging for regulators to address novel forms of market manipulation using laws that were written almost a century ago and long before most of the things that are commonplace in today's markets were even conceivable. The type of coordinated action among thousands of dispersed, small-dollar investors that was seen during GameStop's rise was not imaginable when courts and regulators first conceptualized the market power needed to squeeze or corner the markets. However, in today's markets this is not only plausible, but it can be just as disastrous as traditional manipulation schemes.

As the markets evolve and the types of abusive trading tactics evolve along with it, it becomes increasingly urgent that Congress revisit and expand the antimanipulation authority granted to the SEC. Congress and regulators should explore updating the laws and rules against market manipulation to ensure regulators have the tools they need to protect the integrity of the markets against intentional, extreme price distortions.

Second, the SEC has traditionally relied on enforcement actions to address market manipulation. Punishing traders ex post for their conduct has been an understandable approach in the past, but it is not as sound in the modern markets where herd behavior is swift and can be disastrous. In today's markets, the SEC should explore the types of ex ante guardrails needed to protect the markets from extreme price distortion that will undoubtedly leave destruction in its wake.

As the volatility in GameStop and other stock persisted, the SEC issued a statement that it was monitoring the situation, but failed to take any action. The agency's refusal to act lead many to wonder why trading in GameStop stock was not halted once it became clear that the stock price was completely and unjustifiably divorced from the company's fundamentals. Arguably, the SEC's failure to act created a vacuum of authority, which resulted in a haphazard and uneven response from market actors. While some brokers halted trading in GameStop, others did not, causing public uproar. Leadership from the SEC indicating what should have been done or, at a minimum, a statement of recommended action would have had a better outcome for the markets and less public furor.

It is not beyond the scope of the SEC's authority to proactively consider how it will respond to certain indicators of price distortion and manipulation in the markets. In light of the far-reaching consequences of manipulation on today's interconnected markets, it is imperative that the SEC consider how to address extreme volatility in real time, particularly when such volatility may be borne from manipulative and abusive trades.

II. Democratizing the Capital Markets

A. *The Impact of Technology and Innovation on Retail Investors' Access to the Public Capital Markets*

The Federal securities laws were adopted to ensure that all investors—not just sophisticated, wealthy, or connected insiders—have access to essential information about companies and basic shareholder rights. In many ways, the Federal securities laws exist to “democratize” the capital markets.

In recent years, financial innovation has further expanded the availability of capital for firms and enhanced retail investors' access to the markets.¹⁵ The creation and proliferation of discount brokers, mutual funds, exchange traded funds, and 401(k) plans have made investing available to a large segment of the population. Further, the entrance of robo-advisors onto the financial scene has granted investors access to model portfolios tailored to their risk profiles and investment preferences, further increasing access for consumers seeking low-cost financial advice.¹⁶

¹⁴ Fletcher, *supra* note 1.

¹⁵ John V. Duca, Fed. Reserve Bank of Dallas, “The Democratization of America's Capital Markets” 10-13 (2001).

¹⁶ Anne Tergesen, “Robo Advisers Seen Exploding in Popularity”, *Wall St. J.* (Dec. 11, 2015, 7:08 PM), <https://www.wsj.com/articles/robo-advisers-seen-exploding-in-popularity-1449860367>.

The democratization of the financial markets, therefore, has been ongoing for decades, but it has undoubtedly exploded in measure and kind in the past 5 years.¹⁷ Efforts to increase retail access to the markets have resulted in greater participation in index funds, mutual funds, etc., which rely on intermediaries to transact on consumers' behalf.¹⁸ Recently, with the rise of zero-commission trading, retail investors are choosing to directly participate in the markets at unprecedented levels.

In the past year or two, many low-cost brokers have eliminated explicit fees to buy and sell stocks, thereby opening up access to the markets to those who may have been unwilling or unable to trade because of what were once significant explicit commissions and fees.¹⁹ Additionally, the ability to trade in fractional shares has lowered costs for investors who no longer need over \$2,000 to buy a single share of a company like Amazon, for example; instead, they can purchase \$100 of stock or 1/20th of the share. With technology, market democratization has gone a step further—brokers allow trading through apps, thereby making it easier for younger investors to access the markets on their mobile devices.²⁰ Today, it is not a stretch to say that the markets are truly within reach of anyone.

These developments have had a noteworthy and positive impact on retail participation in the markets. A recent study has demonstrated that the racial gap in individual stock ownership has been halved in less five years.²¹ Similarly, a recent FINRA study found that the majority of investors who opened their first account in 2020 were under the age of 45, had lower incomes, and were more likely to be racially and ethnically diverse.²²

In sum, technology and innovation have enabled a “shift towards more equitable investment participation,” which is a laudable achievement in the development of the markets.²³

However, the rules for stock trading have generally not kept pace with these rapid evolutions. Technology has made it easy to trade incredibly complex, leveraged, and high-risk investments, with relative ease. I urge Congress and the SEC to think clearly about what that means not just for those investors, but for the millions who invest through pension funds and mutual funds, as well as the businesses and economy that rely on our capital markets.

If you wish to further democratize the capital markets, I would urge you to begin by restoring the emphasis on the public markets, and looking to reverse the proliferation of exemptions and exceptions from the Federal securities laws.

B. The Private Capital Markets Are Not Suitable for Retail Investors

Because of the great strides retail investors have made in accessing the public capital markets, there may be an inclination to consider granting them access to the private capital markets. The recent market events have exposed the growing discontent of retail investors with the perceived unfairness of the public markets. As the argument goes, institutional investors and high-net-worth investors have access to a market that is brimming with greater returns on investment than the public markets and it is to the disadvantage and detriment of the retail investor to deny her access to these markets. This argument, however, ignores key factors that would put retail investors in a significantly worse position if they were able to invest directly in private securities.

The public capital markets in the U.S. are based on a system of regulation that is based fundamentally on mandatory and ongoing disclosure from those offering securities to investors and the public. Broadly, securities must be registered with the

¹⁷ See Charlotte Gifford, “Democratising Finance”, *World Fin.* (Jan. 25, 2021), <https://www.worldfinance.com/special-reports/take-from-the-rich-give-to-the-poor>.

¹⁸ Jay Clayton, Chairman, SEC, Speech at Temple University: “The Evolving Market for Retail Investment Services and Forward-Looking Regulation—Adding Clarity and Investor Protection While Ensuring Access and Choice” (May 2, 2018), <https://www.sec.gov/news/speech/speech-clayton-2018-05-02>.

¹⁹ For example, Schwab eliminated fees for stock purchases in October 2019. See Alexander Osipovich and Lisa Beilfuss, “Schwab Cuts Fees on Online Stock Trades to Zero, Rattling Rivals”, *Wall St. J.* (Oct. 1, 2019, 7:04 PM).

²⁰ Alicia Adamczyk, “Trading Apps Like Robinhood Are Having a Moment. But Users Should Be Careful”, *CNBC* (Aug. 24, 2020, 3:49 PM), <https://www.cnn.com/2020/08/21/robinhood-is-having-a-moment-users-should-be-careful.html>.

²¹ Aaron Brown, “Opinion, Stock Investors Are Younger and More Racially Diverse”, *Bloomberg* (Sept. 21, 2020, 6:00 AM), <https://www.bloomberg.com/opinion/articles/2020-09-21/stock-investors-are-younger-and-more-racially-diverse>.

²² News Release, Angelita Williams and Eric Young, “FINRA, New Research: Global Pandemic Brings Surge of New and Experienced Retail Investors Into the Stock Market” (Feb. 2, 2021), <https://www.finra.org/media-center/newsreleases/2021/new-research-global-pandemic-brings-surge-new-and-experienced-retail>.

²³ *Id.*

SEC prior to being offered and sold on the public markets.²⁴ There must be “full disclosure of the character of such securities,”²⁵ including basic information about the company, its management, and its financials. Further, after a company is “public,” it must share information with the public fairly, and cannot selectively disclose information to favored investors or other insiders.

The mandatory disclosure regulatory regime of the U.S. public markets is foundational to market democratization because it ensures that all investors—regardless of size, influence, insider connections, or wealth—have access to the same information on an ongoing basis. Mandatory disclosure obligations for accessing the capital markets levels the playing field as between retail investors with no access and corporate insiders or sophistication, influential investors.

To grant retail investors access to the private capital markets would place retail investors at a significant informational and positional disadvantage because there would be considerable information asymmetry. As a starting principle, it is important to keep in mind that “private” markets refer to markets for which the mandatory comprehensive disclosure and rights regime of the Federal securities laws do not apply.²⁶

In contrast to the public markets where information is readily available, the private markets are opaque and subject to little to no disclosure requirements.²⁷ This lack of disclosure means that investors in the private markets must ascertain the value of securities on their own and without the help of the public disclosures or readily available information. Indeed, private securities typically have no generally agreed upon “market price” as the company’s valuation is often determined separately with each new round of financing. Trading prices in private market trading venues often have massive variations, and comparatively high transaction costs.²⁸

Unsurprisingly, private company valuation is notoriously fraught with complications and disagreement, resulting in valuations that may be unsupported based on the company’s undisclosed financial condition. The case of WeWork provides a salient example. In January 2019, the company was valued on the private markets at \$47 billion. Its largest shareholder SoftBank is an investment bank with significant experience investing in private companies. Yet, shortly after WeWork filed its S-1 to initiate a public offering of its stock, the company’s valuation plummeted. Several months later, after a shelved IPO, WeWork was valued at a little under \$3 billion.²⁹ But again, this valuation was based on SoftBank’s calculations, which are debatable given that WeWork is still private and not subject to public disclosure of its financial condition.

The alarming failure of SoftBank, an undeniably sophisticated investor in the private markets, to value WeWork should raise serious doubts as to whether a retail investor, even a sophisticated one, would fare any better in valuing a private company.

Additionally, the absence of standardized and mandated information dissemination means that retail investors will be at a severe disadvantage relative to insiders and more powerful investors who can demand information or negotiate disclosures from private issuers. With no regulatory mechanism to force disclosures, there is no reason to believe that private companies will voluntarily and on a timely basis disclose information, even information material to the value or future existence of the company, such as the loss of a major client, the imposition of government sanctions, or pending bankruptcy.

Likewise, whereas in the public markets Regulation Fair Disclosure prohibits selective disclosure of information, there is no corollary in the private markets. Private companies can provide information to institutional investors in compliance with contract-based information rights but refuse to provide the same information to retail investors. Retail investors, therefore, would be completely in the dark as to the operation, profitability, future, and value of private companies if allowed to invest

²⁴ Securities Act of 1933 §5, 15 U.S.C. §77e (2018).

²⁵ H. Rep. 73-85 (1933), at 2-3.

²⁶ See, e.g., Press Release, SEC, “SEC Charges AT&T and Three Executives with Selectively Providing Information to Wall Street Analysts” (Mar. 5, 2021), <https://www.sec.gov/news/press-release/2021-43#YEOQIWUuHjk.twitter>.

²⁷ Elizabeth Pollman, “Information Issues on Wall Street 2.0”, 161 U. PA. L. Rev. 179, 235-36 (2012).

²⁸ Letter from Tyler Gellach, “Health Markets Ass’n. to Off. Sec’y”, SEC, (Sept. 30, 2019), <https://healthymarkets.upengine.com/wp-content/uploads/2019/09/SEC-Concept-Release-9-30-19-1.pdf>.

²⁹ Bryan Pietsch, “WeWork’s Valuation Has Fallen From \$47 Billion Last Year to \$2.9 Billion”, *Bus. Insider* (May 18, 2020, 11:38 AM) <https://www.businessinsider.com/wework-valuation-falls-47-billion-to-less-than-3-billion-2020-5#:text=WeWork's%20valuation%20has%20fallen%20to,said%20in%20its%20earnings%20report>.

in them. At a such a disadvantaged position, it would be impossible for retail investors to make an informed decision as to how to allocate their capital in the private markets.

C. Policy and Practical Considerations/Implications Regarding Greater Retail Participation

While the public markets are more suitable for retail investors versus the private markets, there are concerns that arise with regards to greater retail participation in the public markets. To be clear, these concerns do not equate with eliminating retail participation in the markets, but they do signal the need to consider how to address the ramifications on not only those investors, but also the overall operation and structure of the market. There are three issues I would like to raise.

First, retail investors seem to have very limited understanding of the markets and products that they are trading. As a 2020 FINRA study notes, there were “low levels of investment knowledge among all types of investors [in the study]-new and experienced”³⁰ The lack of knowledge among retail investors indicates that there is likely an underappreciation of the risks and costs of participating in the markets. Specifically, approximately 38 percent of new investors self-assessed their investment knowledge as low/very low.³¹

And, on the objective investment knowledge assessment, all investor types scored poorly.³²

Indeed, it is particularly noteworthy given that the investors are participating in the public capital markets, where there is an abundance of information on the corporations in which they may trade. Yet, their understanding of the markets and their transactions were concerningly low. As the FINRA study concludes, the low level of knowledge among investors, particularly new investors, makes them “potentially unprepared to make sound investment decisions”³³ Thus, while increased retail participation is laudable, it is imperative to consider how to protect retail investors from unsuitable investments that they neither understand nor appreciate the risks.

Second, with the proliferation of zero-commission brokers and trading apps that ease access to the markets, there is the question: what are retail traders able to access with these modern-day brokers? A troubling aspect of the GameStop incident is that many traders were trading call options on the stock.³⁴ The widespread use of options in GameStop trades reflects the ease with which retail investors are now able to trade complex financial products on margin, which is concerning for a few reasons.

Options trading is complex and can entail significant risks for traders. Options are leveraged transactions that can amplify the gains and losses a trader experiences in the market. There are real policy issues at play when we consider whether retail investors ought to be able to trade on leverage-either at all or as easily as they currently can through some retail broker-dealers. Given that a large number of investors in a recent FINRA study stated that they were unaware of whether their account charged fees,³⁵ how can we expect retail investors to appreciate the risks attendant with options trading and other complex financial instruments.³⁶

Investor understanding of the risks, costs, and potential fallout from options and leveraged trading is likely limited and, therefore, we should be more thoughtful about what financial products are available to retail investors. To be plain: democratization of finance cannot mean that investors, regardless of their experience and sophistication get access to options trading and margin accounts. This is not only foolish, but dangerous. Indeed, we need not look any further than the young man who committed suicide because he erroneously believed he had a negative balance

³⁰ Id.

³¹ FINRA Inv. Ed. Found., “Consumer Insights: Money & Investing, Investing 2020: New Accounts and the People Who Opened Them” 15-16, <https://www.finrafoundation.org/sites/finrafoundation/files/investing-2020-new-accounts-and-the-people-who-opened-them-1-0.pdf>.

³² Id. at 16.

³³ Id.

³⁴ Chris McKhann, “GME Stock Options Trading Explained: The Leverage of Long Calls Against the Volatility of GameStop”, *Inv’s. Bus. Daily* (Feb. 1, 2021, 3:08 PM), <https://www.investors.com/research/options/gme-stock-options-buyers-got-rich-now-looking-puts>.

³⁵ Williams and Young, *supra* note 22.

³⁶ We have also seen retail investors not sufficiently appreciate leveraged ETFs, where retail investors often believe that their investment performance is simply going to be the returns of some index multiplied by some factor, but that is not how those products typically work. Div. Econ. & Risk Analysis, SEC, “Economics Note: The Distribution of Leveraged ETF Returns” (2019), <https://www.sec.gov/files/DERA-LETF-Economics-Note-Nov2019.pdf>.

of over \$700,000.³⁷ There must be an awareness of the limited knowledge and expertise of retail investors as they gain access to increasingly complex products.

I would urge Congress, the SEC, and FINRA to reconsider the ready availability of complex financial products for retail investors. Further, Congress, the SEC, and FINRA should inquire into how investors are able to access margin accounts and options trading. Some reports have stated that users on certain broker platforms are defaulted into margin accounts, which raises significant concerns related to investor protection.³⁸

Third, as retail traders become more active and potent participants in the market, it becomes necessary to consider how their presence and behaviors impact the broader markets. It may be tempting to think of the exuberance of retail investors for GameStop in January 2021 as a one-off event, but this would be short-sighted. Indeed, in June 2020 retail investors piled into Hertz stock, even though the company was going through bankruptcy, increasing the stock price tenfold.³⁹ Additionally, even as GameStop's price began its descent from its inexplicable highs, the stock price of other companies, such as AMC Theatres and BlackBerry, also began to increase because of retail investor interest.⁴⁰

With significant reform, it is fair to believe that these wild swings in stock prices owing to retail traders may become a recurring feature of the markets. As was seen with GameStop, the fallout is not limited to traders, but there are consequences for the clearinghouse and for brokers as they try to keep pace with heavy transaction and order flow. There may also be significant consequences on the companies whose stock prices are gyrating. But perhaps even more concerning, these wild fluctuations may prove to be a significant deterrent for future long-term investment.

Congress and the SEC should consider the extent to which the market and incentives structure that currently exists (such as payment for order flow, discussed below) contribute to the volatility accompanying increased retail interest in certain stocks.

Further, as these peaks and troughs become more common in the markets, I would encourage Congress and the SEC to explore whether the existing framework can manage the risks and consequences that accompany growing retail participation in the markets. To the extent it cannot, the answer ought not to lie with limiting retail participation, as seems to have happened recently when some broker-dealers suspended trading in highly volatile stocks. Rather, the onus should be placed on clearinghouses and brokers to do a better job of anticipating and responding to potential market volatility. To this end, I encourage Congress, the SEC, FINRA, and the DTCC to consider updates to broker capital requirements, margin call processes, and settlement processes.

III. Payment for Order Flow

A contributing factor to the recent market volatility that raises policy and regulatory concerns is payment for order flow (PFOF). PFOF is the practice by which brokers are compensated for routing client orders to third parties, such as wholesalers and market makers, for execution.⁴¹ Through PFOF, retail brokers' commissions are subsidized or substituted by payments received from third parties who are able to profitably trade against those clients' orders.

During a Congressional hearing last month, Robinhood's CEO testified that over half of the firm's revenues came from PFOF.⁴² With brokers, wholesalers, and mar-

³⁷ Maggie Fitzgerald, "Robinhood Sued by Family of 20-Year-Old Trader Who Killed Himself After Believing He Racked Up Huge Losses", CNBC (Feb. 8, 2021, 6:28 PM), <https://www.cnbc.com/2021/02/08/robinhood-sued-by-family-of-alex-kearns-20-year-old-trader-who-killed-himself.html> (last updated Feb. 8, 2021, 9:26 PM).

³⁸ Letter from Tyler Gellasch, "Health Markets Ass'n, to Maxine Waters, Chairwoman, Comm. Fin. Servs.", Patrick McHenry, Ranking Member, Comm. Fin. Servs., Brad Sherman, Chairman, Subcomm. Inv. Prot. and Bill Huizenga, Ranking Member, Subcomm. Inv. Prot. 17 (Feb. 17, 2021), <https://healthymarkets.org/wp-content/uploads/2021/02/Letter-to-HFSC-Hearing-2-17-21.pdf>.

³⁹ David Welch and Steven Church, "What It Means To Buy Stock in a Bankrupt Company Like Hertz", Bloomberg (June 18, 2020, 5:00 AM), <https://www.bloomberg.com/news/articles/2020-06-18/what-it-means-to-buy-stock-in-a-bankrupt-company-like-hertz>.

⁴⁰ Gunjan Banerji, Juliet Chung, and Caitlin McCabe, "GameStop Mania Reveals Power Shift on Wall Street-and the Pros Are Reeling", *Wall St. J.* (Jan. 27, 2021 6:46 PM), <https://www.wsj.com/articles/gamestop-mania-reveals-power-shift-on-wall-street-and-the-pros-are-reeling-11611774663?mod=article-inline>.

⁴¹ Alex Rampell and Scott Kuper, "Breaking Down the Payment for Order Flow Debate", *Andreessen Horowitz* (Feb. 17, 2021), <https://a16z.com/2021/02/17/payment-for-order-flow>.

⁴² "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide": Hearing Before the H. Comm. on Fin. Servs., 117 Cong. (Feb. 18, 2021) (statement

ket makers earning such high profits from PFOF, one is left to wonder if investors are truly better off under this model.

PFOF is a concerning practice that has been allowed to continue in the U.S. securities markets, although its costs to both retail investors and the markets overall outweigh the supposed benefits they receive. PFOF is innately conflicted, placing retail investors in an inferior position vis-a-vis their broker. Further, claims that PFOF results in price improvement are questionable at best and it is more likely that retail investors are often paying higher prices for their trades than they would if those orders were exposed to the exchanges. Lastly, PFOF increases market segmentation and decreases liquidity, which diminishes market stability and efficiency. Each of these is discussed in greater detail below.

A. PFOF Is Innately Conflicted and Opaque

Broker-dealers are bound by a duty of loyalty to their clients. This duty includes the duty to act in the best interests of their clients and obtain the best terms for their clients when executing trades. This duty of loyalty is delineated through SEC and FINRA rules, and numerous cases. PFOF directly undermines this duty by allowing brokers to route client orders based on agreements with third parties, allowing these third parties to profit at the expense of clients.

Previously, broker revenue was primarily earned from their customers to whom they owe such a duty, aligning the interests of the brokers with their clients'. PFOF undermines this relationship because it pits the brokers' primary revenue source directly against the clients to whom they owe the duty of best execution. Under the PFOF model, brokers are incentivized to put their own profit-seeking interests above their clients in deciding where to route client orders. This practice greatly undermines the broker-investor relationship and leaves retail investors in a worse position.

Additionally, it is questionable whether brokers are truly getting the best execution for clients if they receive PFOF. To the extent brokers are required to put clients' interests above incentives for trade routing, as required by FINRA's rules regarding best execution,⁴³ PFOF is fundamentally at odds with this duty. Recent, separate actions by FINRA⁴⁴ and the SEC⁴⁵ against Robinhood for failure to achieve best execution, for example, would seem to bear this out.

Another related issue with the PFOF structure is the lack of transparency. SEC rules require brokers to report their PFOF statistics, including net payments received from market makers for trade execution and the rate of PFOF per 100 shares. These disclosures, which were recently amended in 2020, provide data in the aggregate that make it impossible for individual retailers to know specific, individualized information.

This lack of information makes it difficult for retail investors to compare costs across brokers and to appreciate the true costs of their trading activities.

Importantly, even though the SEC requires that these reports be made available to customers, it can be nearly impossible to locate them on the broker's website.⁴⁶ And, there are questions as to whether the reports some brokers provide even comply with the SEC regulations. It is imperative that the SEC mandate additional disclosure around this issue in order to make investors more informed about the costs of their allegedly free trading accounts.

Lastly, Congress should explore whether PFOF ought to be banned given its inherent incompatibility with best execution and brokers acting in the best interest of their clients. If a broker is able to cover its trading expenses through receipt of fractions of a penny per share from a third party, could it not simply charge its actual customer a similar price?

of Vladimir Tenev, CEO, Robinhood Markets, Inc.), prepared remarks available at <https://financialservices.house.gov/uploadedfiles/hhrg-117-ba00-wstate-tenev-20210218.pdf>.

⁴³ Regulatory Notice 15-46: "Guidance on Best Execution Obligations in Equity, Options and Fixed Income Markets, FINRA" (Nov. 2015), <https://www.finra.org/rules-guidance/notices/15-46>.

⁴⁴ See, e.g., Letter of Acceptance, Waiver, and Consent No. 2017056224001 from Robinhood Fin., LLC, to Dept. of Enft., FINRA (Dec. 19, 2019), <https://www.finra.org/sites/default/files/2019-12/robinhood-awc-121919.pdf>.

⁴⁵ "In the Matter of Robinhood Fin., LLC", Admin. Proc. File No. 3-20171 (Dec. 17, 2020), <https://www.sec.gov/litigation/admin/2020/33-10906.pdf>.

⁴⁶ Letter from Tyler Gellach, Healthy Markets Ass'n, to Brent J. Fields, SEC, at 7-8, (Sept. 26, 2016), <https://healthymarkets.wpengine.com/wp-content/uploads/2018/04/09-26-16-HM-letter-Order-Handling-Disclosure-rules.pdf>; Annette L. Nazareth, Gregory Rowland, Zachary J. Zweihorn, and Mark A. Sater, "SEC Adopts Enhanced Order Handling Disclosure Requirements", FINREG: Davis Polk Insights on Fin. Reg. (Nov. 27, 2018), <https://www.finregreform.com/single-post/2018/11/27/sec-adopts-enhanced-order-handling-disclosure-requirements>.

A ban on PFOF is unlikely to result in the end of retail investor participation in the market. But it can result in less conflicted order routing and adoption of a more transparent pricing model. Other jurisdictions, such as the United Kingdom and Australia, have banned PFOF because it is innately conflicted and of questionable benefit to investors.⁴⁷ FINRA has begun an examination of PFOF and the zero-commission business model because of their problematic incentive structures.⁴⁸ In light of the concerning features of PFOF, Congress and the SEC should explore whether its continuation is truly in the best interest of retail investors or in the best interest of brokers, wholesalers, and market makers.

B. Price Improvement Is Questionable

One of the main arguments in favor of PFOF is that the third parties to which brokers route orders purportedly provide retail customers with “price improvement.” Often, market participants will (somewhat misleadingly) claim that “price improvement” means that retail customers are getting better prices than are available on exchanges. For example, Robinhood’s CEO testified: “In fact, Robinhood customers received more than \$1 billion in price improvement—the price they received compared to the best price on a public exchange—in the first half of 2020.”⁴⁹

But that is not what price improvement is often defined to calculate. Rather, “price improvement,” as defined by SEC Rule 605 is not measured from the best available prices on exchanges, but rather the best available protected quote.⁵⁰ Odd-lot quotes (i.e., buy/sell offers for less than 100 shares) are generally not protected and, therefore, they are not used to calculate price improvement, even if they are a better price than the protected quote. Consequently, price improvement claims are often overstated and fail to reflect that many investors’ executions were not at the best available prices, but were instead at prices that were inferior to odd-lot quotes on the exchanges.

Studies have also raised questions as to whether retail investors receive the best price when their orders are routed based on PFOF. A study by the U.K. financial regulator found that in removing broker payments for order routing, investor execution at the best available price increased from 65 percent to 90 percent.⁵¹ A more recent study based on U.S. transactions in GameStop during the January trading frenzy estimated that price improvement estimates were cut in half when odd lots on just Nasdaq were included in the calculations.⁵²

To improve the calculation of price improvement and actually enable investors to receive best execution, the SEC should immediately update Rule 605 to reflect odd-lots in the calculation of price improvement. There is little to no justification in the current market for excluding odd-lot quotes from the calculation of price improvement. And, there is even less justification for excluding it from determining the best available price for trade execution when the aggregated available odd lots are at least as great as a customer order.

It is also worth noting that it appears that different retail broker dealers appear to negotiate different amounts of price improvement for their customers. Further, the amounts of price improvement seem to be, in many cases, inversely related to the amount of payments received by the broker as part of its PFOF. It seems as though it should be obvious, but if one retail broker is routinely providing its customers with better prices than another, they can’t both be providing “best execution.”

Lastly, as discussed below, even using a more accurate calculation methodology, the “price improvement” statistic may still not reflect an improvement over a price that could have been received if the order had been routed to the lit markets. That’s because if a retail order is routed to an exchange, it is likely that the order could receive mid-point trade executions that would offer far better prices than the price improvement currently offered.

⁴⁷ CFA Inst., “Payment Order Flow: Internalisation, Retail Trading, Trade-Through Protection & Implications for Market Structure” 2 (2016), <https://www.cfainstitute.org/-/media/documents/issue-brief/payment-for-order-flow.ashx> (discussing the U.K. ban on PFOF).

⁴⁸ “Targeted Examination Letter on Zero Commissions”, FINRA (Feb. 2020), <https://www.finra.org/rules-guidance/guidance/targeted-examination-letters/zero-commissions>.

⁴⁹ “Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm. on Fin. Servs., 117 Cong. (Feb. 18, 2021) (statement of Vladimir Tenev, CEO, Robinhood Markets, Inc.), prepared remarks available at <https://financialservices.house.gov/uploadedfiles/hhrg-117-ba00-wstate-tenev-20210218.pdf>.

⁵⁰ SEC Rule 605, FINRA, <https://www.finra.org/rules-guidance/guidance/sec-rule-605> (last visited Mar. 7, 2021).

⁵¹ CFA INST., *supra* note 47, at 2.

⁵² Robert P. Bartlett, III & Justin McCrary, *Modernizing Odd Lot Trading* (on file with author).

C. Price Discovery and Market Liquidity Are Reduced

Another consequence of PFOF is that it results in significant market segmentation. Retail orders routed to a market maker, for instance, are typically filled by the market maker without ever trading on the exchanges. Given that retail trades account for an ever-increasing segment of the markets, isolating retail transactions to market makers with whom brokers have order routing arrangements reduces liquidity and price discovery for the rest of the markets.

In adopting Regulation National Market System ("Reg NMS"), the SEC sought to create a fair and transparent marketplace in which investors could trade at the best price available across the different venues trading a security.⁵³ The reality, however, is that the securities markets are more fragmented today than they were prior to the enactment of Reg NMS. There are over a dozen exchanges and dark pools, and hundreds of broker-dealers who fill customer order internally or route them according to prior arrangements.⁵⁴ Further compounding this fragmentation, it is estimated that close to 100 percent of retail orders are internalized and, therefore, never interact with the broader market in execution.⁵⁵

Over the past several years, the amount of exchange trading has steadily declined as retail trading has increased. Over the past several weeks, as much as half of all trading has been occurring off-exchange.⁵⁶ This means that those orders are not contributing to price discovery. Pension funds, mutual funds, and other investors are generally unable to interact with them. Further, as discussed above, retail customers may not be receiving the best price available.

Relatedly, segmentation of retail transactions has reduced market liquidity, making it harder for institutional investors to trade.⁵⁷ Retail trades are inaccessible sources of liquidity, which has a significant effect on the cost to trade popular stocks that have a high percentage of retail ownership. Apple, for example, has an estimate retail share of 38 percent, which is unavailable to most institutional investors because the trades are fulfilled internally. As a result, institutional investors seeking to trade stock with high retail ownership face significantly higher costs because of diminished liquidity and increased volatility.⁵⁸

Conclusion

Today, it is easier, cheaper and faster to trade more complex and leveraged financial products than ever before. This new market reality requires that we rethink the risks that accompany these developments and, in so doing, consider what types of markets we want to create and encourage from a policy perspective. Promoting and strengthening market stability and integrity is essential to the market fulfilling its fundamental purpose: efficiently allocating capital to businesses, driving the economy, and enabling investors to enjoy reasonable returns on their capital. Recent events have highlighted concerns and shortcomings in the existing market structure, which must be comprehensively addressed in order to ensure that the markets remain fair, stable, and accessible companies seeking capital and, most importantly, all investors.

PREPARED STATEMENT OF RACHEL J. ROBASCIOTTI
FOUNDER AND CHIEF EXECUTIVE OFFICER, ADASINA SOCIAL CAPITAL

MARCH 9, 2021

Mr. Chairman Brown, Ranking Member Toomey, and Members of the Committee: Good morning and thank you for inviting me to testify before this Committee. It is my great honor. My name is Rachel Robasciotti and I hold leadership positions at two SEC Registered Investment Advisory firms. I am the Founder and CEO of Adasina Social Capital, where we manage an exchange-traded fund with the ticker

⁵³ Div. Trading & Mkts., Responses to Frequently Asked Questions Concerning Rule 611 and Rule 610 of Regulation NMS, SEC, <https://www.sec.gov/divisions/marketreg/nmsfaq610-11.htm> (last updated Apr. 4, 2008).

⁵⁴ CFA Inst., "Dark Pools, Internalization, and Equity Market Quality" 2 (2012), <https://www.cfainstitute.org/en/advocacy/policy-positions/dark-pools-internalization-and-equity-market-quality>.

⁵⁵ Id. at 16.

⁵⁶ Alexander Osipovich, "GameStop Mania Highlights Shift to Dark Trading", *Wall St. J.* (Feb. 12, 2021, 5:33 AM), <https://www.wsj.com/articles/gamestop-mania-highlights-shift-to-dark-trading-11613125980>.

⁵⁷ "Meme Stocks: Inaccessible Trading Share, Trading Cost, and Risk", *Babelfish Analytics* (Feb. 5, 2021), <https://www.babelfishanalytics.com/news/2021/2/4/meme-stocks-inaccessible-trading-share-trading-cost-and-risk>.

⁵⁸ Id.

symbol JSTC. It holds over 800 stocks, but is accessible to everyday investors at a price of about \$16 per share. I am also the Director of Advocacy & Engagement for Abacus Wealth Partners, a firm with \$3.8 billion in assets and no minimum account size for its clients.

In both roles, I serve hardworking, everyday Americans. Your constituents and my clients are the same people.

I have also worked in financial services for almost 22 years, so I take the long view of market events. I have seen everything from the ill-fated dot-com boom of 2000 through the Great Recession and the most recent GameStop-Robinhood episode in January. I understand the players in the market and, in this most recent situation, there are three groups to consider.

1. *Hedge Funds*: Institutions that primarily manage money for wealthy, accredited investors¹ and are known for their risky strategies and high returns.

2. *Redditors*: Tech-enabled young people, using commission-free trading, who banded together to outwit the hedge funds they felt had an unfair advantage.

3. *Everyday Americans*: Hard-working people with long-term retirement savings invested in the stock market. These people do not have time to be sophisticated investors and were mostly anxious, confused, and frustrated.

But, as an investment professional, what happened here was familiar to me.

When the GameStop-Robinhood episode occurred in January, I was immediately reminded of the MIT Blackjack Team of the 1990s, when a group of students banded together to break the bank at several large casinos.² They realized that if they worked together, they could win substantially more money than the average gambler. So, using math skills and technology, they coordinated to quickly and strategically place large bets against the house.

It is easy to see the obvious similarities between the two situations. Like the MIT students, the Redditors in January were young, knowledgeable people with high appetites for risk who chose to collectively speculate by making quick bets against a larger player with a perceived advantage.

On the other hand, like the casinos, the hedge funds are large institutions with specialized knowledge about the game who some say routinely use their size to tip the odds in their favor.

What is not obvious, whether in the casino or the stock market, is what the wealthy institutions and upstarts have in common. They are all fast-moving, high-risk speculators with more skills and tools than the average person.

But there is a problem here for the stock market. When fast-moving, high-risk speculators dominate, we have a classic recipe for market disruptions. What we saw in January with GameStop and Robinhood is what we saw during the Great Recession with Wall Street churning out subprime, mortgage-backed securities.

Market disruptions like this are a problem because, as stated by SEC Commissioners on January 29th,³ “...extreme stock price volatility has the potential to expose investors to rapid and severe losses and undermine market confidence.”

Unfortunately, this volatility does not impact everyone equally. Let me paint the picture of what the everyday investor experienced. Imagine a two-job household with a couple of kids, adults working hard to make ends meet and save enough for the future. They don’t have a professionally managed pension to fall back on for retirement, because so few pensions now exist.⁴ They know that Social Security benefits their parents receive aren’t enough to cover most retiree’s basic needs.⁵ And, for several decades now, the economy has only offered these savers historically low-interest rates, which means that putting their money in low-risk savings accounts, CDs, or bonds barely makes them enough to keep up with inflation.⁶

¹ Securities and Exchange Commission, Office of Investor Education and Advocacy, “Investor Bulletin: Hedge Funds”, SEC Pub. No. 139 (February 2013).

² Noah Goldman, “How MIT Students Broke the Bank in Vegas”, ABC News (January 6, 2006).

³ U.S. Securities and Exchange Commission, “Statement of Acting Chair Lee and Commissioners Peirce, Roisman, and Crenshaw Regarding Recent Market Volatility”, Public Statements, U.S. Securities and Exchange Commission (January 29, 2021).

⁴ Barbara A. Butrica, Howard M. Iams, Karen E. Smith, and Eric J. Toder, “The Disappearing Defined Benefit Pension and Its Potential Impact on the Retirement Incomes of Baby Boomers” Office of Retirement and Disability Policy, Social Security Administration, Social Security Bulletin, Vol. 69, No. 3 (October 2009).

⁵ Jan Mutchler and Yang Li, “The Gap Remains: Social Security Benefits Continue to Fall Short of Covering Basic Cost of Living for Older Americans, 2015-2020”, Center for Social and Demographic Research on Aging Publications, No. 48, University of Massachusetts Boston (November 2020).

⁶ *The Economist*, “The Savers Dilemma: Low Interest Rates Leave Savers With Few Good Options”, Finance & Economics, *The Economist* (October 15, 2020).

This leaves investing in the stock market as their only option. It is the only way their savings can grow enough to provide for the future. So, they are forced into the “stock market casino” with their life savings. And they are being required to play against armies of sophisticated, high-risk hedge funds and Redditors duking it out for dominance. With smaller amounts, that represent all that they have to invest, sustaining significant losses (or even the perception of losses) is devastating. It makes them lose confidence and want to opt out altogether. But we know they can’t leave the casino.

As an investment professional who works for everyday investors, and as senators with these same people as your constituents, we must fix the system for them. We need to maintain fair, orderly, and efficient markets that serve as a reasonable place for the average American to invest their life savings. And we have a duty to protect these investors from the crossfire of fast-moving, high-risk speculators.

PREPARED STATEMENT OF TERESA GHILARDUCCI

BERNARD L. AND IRENE SCHWARTZ PROFESSOR OF ECONOMICS, THE NEW SCHOOL

MARCH 9, 2021

Thank you for inviting me, Chairman Brown and Ranking Member Toomey and Members of the Committee.

I am the Bernard Schwartz Chair of Economics at The New School in New York City, coming to that faculty in 2007 after teaching at the University of Notre Dame for 25 years. I received my PhD from UC Berkeley and serve as a court-appointed independent trustee of the Goodyear tire retirees’ \$900 million health care trust fund and the autoworkers \$60 Billion retiree health fund.

My office hours are typically quiet moments huddling over equations. But over the past few years, students have been bubbly, asking about their trades on the phone-friendly trading platform, Robinhood. The young are told to buy stocks and hold them—but they absorbed the first point and missed the second.

Trading on Robinhood is a game with psychologically powerful intermittent rewards and is disconnected to long term wealth accumulation. Phone Apps makes trading easy and cheaper and superficially seems to open securities markets to many more people but they do not produce wealth.

I welcome today’s hearing seeking to protect retail stock buyers from casino-type trades. And I want to emphasize that Americans’ wealth does not come from retail stock trading. I am here to testify where Americans really get their wealth.¹

As you might guess, home equity and retirement wealth including Social Security² are the largest components of wealth³—they make up 88 percent⁴ of the wealth held by near retiree households in the lower half of the wealth distribution; 78 percent for the middle class, and 43 percent for those in the top 10 percent (Table 2).

You might be surprised that Social Security is the most important source of household wealth for half of all households with workers nearing retirement. Social Security represents 58 percent of net wealth for near retirees in the bottom half of the wealth distribution; 27 percent for the middle class; and 7 percent for the top 10 percent.⁵

In contrast, directly owned stocks (and bonds) make up a relatively small share of near retirees’ wealth at 8 percent. Only 24 percent of older households own stocks directly, outside of their retirement account and that ownership is concentrated at the top. Only 10 percent of those in the bottom half of the wealth distribution own stocks, less than a third of the middle class.

¹ Researchers at The New School, Michael Papadopoulos and Siavash Radpour, constructed the wealth data and Owen Davis helped with the Robinhood discussion.

² We add the shares in the net value of primary residence, present value of expected Social Security benefits, value of DC plans and IRAs, and present value of defined benefit benefits.

³ Half of near-retirement households (with members aged 52 or over), those in the bottom half of the wealth distribution have less than \$296,000 wealth, including the value of their pensions and Social Security benefits. The median wealth for the middle class—those in the next 40 percent of the wealth distribution—is \$1.02 million. Households in the top 10 percent have a median net wealth of over \$3.2 million (Table 1).

⁴ Adding 19%+58%+11%=88%

⁵ A note about the racial wealth gap and Social Security. Whites, on average, have 83 percent more net wealth (Table 3) than non-whites. But the racial Social Security wealth gap is only 13 percent—Social Security is the most equitably distributed source of wealth for Americans nearing retirement. Whites have 8 times the wealth in business, and 4 times the wealth in directly held stocks, 58 percent more housing wealth and 2.4 times the retirement plan wealth compared to non-whites

And the wealthy are not rich because they directly own stocks. Though 70 percent of the top 10 percent directly own stocks, it is only 13 percent of their wealth. (They own businesses (15 percent of their wealth), other real estate (15 percent of their wealth), and have 25 percent of their wealth in retirement accounts and pension plans.)

As Nobelist Robert Shiller recent book points out stock trading feeds a narrative, a story about wealth, trading is exciting because stocks fluctuate. Stories about getting rich on stocks produce a fiction that stock trading creates wealth, when, in fact, retail investors fuel bubbles.

Defenders of Robinhood and widespread trading have purchase because in the COVID recession people who own stocks have done well, which heightens the fear of missing out for those not buying stocks. The reality is they are being left out because they don't have access to retirement accounts, which is where most of us who own stocks hold them. Retirement accounts are invested in diversified portfolios managed by institutional investors and professionals who can manage the risks that come with investments in private equity, etc., and other complex instruments.

But more than half of workers do not have a retirement plan at work, which means many households do not have any investment in stocks or are accumulate private wealth for their retirement. (Radpour, Papadopoulos, and Ghilarducci 2021).

Any retail brokers' claims that trading democratizes access to wealth only takes advantage of people's fears. I do not recommend opening up high-risk and expensive alternative investments to the retail investor it can make risk and inequality worse.⁶

Robinhood founders frequently invoke their experience as part of the Occupy movement to explain why they want to democratize finance. But safe and professionally managed diversified investments, not trading apps, are the path to economic security. Successful investors know that "time in the market" and diversification, which are among the many benefits of professionally managed retirement plans, are what works. Unlike "timing the markets," which does not work, yet is that is what trading apps encourage.

We need innovations in public policy to give more Americans access to what we know works—professionally managed retirement coverage that allows everyone to benefit from the stock markets the same way you and I do in Thrift Savings Plan, in a private or public defined benefit plan, or in my pension plan Teachers Insurance Annuity Association.

Wealth Holdings

The typical household whose members are nearing retirement earn about \$65,000, their average wealth of over \$1 million is barely relevant since the very wealthy pull up the average beyond reality. Because most Americans do not have significant wealth until their fifties, I focus today on those nearing retirement age, defined as households with one worker 52 or over.

The typical near-retirement household in the United States earns between \$55,000 to \$75,000 per year and has an average net wealth of \$1.67 million. I don't report the income distribution tables, but am reporting the wealth distribution. When dividing up the over near retiree population This sounds like a large number, but—as you know—averages hide important differences (as witnesses testified in your March 3 hearing) and means and medians don't give you a complete picture. So I am going to report wealth in terms of wealth distribution, looking at the differences between those in the bottom 50 percent, the next 40 percent and the top 10 percent of the wealth distribution. (These are categories recommended by French economist Thomas Piketty (2015).

For those in the bottom half of the wealth distribution, the median net wealth is \$295,724; for those in the next 40 percent, it is \$1,019,239; and for those in the top 10 percent, median net wealth is \$3.19 million. You may be surprised that home equity in a primary residence is not the largest share of wealth across all income groups. It is only 12 percent of net wealth for those in the top 10 percent (they own other real estate) and about 20 percent for the bottom 90 percent.

Social Security is the predominant source of household wealth for near retirees. As a promised stream of income for the rest of your life, indexed to inflation, Social Security represents 24 percent of net wealth, which falls as income goes up. Social

⁶Demand for lottery-like stocks increases during economic downturns and is more prevalent among vulnerable groups: poor young men, African Americans and Latinos. (Kumar 2009) Some types of retail trading resemble gambling disorders. (Grall-Bronnec et al. 2017). New technologies make stock trading more like gambling. Apps like Robinhood make gambling stocks more accessible. Two to three percent of gamblers become addicted. Trading can become an addiction, akin to gambling addiction.

Security matters much more for lower wealth holders who are likely lower earners: 58 percent of total wealth is in Social Security for the bottom half of the wealth distribution, 27 percent for the middle and 7 percent for those at the top. Retirement savings in the form of defined contribution savings plans and individual retirement accounts are next, representing 17 percent of households net wealth, only 8 percent on the bottom, 21 percent for middle and 16 percent for those on the top. Traditional pensions, or benefits from a defined benefit plan, represent only at 8 percent because they have been replaced by 401(k)s, only 3 percent for the bottom and 9 percent for the top half.

Table 1: Mean and Median Wealth by Wealth Percentile Group for Households with At Least One Worker Over 52

	Mean				Median			
	All	Bot. 50%	Next 40%	Top 10%	All	Bot. 50%	Next 40%	Top 10%
Primary Residence net of mortgage debt	178,758	63,472	234,469	533,339	105,000	38,000	180,000	400,000
Other Real Estate net of mortgage debt	95,838	7,254	58,810	677,822	0	0	0	160,000
Vehicles net of car loans	22,273	14,099	27,727	41,376	15,000	9,000	20,000	27,000
Social Security	253,525	196,600	307,671	321,702	254,044	192,604	300,124	274,966
Retirement Savings and Benefits (DC, DB, IRA)	270,226	37,314	343,114	1,135,697	51,000	0	237,800	823,000
Business (net)	82,950	2,618	32,280	689,153	0	0	0	0
Stocks	82,361	4,212	49,709	605,311	0	0	0	140,000
Bonds	12,786	191	2,651	116,630	0	0	0	0
Checking/Savings Accounts	38,790	8,879	44,568	165,598	7,000	2,000	15,000	50,000
CDs, Savings Bonds, T-Bills, and Other Savings	35,855	4,426	28,243	224,020	0	0	0	5,000
Total Wealth	1,073,362	339,065	1,129,242	4,510,648	600,824	303,844	1,025,924	3,189,109
Non Real Estate Debt	8,285	47	7,173	5,240	0	0	0	0
Net Wealth	1,065,077	339,018	1,122,069	4,505,408	594,049	295,724	1,019,239	3,188,181

Source: Michael Papadopoulos et. al. calculation using the Health and Retirement Study 2016 wave.

Notes: Stock and bond categories represent direct ownership (i.e., outside of 401(k)-type plans). Wealth cutoffs for single households are \$319,000 and \$1,227,915. Wealth cutoffs for married households are \$736,049 and \$2,526,249. Amounts for defined benefit plans and Social Security benefits reflect the present value of expected benefits in retirement assuming retirement and claiming at Full Retirement Age. Values for real estate reflect net equity (value of home minus mortgage debt).

Table 2: Share of Total Wealth and Share Having Any Wealth in Category by Wealth Percentile Group for Households with At Least One Worker Over 52

	Share Having Any				Share of Net Wealth			
	All	Bot. 50%	Next 40%	Top 10%	All	Bot. 50%	Next 40%	Top 10%
Primary Residence net of mortgage debt	78%	64%	91%	98%	17%	19%	21%	12%
Other Real Estate net of mortgage debt	28%	16%	34%	61%	9%	2%	5%	15%
Vehicles net of car loans	89%	85%	93%	95%	2%	4%	2%	1%
Social Security	100%	100%	100%	100%	24%	58%	27%	7%
Retirement Savings and Benefits (DC, DB, IRA)	66%	46%	85%	96%	25%	11%	31%	25%
Business (net)	11%	5%	13%	31%	8%	1%	3%	15%
Stocks	24%	10%	31%	70%	8%	1%	4%	13%
Bonds	5%	1%	6%	22%	1%	0%	0%	3%
Checking/Savings Accounts	83%	75%	91%	96%	4%	3%	4%	4%
CDs, Savings Bonds, T-Bills, and Other Savings	27%	16%	34%	55%	3%	1%	3%	5%

Source: Michael Papadopoulos et. al. calculation using the Health and Retirement Study 2016 wave.

Notes: Stock and bond categories represent direct ownership (i.e., outside of 401(k)-type plans and IRAs). Wealth cutoffs for single households are \$319,000 and \$1,227,915. Wealth cutoffs for married households are \$736,049 and \$2,526,249.

Table 3: Descriptive Statistics for Wealth by Race of Household Head for Households with At Least One Worker Over 52

	Mean		Median		Share Having Any		Share of Net Wealth	
	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite
Primary Residence net of mortgage debt	193,084	122,524	120,000	60,000	82%	64%	16%	19%
Other Real Estate net of mortgage debt	100,618	77,080	0	0	29%	22%	9%	12%
Vehicles net of car loans	23,821	16,199	15,000	10,000	92%	78%	2%	3%
Social Security	259,594	229,702	261,724	215,644	100%	100%	22%	36%
Retirement Savings and Benefits (DC, DB, IRA)	304,893	129,102	82,918	0	71%	46%	26%	20%
Business (net)	100,936	12,346	0	0	12%	6%	9%	2%
Stocks	97,348	23,533	0	0	27%	13%	8%	4%
Bonds	15,529	2,022	0	0	6%	2%	1%	0%
Checking/Savings Accounts	43,763	19,265	9,000	1,500	87%	67%	4%	3%
CDs, Savings Bonds, T-Bills, and Other Savings	41,563	13,453	0	0	29%	17%	4%	2%
Total Wealth	1,181,149	645,226	675,166	387,604				
Non Real-Estate Debt	8,318	8,153	0	0				
Net Wealth	1,172,831	637,073	667,924	376,204				

Source: Michael Papadopolous et. al. calculation using the Health and Retirement Study 2016 wave.

Notes: Stock and bond categories represent direct ownership (i.e., outside of 401(k)-type plans). Amounts for defined benefit plans and Social Security benefits reflect the present value of expected benefits in retirement assuming retirement and claiming at Full Retirement Age. Values for real estate reflect net equity (value of home minus mortgage debt).

Policy Implications

Overall, I think the focus on broader wealth accumulation and retirement assets is the right way to go. We need to add accrued Social Security benefits to retirement wealth which helps reduce the retirement wealth gap between low and high earners and keeps retirees out of poverty, American workers still face a wealth crisis. Policymakers need to strengthen and expand Social Security and mandate employer-sponsored retirement plans to ensure universal coverage and adequate retirement income. Policymakers need to pay attention to the risks of student debt and home mortgages. We need better regulation of Fin tech to be sure, the future generation depends on our stewardship. The most important source of savings, though, is income, savings are a residual from people's earnings. They can't buy a house and contribute to a pension without decent earnings. This is not a rhetorical point, it is rooted in economic research on savings. We need to increase minimum wage and raise wages.

Social Security Wealth

Social Security reduces—but does not eliminate—retirement wealth inequality. For typical workers age 51-56, accrued Social Security benefits exceed employer-sponsored retirement wealth. Median Social Security wealth amounts to \$81,900 compared with \$67,000 in employer-sponsored retirement plans.

At ages 51-56, the typical low-wage worker (in the lowest 20 percent of earnings) has no retirement wealth. The typical high-wage worker (in the highest 20 percent of earnings) has wealth equal to almost two and a half times their earnings.

Adding accrued Social Security benefits to retirement wealth decreases the retirement wealth gap between low and high earners from two and a half times earnings to just over half a year's earnings (see Ghilarducci, Radpour, and Webb 2020).

To calculate Social Security wealth for this testimony, I impute a career earnings trajectory for each worker using two factors: (1) current earnings in the survey year [2016] and (2) scale factors from a Social Security Administration Actuarial Note published by Clingman and Burkhalter (2016). This career earnings trajectory is then used to calculate AIME and PIA, giving us the Social Security Retired Worker benefit. We assume all workers claim the Retired Worker benefit. We assume a worker collects benefits for 13 years, and therefore multiple annual benefits by 13—the actuarial factor (Carlson 2020), giving us an estimate for Social Security wealth.

Trading and Investment

It's well-known that individual investors underperform on average, and app-based day-trading may be making this performance gap between underperforming app

trading and other portfolios worse. In general, retail investors' returns are lower on average than returns to low-cost index funds and certainly less rewarding in terms of risk—adjusted returns to a professionally managed defined benefit portfolio. (Barber and Odean, 2013).

Retail investors tend to sell good stocks too soon and hold bad stocks too long—the endowment effect—and engage in myopic and salient trading patterns (a recent event is viewed as more likely to happen than it is) and they tend not to be diversified enough, professionals with a broad information base have more holdings. (Barber and Odean, 2013).

Recent evidence using Robinhood data finds that frequently bought stocks on the app seriously underperform due to what authors call “extreme herding” events (Barber et al., 2021). And a recent study using data on German households found that switching from desktop computers for investing to smartphone apps led investors to “increased purchasing of riskier and lottery-type assets and chasing past returns” (Kalda et al., 2021).

Fintech is not all bad—Apps like Betterment, Wealthfront, and Acorns are geared more toward patient, long-term investing than impulsive day trading. Owen Davis, graduate student at the New School helped with this section.

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PREPARED STATEMENT OF MICHAEL S. PIWOWAR

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MARCH 9, 2021

Good morning. Thank you Chairman Brown, Ranking Member Toomey, and Members of the Committee for inviting me to testify today.

My name is Mike Piowar, and I am the Executive Director of the Milken Institute Center for Financial Markets.¹ I had the pleasure of serving on this Committee's staff as Chief Economist for Senator Shelby and Senator Crapo. I also served as a Visiting Academic Scholar, Senior Financial Economist, Commissioner, and Acting Chairman of the U.S. Securities and Exchange Commission ("SEC" or "Commission"). I am testifying today on my own behalf.

Now that the dust has settled after the January trading frenzy on Gamestop and other so-called meme stocks, I am glad that you called this hearing on the state of retail investing.

Retail investors enjoy more choices and face lower costs and barriers when investing their hard-earned savings than ever before.

Retail investors can invest directly in securities through brokerage accounts. Competition among brokers has led to commission-free trading. Competition among exchanges, alternative trading systems (ATSs), and market makers has led to the best market quality environment—transaction costs are low, market depth is high, and execution speeds are fast—for publicly traded securities in history.² Retail investors can make their own investment decisions or seek the advice of a regulated investment professional through a broker-dealer or investment adviser.

Retail investors can achieve low-cost diversification and professional management by indirectly investing in the stock market through passively—and actively—managed mutual funds and exchange-traded funds (ETFs). Competition among funds has brought fees and expenses down to their lowest levels in history.³ The widespread availability of retirement savings accounts such as 401(k) plans and individual retirement accounts (IRAs) also allows low-cost access to the stock market.

Retail investors have taken advantage of these beneficial trends over the past few decades. The percentage of U.S. households that own stocks—directly or indirectly through funds and retirement savings accounts—increased from 32 percent in 1989 to 53 percent in 2019.⁴ Low-income households still lag high-income households in stock ownership rates, but low-income households saw the biggest gains over this period.^{5 6}

However, the SEC could make regulatory changes to improve the retail investing landscape. The January trading frenzy and the related difficulties faced by some brokerage customers highlighted a few areas that require the SEC and this Committee's immediate attention.

The Commission has already said that they are reviewing actions taken by regulated entities to determine whether they may have disadvantaged investors or otherwise unduly inhibited their ability to trade certain securities.⁷ The Commission also said that they are investigating whether abusive or manipulative trading activity prohibited by the Federal securities laws occurred during this episode.⁸

I have complete confidence that the Commission and its staff will identify and pursue any evidence of noncompliance or wrongdoing. Accordingly, I focus my testimony on the market structure and market infrastructure⁹ issues that have been

¹ The Milken Institute is a nonprofit, nonpartisan think tank that promotes evidence-based research that serves as a platform for policymakers, industry practitioners, and community members to come together in catalyzing practical solutions to challenges we face both here in the U.S. and globally. The Center for Financial Markets conducts research and constructs programs designed to facilitate the smooth and efficient operation of financial markets—to help ensure that they are fair and available to those who need them when they need them.

² See, e.g., "A Century of Stock Market Liquidity and Trading Costs", Charles M. Jones (May 23, 2002), available at <https://papers.ssrn.com/sol3/papers.cfm?abstract-id=313681>; "Equity Trading in the 21st Century", James J. Angel, Lawrence E. Harris, and Chester S. Spatt, *Quarterly Journal of Finance*, Vol. 1, No. 1 (2011); and "Equity Trading in the 21st Century: An Update", James J. Angel, Lawrence E. Harris, and Chester S. Spatt (May 23, 2013), available at <https://www.g-group.org/wp-content/uploads/2014/01/Equity-Trading-in-the-21st-Century-An-Update-FINAL.pdf>.

³ See, e.g., "2020 Investment Company Fact Book: A Review of Trends and Activities in the Investment Company Industry", available at <https://www.ici.org/research/stats/factbook>.

⁴ See "Federal Reserve Board 2019 Survey of Consumer Finances" (Nov. 17, 2020), available at <https://www.federalreserve.gov/econres/scfindex.htm>.

⁵ See "Main Street Owns Wall Street, ICI Viewpoints", Sarah Holden and Michael Bogdan (Feb. 10, 2021), available at <https://www.ici.org/viewpoints/21-view-equityownership>.

⁶ The Milken Institute Center for Financial Markets is actively engaged in research, programs, and events to provide for more equitable access to capital for job-creating businesses and more equitable access to investments by retail investors.

⁷ Statement of Acting Chair Lee and Commissioners Peirce, Roisman, and Crenshaw Regarding Recent Market Volatility (Jan. 29, 2021), available at <https://www.sec.gov/news/public-statement/joint-statement-market-volatility-2021-01-29>.

⁸ Id.

⁹ The term "market structure" (or "market microstructure") generally refers to the operation and regulation of financial markets. The term "market infrastructure" (or "market plumbing")

raised in the aftermath of the January trading. Before addressing specific issues, I summarize some guiding principles that I find useful in thinking through them.

Guiding Principles for Market Structure and Market Infrastructure Policy

*There Are No Solutions; There Are Only Trade-offs*¹⁰

The regulatory framework of the U.S. equity markets is complicated; it reflects a complex system of legal and regulatory decisions that have been made over decades. The markets have evolved within this framework into a highly interconnected system.

As a result, any change to market structure policy in one area will likely affect other areas. For example, if payment for order flow were restricted or banned, zero-commission trades would likely disappear. This is one tradeoff that the Commission will have to weigh when deciding whether and, if so, how to make any changes in existing regulation of payment for order flow arrangements. Changes to existing market structure and market infrastructure policy always involve tradeoffs.

Economic Analysis Is a Particularly Useful Tool

The lens of economic analysis is well-suited for evaluating tradeoffs. While serving as an SEC commissioner, I found my economics training was a valuable tool on virtually every regulatory and enforcement decision I had to make.

In 2012, the Commission recognized the importance of going beyond statutory obligations mere quantitative exercises to incorporate comprehensive economic analysis in the rulemaking process by adopting “Current Guidance on Economic Analysis in SEC Rulemaking” (Current Guidance).¹¹ The Guidance was adopted under SEC Chairman Mary Schapiro. It has been followed on a bipartisan basis by Chair Mary Jo White, myself as Acting Chairman, and Chairman Jay Clayton.¹² I was glad to see that SEC-nominee Gary Gensler committed to following the Current Guidance in response to a question during last week’s nomination hearing.

The SEC’s Current Guidance requires the Commission to evaluate a rule’s likely economic consequences, including potential negative unintended consequences. It requires the Commission to compare a proposed regulatory action with reasonable alternatives, including the alternative of not adopting a rule.

Because U.S. equity markets and their regulatory framework are so complex, the SEC’s Current Guidance is a particularly useful tool when evaluating any potential changes to market structure and market infrastructure policy.

Frequent Retrospective Reviews of Existing Rules Are Necessary

The only constant in financial markets is change. Markets and technologies are continually evolving. If we want our capital markets to remain the envy of the world, our regulatory framework needs to evolve with them.

Throughout my tenure as an SEC commissioner, I was an outspoken advocate of retrospective reviews of Commission rules.¹³ I believe it is a fundamental best practice of good government to observe how the Commission’s regulations work in the real world. Armed with this information, the Commission can propose thoughtful improvements to its rules to advance the Commission’s essential work to protect investors, maintain fair, orderly, and efficient markets, and promote capital formation.

I am not alone in this view. For example, the Regulatory Flexibility Act of 1980 requires agencies such as the Commission to perform a periodic review of rules that

generally refers to the network of systems that facilitate financial market transactions, such as payment systems, clearance, and settlement.

¹⁰This phrase is often attributed to Thomas Sowell.

¹¹“Current Guidance on Economic Analysis in SEC Rulemaking”, (Mar. 16, 2012), available at <http://www.sec.gov/divisions/riskfin/rsfi-guidance-econ-analy-secrulemaking.pdf>.

¹²The Commission has not proposed or adopted any new rules under current Acting Chair Allison Herren Lee.

¹³See, e.g., “Advancing and Defending the SEC’s Core Mission”, Speech by Commissioner Michael S. Piowar at the U.S. Chamber of Commerce (Jan. 27, 2014), available at <https://www.sec.gov/news/speech/2014-spch012714msp>; Remarks to the Securities Enforcement Forum 2014, Speech by Commissioner Michael S. Piowar (Oct. 14, 2014), available at <https://www.sec.gov/News/Speech/Detail/Speech/1370543156675>; Statement Regarding Publication of List of Rules to be Reviewed Pursuant to the Regulatory Flexibility Act, Public Statement by Commissioner Michael S. Piowar (Sept. 15, 2016), available at <https://www.sec.gov/news/statement/piowar-statement-list-of-rules-regulatory-flexibility-act.html>; Remarks at FINRA and Columbia University Market Structure Conference, Speech by Commissioner Michael S. Piowar (Oct. 26, 2017), available at <https://www.sec.gov/news/speech/speech-piowar-2017-10-26>; and Statement of Commissioner Piowar at Open Meeting Regarding Amendments to the Commission’s Whistleblower Program Rules, Commissioner Michael S. Piowar (June 28, 2018), available at <https://www.sec.gov/news/public-statement/statement-piowar-whistleblower-062818>.

have or will have a significant economic impact upon a substantial number of small entities within ten years of the publication of such rules as final rules “to determine whether such rules should be continued without change, or should be amended or rescinded.”¹⁴ The Regulatory Flexibility Act identifies the following factors for analysis: (1) the continued need for the rule; (2) the nature of complaints or comments received concerning the rule from the public; (3) the complexity of the rule; (4) the extent to which the rule overlaps, duplicates, or conflicts with other Federal rules, and, to the extent feasible, with State and local governmental rules; and (5) the length of time since the rule has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the rule.¹⁵

In 2011, President Obama signed an Executive Order to enhance the Regulatory Flexibility Act’s goals by directing independent agencies such as the SEC to develop and implement a plan to conduct ongoing retrospective analyses of existing rules.¹⁶ The stated goal is “to determine whether any such regulations should be modified, streamlined, expanded, or repealed so as to make the agency’s regulatory program more effective or less burdensome in achieving the regulatory objectives.”¹⁷

Because markets and technologies are continually evolving, frequent retrospective reviews of market structure and market infrastructure rules by the Commission are necessary to ensure that they are not outdated, obsolete, or overly burdensome.

Specific Issues

The Trade Settlement Cycle

When a retail (or institutional) customer buys or sells a security through a broker, the broker routes the order to a trading venue for execution and then submits the resulting trade to the Depository Trust and Clearing Corporation (DTCC) for clearance and settlement. In the United States, most securities transactions take two days (T+2) to settle. To mitigate the market, liquidity, counterparty, and systemic risks associated with the delay in settlement, DTCC requires brokers to post margin using their own funds.

On January 28, 2021, Robinhood received a notice from DTCC that Robinhood owed a net deposit of approximately \$3 billion.¹⁸ After discussions with Robinhood staff in which Robinhood notified DTCC that it would impose trading restrictions in GameStop and other securities, DTCC reduced the net deposit to approximately \$1.4 billion.¹⁹ To put that number in context, it represented nearly ten times the amount required just three days earlier.²⁰

This incident has caused many investors to ask important questions. Why does the transfer of ownership for most securities transactions in the U.S. occur two business days after the trade date? Why haven’t we already moved to T+1 or T+0? I believe I am in a unique position to answer those questions. That is why I published an op-ed in *The Wall Street Journal* last month.²¹

As Acting Chairman of the SEC, I led the effort in 2017 to move officially from T+3 to T+2.²² At that time, T+2 was the best option based on economic analysis. The financial system was not yet prepared in 2017 to move to T+1, but it was ready to take a good first step toward greater efficiency and timeliness.

The change to T+2 was a success. Retail investors benefitted from quicker access to cash and securities when their trades were executed. The change reduced the

¹⁴ 5 U.S.C. 610.

¹⁵ 5 U.S.C. 610(b).

¹⁶ See Executive Order 13579—Regulation and Independent Regulatory Agencies (July 11, 2011), available at <https://obamawhitehouse.archives.gov/the-press-office/2011/07/11/executive-order-13579-regulation-and-independent-regulatory-agencies>. See also M-11-28—Memorandum for the Heads of Independent Regulatory Agencies (July 22, 2011), available at <https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2011/m11-28.pdf>.

¹⁷ Id.

¹⁸ See Testimony of Vladimir Tenev Robinhood Markets, Inc., “Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide”, Hearing before the U.S. House Financial Services Committee (Feb. 18, 2021), available at <https://financialservices.house.gov/calendar/eventsingle.aspx?EventID=407107>.

¹⁹ Id.

²⁰ Id.

²¹ See “It’s T-0 to Go Faster Than T+2”, *The Wall Street Journal*, Opinion/Commentary, Michael S. Piwowar (Online Version—Feb. 24, 2021, Print Version—Feb. 25, 2021), available at <https://www.wsj.com/articles/its-t-0-to-go-faster-than-t-2-11614207705>.

²² See “SEC Adopts T+2 Settlement Cycle for Securities Transactions”, Press Release (Mar. 22, 2017), available at <https://www.sec.gov/news/press-release/2017-68-0>. See also “Statement at Open Meeting Regarding Amendment to Shorten the Trade Settlement Cycle”, Public Statement, Acting Chairman Michael S. Piwowar (Mar. 22, 2017), available at <https://www.sec.gov/news/public-statement/piwowar-open-meeting-032217>.

dangers from market, liquidity, counterparty, and systemic risks across the financial system.

Recognizing that eventually moving to T+1 could have similar benefits, the Commission directed the staff in the final rule to undertake to submit a report to the Commission by September 2020.²³ The specific language in the final rule stated:

“This report will include, but not be limited to an examination of:

(i) the impact of today’s amendment to Rule 15c6-1(a) to establish a T+2 standard settlement cycle on market participants, including investors;

(ii) the potential impacts associated with movement to a shorter settlement cycle beyond T+2;

(iii) the identification of technological and operational improvements that can be used to facilitate a movement to a shorter settlement cycle; and

(iv) cross-market impacts (including international developments) related to the shortening of the settlement cycle to T+2.”²⁴

Recommendations for the Trade Settlement Cycle

As I recommend in my op-ed, the SEC should release the staff report and open a comment file on its website for public feedback. The SEC should hold a public forum to discuss lessons learned from the recent events so that we all have the benefit of the most up-to-date information.

But, the SEC cannot move beyond T+2 on its own. Bank regulators will need to be involved because shortening the length of time between when a trade is executed and when securities and cash are delivered to the buyer and seller, respectively, will require improvements in the speed of bank payment systems.^{25 26}

Accordingly, the Treasury Secretary should convene a principals meeting of the Financial Stability Oversight Council, the Federal financial regulators’ coordinating body, and initiate a securities settlement workstream. The purpose of the workstream is to coordinate regulatory efforts related to whether and how to shorten the settlement cycle.

Payment for Order Flow

The SEC allows brokers to have a choice of which trading venue to direct their customers’ orders. The broker may direct the order to the exchange where the stock is listed, a different exchange or alternative trading system, or a market maker.

The SEC also allows brokers to enter into payment for order flow arrangements. Market makers may pay brokers for routing orders to them so long as they fulfill their best execution obligations. A broker must consider multiple factors when seeking best execution of customers’ orders, including the opportunity to get a better price than what is currently quoted (price improvement), the speed of execution, and the likelihood that the trade will be executed.²⁷

Payment for order flow arrangements could represent a conflict of interest between their broker and their customer. Brokers may choose to route customer orders to the market maker that offers the highest payment to the broker rather than to the trading venue that offers the best execution for the customer. However, the SEC’s best execution requirements mitigate this conflict of interest. The SEC and FINRA regularly conduct examinations of broker-dealers for compliance with best execution obligations and bring enforcement actions when they find violations.²⁸

Were Robinhood customers who traded GameStop stock in January 2021 advantaged or disadvantaged by Robinhood’s payment for order flow arrangements?

²³ See “Securities Transaction Settlement Cycle”, Final Rule, SEC Release No. 34-80295 (Mar. 22, 2017), 82 FR 15564 Mar. 29, 2017), available at <https://www.sec.gov/rules/final/2017/34-80295.pdf>.

²⁴ Id.

²⁵ See, e.g., “We Shouldn’t Have To Wait for FedNow To Have Faster Payments”, *American Banker—BankThink*, George Selgin and Aaron Klein (Feb. 28, 2020), available at <https://www.americanbanker.com/opinion/we-shouldnt-have-to-wait-for-fednow-to-have-faster-payments>.

²⁶ In addition, regulators will need to carefully coordinate the foreign exchange (FX) settlement cycle for market participants who rely on FX settlements to fund cross-border securities transactions.

²⁷ See “Fast Answers—Best Execution”, (May 9, 2011), available at <https://www.sec.gov/fast-answers/answersbestexhtm.html>.

²⁸ See, e.g., “FINRA Fines Robinhood Financial, LLC \$1.25 Million for Best Execution Violations”, News Release (December 19, 2019), available at <https://www.finra.org/media-center/newsreleases/2019/finra-fines-robinhood-financial-llc-125-million-best-execution>, and “SEC Charges Robinhood Financial With Misleading Customers About Revenue Sources and Failing to Satisfy Duty of Best Execution”, Press Release (Dec. 17, 2020), available at <https://www.sec.gov/news/press-release/2020-321>.

Currently available public information does not allow for a direct analysis of the execution quality that specific Robinhood customers received on their GameStop orders in January 2021. However, analysis of two SEC-required disclosures can shed some light on the issue of whether retail investors, on average, across all brokers, received price improvement on their GameStop orders in January 2021.

SEC Rule 606 under Regulation NMS requires broker-dealers to provide quarterly disclosures of information regarding the handling of their customers' orders.²⁹ Using Robinhood's Rule 606 report for the fourth quarter of 2020, I determined that the three venues where Robinhood routed most of its orders were Citadel Execution Services, G1 Execution Services, and Two Sigma Securities. Robinhood discloses on its Rule 606 report that it receives payment from these venues to direct equity order flow.

SEC Rule 605 under Regulation NMS requires market centers that trade NMS stocks to make available to the public monthly electronic execution reports that include uniform execution quality measures.³⁰ Market centers report these measures separately for each stock, but those measures are aggregated across all broker-dealers who route to them. Using the Rule 605 reports for January 2021 of each of the three venues above, I calculated their execution quality statistics for their order executions of GameStop stock. See Table 1 below.

Table 1: Execution Quality Statistics for GameStop (GME) January 2021

	Total GME Shares Executed	Amount Executed		Net Price Improvement	
		Inside The Quote	Outside The Quote	Total	Per Share
Citadel Execution Services	248,741,403	\$19,218,700.09	\$4,706,576.58	\$14,512,123.50	\$0.06
G1 Execution Service	68,095,050	\$5,800,811.29	\$1,526,514.42	\$4,274,296.86	\$0.06
Two Sigma Securities	21,702,917	\$1,127,760.70	\$571,006.15	\$556,754.55	\$0.03

I calculated the total dollar amount of orders in GameStop stock executed inside the quote and outside the quote for each venue. For all three venues, the dollar amount of orders executed inside the quote (receiving price improvement) exceeded the dollar amount of orders executed outside the quote (receiving price disimprovement), resulting in net price improvement, in aggregate, for GameStop stock orders routed to them in January 2021. The average price improvement ranged from \$0.03 to \$0.06 per share.

Recommendations for Payment for Order Flow

The SEC Division of Examinations should expand its ongoing initiative in the area of payment for order flow.³¹ The Division should focus its efforts on order routing and best execution obligations in a zero-commission environment.

The Commission should hold a roundtable to discuss payment for order flow. The event would provide a public forum for in-depth discussions of how payment for order flow is working in a zero-commission environment.

²⁹ Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37496 (June 29, 2005).

³⁰ Id.

³¹ U.S. Securities and Exchange Commission 2021 National Examination Priorities, Division of Examinations, available at <https://www.sec.gov/files/2021-exam-priorities.pdf>.

The Commission should consider amending Rule 605 and Rule 606 of Regulation NMS to provide better public transparency of execution quality measures. For example, the Commission should consider requiring each broker to report execution quality measures for every stock they route to every market center quarterly (or monthly).

Short-Selling and Securities Lending

Some have attributed at least part of the large influx of buy orders that pushed up the stock price to a short squeeze, causing short-sellers to buy additional shares to cover their short positions. The episode has created a lot of interest in the effects that short-sellers have on the market.

It is important to remember that abusive short-selling—sales to manipulate a stock price—is already illegal. The SEC has promulgated rules to prohibit abusive short-selling practices and regularly enforces those rules.³² As a result, the vast majority of short sales that occur in the United States are legal.³³

Academic research shows that short-selling generally has a positive effect on market quality. According to a recent study, “most empirical papers report that during periods of regular trading activity, short-selling has a positive influence on liquidity, price discovery and price efficiency, thus supporting the idea that short-selling is crucial to maintain the orderly functioning of markets.”³⁴ ³⁵ Also, “the existing evidence short-selling cannot be blamed for having triggered downward price reversal during the 2008 financial crisis.”³⁶ Short-sellers also protect other investors by detecting and publicizing fraud.³⁷

Regulation SHO requires a broker-dealer to have reasonable grounds to believe that the security can be borrowed so that it can be delivered on the date delivery is due before effecting a short sale order in any equity security.³⁸ However, it has been widely reported that approximately 140 percent of GameStop’s stock had been sold short. At least part of this disparity can be attributed to a lack of transparency in securities lending.

Recall the massive U.S. Government bailout of the creditors of the insurance giant American International Group, Inc. (AIG). AIG’s failure was mainly due to its credit default swaps portfolio and its securities lending program, not its insurance business. AIG’s credit default swap and securities lending counterparties received much of the Government bailout.³⁹ Title VII of the Dodd–Frank Act⁴⁰ established a regulatory framework for swaps (and securities-based swaps), and the SEC and CFTC have promulgated regulations under the statute. Section 984 of Dodd–Frank required the SEC to “promulgate rules that are designed to increase the transparency of information available to brokers, dealers, and investors, with respect to the loan or borrowing of securities.”⁴¹

To date, the SEC has finalized only one rule that could be characterized as being responsive to Dodd–Frank Section 984. To increase the comparability of securities lending fees between open-end funds, the Commission adopted amendments to fund registration statements. The amendments required disclosures relating to fund secu-

³² See “Short Sales (Regulation SHO)”, Final Rule, SEC Release No. 34-50103 (Jul 28, 2004), 69 FR 48008 (Aug. 6, 2004), available at <https://www.sec.gov/rules/final/34-50103.htm>.

³³ See, e.g., “Key Points About Regulation SHO”, SEC Office of Investor Education and Advocacy publication (Apr. 8, 2015), available at <https://www.sec.gov/investor/pubs/regsho.htm>.

³⁴ Stefano Alderighi and Pedro Gurrola Perez, “What Does Academic Research Say about Short-Selling Bans?” WFE Research Working Paper (Apr. 29, 2020), available at <https://ssrn.com/abstract=3775704>.

³⁵ The same study shows that academic research finds that short-selling bans disrupt the orderly functioning of markets. Their negative effects include reducing liquidity, increasing price inefficiency, and hampering price discovery.

³⁶ *Id.*

³⁷ See, e.g., Testimony of Owen A. Lamont, “Hedge Funds and Independent Analysts: How Independent Are Their Relationships?” Hearing before the U.S. Senate Committee on the Judiciary (Jun. 28, 2006), available at <https://www.govinfo.gov/content/pkg/CHRG-109shrg31059/html/CHRG-109shrg31059.htm>. Regulation SHO provides limited exceptions for market makers when fulfilling their market maker obligations.

³⁸ See, e.g., “Key Points About Regulation SHO”, SEC Office of Investor Education and Advocacy publication (Apr. 8, 2015), available at <https://www.sec.gov/investor/pubs/regsho.htm>.

³⁹ See, e.g., Congressional Oversight Panel, June Oversight Report, “The AIG Rescue and Its Impact on Markets, and the Government Exit Strategy” (June 10, 2010); Louise Story and Gretchen Morgenson, In “U.S. Bailout of AIG, Forgiveness for Big Banks”, *New York Times* (June 29, 2010); William Greider, “The AIG Bailout Scandal”, *The Nation* (Aug. 6, 2010); Scott E. Harrington, “The Financial Crisis, Systemic Risk, and the Future of Insurance Regulation” (Sept. 2009).

⁴⁰ Dodd–Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (2010).

⁴¹ Dodd–Frank Wall Street Reform and Consumer Protection Act, §984(b), Pub. L. No. 111-203 (2010).

rities lending activities, including income and fees from securities lending and the fees paid to securities lending agents in the prior fiscal year.⁴² These amendments were a good start, but the SEC should further improve the transparency of securities lending.

Recommendations for Short-Selling and Securities Lending

The SEC should hold a public forum and open a request for comment on the transparency of securities lending. In evaluating various transparency alternatives, the SEC should distinguish between “regulatory reporting” and “public transparency.” Regulatory reporting refers to the information available to the SEC to perform its regulatory functions. Public transparency refers to the information that the SEC makes available to market participants, investors, and academic researchers.

Then, the SEC should use economic analysis to determine whether and, if so, how to increase regulatory reporting in securities lending. The SEC should conduct a separate economic analysis to determine how much, if any, new information should be provided to the public.

Accredited Investor Definition

As mentioned above, low-income households have lower rates of ownership of public companies than high-income households. In 2019, 15 percent of households in the lowest income quintile held stocks in public companies—directly or indirectly through funds and retirement savings accounts—compared to 88 percent of households in the highest income quintile.⁴³ While I am not aware of any statistics on ownership rates by household income level for private companies, the gap is undoubtedly worse. SEC rules effectively prohibit low-income investors from investing in this high-growth sector of the economy.

The SEC’s accredited investor definition essentially divides the world of private company investors into two arbitrary categories of individuals—those persons who are accorded the privileged status of being an accredited investor and those who are not.⁴⁴ In short, if you make \$200,000 or more in annual income or have \$1 million or more in net worth, then you are in the privileged class and could choose to invest in the full panoply of investments, whether public or private.⁴⁵ If not, the SEC has decided that, for your protection, you are restricted access to invest in private companies.

As an SEC commissioner, I took my investor protection mandate extremely seriously. However, I challenge the SEC’s investor protection rationale for prohibiting nonaccredited investors from investing in high-risk companies. Here, I appeal to two well-known concepts from the field of financial economics. The first is the risk-return tradeoff. Because most investors are risk averse, riskier securities must offer investors higher expected returns. As a result, prohibiting non-accredited investors from investing in high-risk securities is the same thing as prohibiting them from investing in high-expected-return securities.

The second economic concept is modern portfolio theory. By holding a diversified portfolio of securities, investors reap the benefits of diversification; that is, the risk of the portfolio as a whole is lower than the risk of any individual securities. The statistical correlation of returns is key. When adding higher-risk, higher-return securities to an existing portfolio, as long as the new securities’ returns are not perfectly positively correlated with (move in exactly the same direction as) the existing portfolio, investors can reap higher portfolio returns with little or no change in over-

⁴² See, “SEC Adopts Rules To Modernize Information Reported by Funds, Require Liquidity Risk Management Programs, and Permit Swing Pricing”, Press Release (Oct. 13, 2016), available at <https://www.sec.gov/news/pressrelease/2016-215.html>.

⁴³ See “Main Street Owns Wall Street”, ICI Viewpoints, Sarah Holden and Michael Bogdan (Feb. 10, 2021), available at <https://www.ici.org/viewpoints/21-view-equityownership>.

⁴⁴ See, e.g., Remarks at the Meeting of the SEC Advisory Committee on Small and Emerging Companies, Public Statement by Commissioner Michael S. Piwowar (May 18, 2016), available at <https://www.sec.gov/news/statement/piwowar-opening-remarks-acsec-051816.html>; Remarks at the “SEC Speaks” Conference 2017: “Remembering the Forgotten Investor”, Speech by Acting Chairman Michael S. Piwowar (Feb. 24, 2017), available at <https://www.sec.gov/news/speech/piwowar-remembering-the-forgotten-investor.html>.

⁴⁵ The SEC recently expanded the definition of accredited investor to include, among other things, individuals “holding in good standing one or more professional certifications or designations or other credentials from an accredited educational institution that the Commission has designated as qualifying an individual for accredited investor status[.]” See “Accredited Investor Definition”, Final Rule, SEC Release Nos. 33-10824; 34-89669 (Aug. 26, 2021), 85 FR 64234 (Oct. 9, 2020), available at <https://www.sec.gov/rules/final/2020/33-10824.pdf>. However, the expanded definition is not likely to substantially increase the number of low-income individuals who qualify under the new definition.

all portfolio risk. In fact, if the correlations are low enough, the overall portfolio risk could actually decrease.

These two concepts show how even a well-intentioned investor protection policy can ultimately harm the very investors the policy is intended to protect. Moreover, restricting the number of accredited investors in the privileged class can have additional adverse impacts. The accredited investors may enjoy even higher returns because the nonaccredited investors are prohibited from buying and bidding up the price of high-risk, high-expected-return securities. Remarkably, by allowing only high-income and high-net-worth individuals to reap the risk and return benefits from investing in certain securities, the SEC is actually exacerbating wealth inequality.^{46 47}

Recommendation for the Accredited Investor Definition

The SEC should revisit the accredited investor definition and solicit public feedback on achieving more equitable access to investing in private companies across all income levels. Based on that feedback, the SEC should engage in rulemaking to open up these investment opportunities to all Americans.

The Role of the Senate Banking Committee

Throughout my testimony, I have made several recommendations for the SEC. This Committee, through its oversight role, has the opportunity to influence the SEC's agenda toward improving the current state of retail investing. If this Committee believes that the SEC's market structure and market infrastructure rules should keep pace with changes in markets and technologies, "deep-dive" hearings on specific issues—both SEC oversight hearings and hearings with subject matter expertise—would be helpful.

If this Committee believes legislation would be necessary to improve a particular market structure or market infrastructure policy, I urge caution in legislating prescriptive standards. For the reasons stated above, the SEC is in the best position to promulgate rules based on the current environment and update those rules as needed in response to changes in the markets and technologies.

Thank you for bringing attention to these critical issues and for the opportunity to testify here today. I am happy to answer any questions you may have.

PREPARED STATEMENT OF ANDREW N. VOLLMER

SENIOR AFFILIATED SCHOLAR, MERCATUS CENTER AT GEORGE MASON UNIVERSITY

MARCH 9, 2021

Chairman Brown, Ranking Member Toomey, and Members of the Committee: I am pleased to have an opportunity to comment on several timely and important issues related to the Federal securities laws. I have extensive experience with those laws. I was Deputy General Counsel of the Securities and Exchange Commission from mid-2006 to March 2009 and taught courses on securities regulation at the University of Virginia School of Law from 2014 to 2019. For many years, I was a partner in the securities enforcement practice of Wilmer Cutler Pickering Hale and Dorr LLP and am currently a senior affiliated scholar with the Mercatus Center at George Mason University.

My testimony will address (1) the recent trading activity in the common stock of GameStop Corp. and a few other companies, (2) securities trading platforms such as Robinhood Financial, and (3) considerations for further action. My conclusion is that the information currently available has not revealed a problem of sufficient severity to justify Congress imposing new regulations in these areas.

New information could change that, but, in any deliberations about possible additional legal restrictions, Congress should give weight to and respect the personal liberty interests involved.

Gamestop

The rapid increase and decrease in the price of the common stock of GameStop and a few other companies has received a great deal of attention. My information about the events during the past several weeks is from publicly available sources, and my understanding is that various investigations into the details are being conducted. My views are based on the public information, but new information and de-

⁴⁶See Thomas Piketty, "Capital in the Twenty-First Century", translated by Arthur Goldhammer (Cambridge MA: The Belknap Press of Harvard University Press, 2014).

⁴⁷Another unfortunate consequence of the accredited investor definition is that small businesses face higher costs of capital.

tails from the investigations could affect my opinions. I am open to persuasion from new facts.

Based on the information I have seen, misconduct probably did not occur in the recent trading of GameStop. Some concerns about a pump-and-dump scheme or a manipulation have been raised, but the public information does not bear those fears out. In the standard type of pump-and-dump scheme, one or more persons make material false or misleading statements to the market to drive a stock price up or down. The SEC is investigating, but my understanding is that the main group of individuals trading GameStop, those using the Reddit WallStreetBets social media forum, did not make material false or misleading statements and were not deceived by others.

For securities manipulation, a person needs to create a false impression of buying or selling activity. The Supreme Court has said that manipulation is “virtually a term of art when used in connection with the securities markets.”¹ Manipulation “refers generally to practices, such as wash sales, matched orders, or rigged prices, that are intended to mislead investors by artificially affecting market activity.”² Some important legal authorities have taken broader approaches,³ but the essence of a manipulation is buying or selling activity that is not legitimate or genuine.

The traders using the WallStreetBets site actually bought GameStop and the other stocks. If a person bears market risk, that is, a non-trivial risk that the buyer or seller will make or lose money on the transaction, then the person did not engage in artificial trading even if he or she had evil intent. In addition, when a person actually buys stock, it is very hard to tell the difference between evil intent to manipulate the stock price up and a person’s desire for the stock price to go up naturally.

The effects of the GameStop trading on the larger secondary market for securities do not, at the moment, appear to be widespread or severe. The trading activity in GameStop, AMC, and Blackberry was limited to a few companies and was short term. Some investors made money in GameStop and some lost money. Short sellers of GameStop might have a legitimate complaint about the WallStreetBets buyers, and the short sale rules in the securities laws could be reviewed, but those rules were not the major cause of the price increases. The sharp rise and fall in the price of GameStop did not have apparent effects on broader market gauges.⁴ Even if an index fund or an exchange traded fund owned GameStop, that holding was only one name in a diversified portfolio, and the price of GameStop stock began to correct itself within a short time with no significant damage to the pricing or liquidity in the more general market for listed equities.

I do not want to sound like I encourage the behavior of the WallStreetBets traders. I do not. The actions of the GameStop buyers were not consistent with the purpose of the Federal securities markets. The purpose of the securities markets is to allow companies with good ideas to raise capital and to let millions of investors buy and sell existing shares based on their assessment whether companies have good commercial ideas or not.

My understanding is that the WallStreetBets crowd was engaged in group behavior that was in part to stymie some short sellers, in part to identify with the other members of the group, and in part to have some entertainment. Most were not buying and selling GameStop based on an assessment of the likelihood of profit at the company (although some were), but those buying without analysis of the fundamental value of the retailer knew what they were doing, were not misled, and knew they could lose money. As discussed below, the events surrounding GameStop do not appear to require new securities restrictions or regulation.

Robinhood

The broker-dealer Robinhood has come under scrutiny because many of the WallStreetBets traders use it and because it has certain features that encourage buying and selling securities. Those features include commission free trades, accounts with no minimum dollar amounts, the availability of option trading and frac-

¹Ernst & Ernst v. Hochfelder, 425 U.S. 185, 199 (1976).

²Sante Fe Indus., Inc. v. Green, 430 U.S. 462, 476-77 (1977); see also Schreiber v. Burlington Northern, Inc., 472 U.S. 1, 6 (1985).

³See, e.g., Markowski v. SEC, 274 F.3d 525 (D.C. Cir. 2001).

⁴Anneken Tappe, U.S. stocks post their worst month since October as the GameStop frenzy rages, CNN Business (Jan. 29, 2021) (reporting that, in January 2021, the month of the GameStop increase, the Dow and the broader S&P 500 had their worst month since October), <https://www.cnn.com/2021/01/29/investing/dow-gamestop-stock-market-today/index.html>.

Data from Google Finance show that GameStop went up 1784 percent in January 2021 while the S&P 500 index went up 0.4 percent and the Russell 2000 index, which included GameStop at the time, went up 6.6 percent.

tional shares of stock, and an ability to buy and sell securities on an attractive, easy-touse internet site. Some have called the Robinhood mobile app the “gamification” of securities trading.

The criticisms of Robinhood fail to give appropriate weight to the benefits of its business model. The Robinhood brokerage service is innovative and makes significant positive contributions to society and the economy. It reduces costs for consumers, makes securities trading simpler and easier, increases consumer choice, and lowers barriers to participation in the market for the common stock of companies listed on stock exchanges. It therefore opens the securities markets and equity securities ownership to a much larger part of the population and to people with less income and wealth than those who are typically associated with participation in the equity markets.

Expanding access to the equity securities markets for many new retail investors is especially notable. It is directly responsive to the concern that direct ownership of corporate stocks by individuals has declined since World War II.⁵ It is also directly responsive to the desire to make exchange-listed securities more accessible to lower income people and to give them more opportunities to increase wealth.⁶

Robinhood therefore increases consumer welfare and achieves important objectives of the U.S. economic and financial system. All of this is commendable and should not be faulted.

Another question about Robinhood was the decision to restrict the ability of its customers to buy GameStop and other securities for a short period of time. In his testimony before the House Financial Services Committee on February 18, 2021, the head of Robinhood explained the circumstances leading to the restrictions. Robinhood received an unexpected call for a large amount of collateral from a financial institution that is the clearinghouse for the trades of Robinhood customers. The restriction on the purchases of GameStop was part of the response because Robinhood was not able immediately to provide the requested collateral. Robinhood explained that it did not restrict customers because of a desire to help short sellers or its main wholesale broker.

Considerations for Further Action

The events surrounding the changes in prices for GameStop and the questions about the Robinhood trading platform have so far not revealed the kind of problem that would justify new legal restrictions or regulations. New regulation would be appropriate if data and evidence emerge to show a severe, sustained, recurring harm to investors that a law could prevent or reduce. We have not seen such a harm yet, but the more detailed investigations being undertaken could produce evidence of misconduct or reasons to reconsider the need for new regulation.

Congress and the SEC should not impose new regulations lightly. An important consideration should be that government rules typically restrict personal freedom. The GameStop traders might not have been analyzing the fundamental financial position of GameStop within the traditions of the capital markets, but they were exercising their individual civil liberty. A founding principle and continuing aspiration of the country has been to preserve personal freedom, extend it when it has been denied, and use government regulation only when a serious and widespread harm is recurring. If regulation is justified, it should be narrow and go no further than necessary to correct the harm.

⁵Kristian Rydqvist et al., Government policy and ownership of equity securities, 111 *J. Fin. Eco.* 70, 71 (2014) (“Since World War II, household direct equity ownership has declined precipitously. In the United States, just after the war, households directly own 90 percent of the stock market; by 2010, this figure has come down to below 30 percent.”).

⁶The United States has made progress increasing household ownership of securities when both direct ownership and indirect ownership are considered. Indirect ownership means ownership of corporate equities through mutual funds or retirement plans. The percent of U.S. households owning stock directly and indirectly grew from approximately 32 percent in 1989 to 53 percent in 2019. When indirect ownership is taken into account, all income groups from the lowest to the highest quintile of family income increased stock ownership. This information is from a report of the Investment Company Institute that summarized the Federal Reserve Board’s 2019 Survey of Consumer Finances. See Sarah Holden & Michael Bogdan, “Main Street Owns Wall Street, ICI Viewpoints” (Feb. 10, 2021), <https://www.ici.org/pdf/21-view-equityownership-print.pdf>.

**RESPONSES TO WRITTEN QUESTIONS OF SENATOR SINEMA
FROM MICHAEL S. PIWOWAR**

Q.1. Federal regulations tend to privilege institutional investors because of the presumption that they are more sophisticated. Given recent events, does it still make sense to treat institutional investors and retail investors differently when it comes to accessing certain types of offerings?

Should we be assuming that institutional investors always make better investments than retail investors?

A.1. As I mentioned in my written testimony, U.S. Securities and Exchange Commission (SEC) rules effectively prohibit low-income, low-net-worth investors from investing in high-growth companies.

The SEC's accredited investor definition essentially divides the world of private company investors into two arbitrary categories of individuals—those persons who are accorded the privileged status of being an accredited investor and those who are not. In short, if you make \$200,000 or more in annual income or have \$1 million or more in net worth, then you are in the privileged class and could choose to invest in the full panoply of investments, whether public or private. If not, the SEC has decided that, for your protection, you are restricted access to invest in private companies.

As an SEC commissioner, I took my investor protection mandate extremely seriously. However, I challenge the SEC's investor protection rationale for prohibiting nonaccredited investors from investing in high-risk companies. Here, I appeal to two well-known concepts from the field of financial economics. The first is the risk-return tradeoff. Because most investors are risk averse, riskier securities must offer investors higher expected returns. As a result, prohibiting non-accredited investors from investing in high-risk securities is the same thing as prohibiting them from investing in high-expected-return securities.

The second economic concept is modern portfolio theory. By holding a diversified portfolio of securities, investors reap the benefits of diversification; that is, the risk of the portfolio as a whole is lower than the risk of any individual securities. The statistical correlation of returns is key. When adding higher-risk, higher-return securities to an existing portfolio, as long as the new securities' returns are not perfectly positively correlated with (move in exactly the same direction as) the existing portfolio, investors can reap higher portfolio returns with little or no change in overall portfolio risk. In fact, if the correlations are low enough, the overall portfolio risk could actually decrease.

These two concepts show how even a well-intentioned investor protection policy can ultimately harm the very investors the policy is intended to protect. Moreover, restricting the number of accredited investors in the privileged class can have additional adverse impacts. The accredited investors may enjoy even higher returns because the non-accredited investors are prohibited from buying and bidding up the price of high-risk, high-expected-return securities. Remarkably, by allowing only high-income and high-net-worth individuals to reap the risk and return benefits from investing in certain securities, the SEC is actually exacerbating wealth inequality.

The SEC should revisit the accredited investor definition and solicit public feedback on achieving more equitable access to investing in private companies across all income levels. Based on that feedback, the SEC should engage in rulemaking to open up these investment opportunities to all Americans.

**RESPONSES TO WRITTEN QUESTIONS OF SENATOR CRAPO
FROM MICHAEL S. PIWOWAR**

Q.1. A Financial Transaction Tax (FIT) would impact all Americans regardless of income through their retirement funds, 529 college savings plans and ABLE plans for disabled dependents. With the investments of such a large portion of Americans across the income spectrum impacted, the effect of an FTT would ultimately make markets less efficient by reducing market volumes and decreasing the level of liquidity in the system. What kinds of regulatory measures and systemic safeguards must be in place to counteract the negative impacts of an FTT?

A.1. Imposing a financial transaction tax (FTT) in the United States would result in many negative effects, including unnecessarily hurting the global competitiveness of U.S. capital markets.

In 2009, when I was a senior economist at the President's Council of Economic Advisers, I was asked to conduct research and prepare a memo for President Obama's top economic policy advisors on the potential effects of a financial transaction tax. My research showed that, without exception, every time an FTT was introduced in another jurisdiction, it resulted in disastrous consequences. My research yielded three key points:

1. FTTs hurt market quality. Several empirical studies showed that the imposition of FTTs results in higher volatility, lower liquidity, and lower trading volume.¹ As a result, FTTs have negative effects on price discovery and lead to a reduction in the information efficiency of markets.²

2. Jurisdictions that do not impose an FTT win at the expense of jurisdictions that do. For example, when the Sweden imposed an FTT in the 1980s, a significant amount of trading volume simply move to the London stock market.³ Keep in mind that this occurred 40 years ago when it was much more difficult and costly to divert trading activity across borders. A similar tax today would result in immediate and devastating results.

3. FTTs never raise the expected revenue. Because trading volume declines (and moves to other jurisdictions) when FTTs are imposed, actual FTT revenues never come close to the projections made by proponents. As a result, the main "benefit" of an FTT is never worth the costs.

I was gratified to receive very positive feedback on my research and memo. More importantly—and quite correctly—the Obama administration never pursued a policy of trying to impose an FTT in the United States.

¹See, e.g., "Securities Transaction Taxes and Financial Markets", Karl Habermeier and Andrei Kirilenko, IMF Working Paper 01-51 (2001) available at <http://www.imf.org/external/pubs/ft/wp/2001/wp0151.pdf>; and "Transaction Taxes and the Behavior of the Swedish Stock Market", Steven R. Umlauf, *Journal of Financial Economics*, Vol 33, No. 2 (1993).

²Id.

³See, e.g., Umlauf (1993).

More recently, I have become aware of additional research that shows FTTs have harmful effects beyond direct capital markets effects. An FTT imposed in the United States would harm everyday Americans in a number of ways:

1. An FTT would harm everyday Americans saving and investing for retirement. Main Street investors would pay the tax directly when they trade, and pay it again as financial intermediaries pass on the taxes they face as a cost of doing business.⁴ According to one study, under the version of the tax proposed by Senator Bernie Sanders (D-VT), a typical retirement investor will end up with 8.5 percent less in his or her 401(k) or IRA after a lifetime of savings.⁵ In dollar terms, the average IRA investor would have \$20,000 less at retirement as a result of this tax.⁶ FTTs paid by pension funds would reduce their returns and worsen existing problems with underfunded pensions.⁷

2. An FTT would harm the owners, workers, and customers of businesses. FTTs increase the cost of capital for any company whose securities are subject to the FTT. As a result, owners of those companies—including Main Street investors who hold those securities directly or indirectly in mutual funds and exchange-traded funds (ETFs)—would be harmed through lower returns to capital.⁸ Workers would be harmed through lower returns to labor.⁹ Customers would be harmed through an increase in the cost of consumer goods.¹⁰

3. An FTT would harm all American taxpayers. In addition to the increased costs of consumer goods, everyday Americans would be harmed by other indirect effects of FTTs. The level and growth of GDP would be reduced under an FTT, resulting in a lower standard of living.¹¹ Moreover, indirect tax effects would be pernicious and counterproductive. Lower income and payroll taxes would result from the increased cost of capital to businesses, and the incentive to hold off on the sale of financial assets to avoid capital gains taxation would exacerbate the lock-in effect of these taxes.¹²

RESPONSES TO WRITTEN QUESTIONS OF SENATOR HAGERTY FROM MICHAEL S. PIWOWAR

Q.1. The recent volatility in certain stocks has increased talk about imposing a financial transaction tax as a downpayment on the Democrats' pmtisan \$1.9 trillion dollar, decade-long spending spree.

⁴ See, e.g., “Financial Transaction Taxes: A Tax on Investors, Taxpayers, and Consumers”, James J. Angel, Center for Capital Markets Competitiveness (2019), available at <https://www.centerforcapitalmarkets.com/resource/financial-transaction-taxes-a-tax-on-investors-tax-payers-and-consumers/>.

⁵ Id.

⁶ Id.

⁷ See, e.g., Angel (2019); and “The Hidden Costs of a Financial Transaction Tax: Estimated Impact on Pension Funds”, Kirsten Wegner, Modern Markets Initiative (2018), available at <https://www.modernmarketsinitiative.org/ftt>.

⁸ See, e.g., “The Impact of a Financial Transactions Tax”, Colin Miller and Anna Tyger, Tax Foundation Fiscal Fact No. 690 (2020), available at <https://files.taxfoundation.org/20200122152248/The-Impact-of-a-Financial-Transactions-Tax.pdf>; and Angel (2019).

⁹ Id.

¹⁰ Id.

¹¹ Id.

¹² Id.

This would likely raise trading costs, weaken market liquidity, harm pensions, and limit everyday Americans' access to investing.

What are some of the adverse effects of imposing a financial transaction tax, including on the global competitiveness of U.S. capital markets?

A.1. Imposing a financial transaction tax (FTT) in the United States would result in many negative effects, including unnecessarily hurting the global competitiveness of U.S. capital markets.

In 2009, when I was a senior economist at the President's Council of Economic Advisers, I was asked to conduct research and prepare a memo for President Obama's top economic policy advisors on the potential effects of a financial transaction tax. My research showed that, without exception, every time an FTT was introduced in another jurisdiction, it resulted in disastrous consequences. My research yielded three key points:

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3. FTTs never raise the expected revenue. Because trading volume declines (and moves to other jurisdictions) when FTTs are imposed, actual FTT revenues never come close to the projections made by proponents. As a result, the main "benefit" of an FTT is never worth the costs.

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² Id.

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percent less in his or her 401(k) or IRA after a lifetime of savings.⁵ In dollar terms, the average IRA investor would have \$20,000 less at retirement as a result of this tax.⁶ FTTs paid by pension funds would reduce their returns and worsen existing problems with underfunded pensions.⁷

2. An FTT would harm the owners, workers, and customers of businesses. FTTs increase the cost of capital for any company whose securities are subject to the FTT. As a result, owners of those companies—including Main Street investors who hold those securities directly or indirectly in mutual funds and exchange-traded funds (ETFs)—would be harmed through lower returns to capital.⁸ Workers would be harmed through lower returns to labor.⁹ Customers would be harmed through an increase in the cost of consumer goods.¹⁰

3. An FTT would harm all American taxpayers. In addition to the increased costs of consumer goods, everyday Americans would be harmed by other indirect effects of FTTs. The level and growth of GDP would be reduced under an FTT, resulting in a lower standard of living.¹¹ Moreover, indirect tax effects would be pernicious and counterproductive. Lower income and payroll taxes would result from the increased cost of capital to businesses, and the incentive to hold off on the sale of financial assets to avoid capital gains taxation would exacerbate the lock-in effect of these taxes.¹²

RESPONSES TO WRITTEN QUESTIONS OF SENATOR DAINES FROM MICHAEL S. PIWOWAR

Q.1. Many of my colleagues across the aisle have recently spoken in favor of implementing a Financial Transaction Tax (FTT). They argue that doing so is necessary in order to reduce market volatility and make sure that Wall Street is paying its fair share. However, given that data from the Federal Reserve shows that 53 percent of U.S. families owned some form of publicly traded stock in 2019 and that 80–100 million Americans have a 401k, what impact would the imposition of a FTT have on pensioners and retail investors?

A.1. An FTT imposed in the United States would harm everyday Americans in a number of ways:

1. An FTT would harm everyday Americans saving and investing for retirement. Main Street investors would pay the tax directly when they trade, and pay it again as financial intermediaries pass on the taxes they face as a cost of doing business.¹ According to

⁵Id.

⁶Id.

⁷See, e.g., Angel (2019); and “The Hidden Costs of a Financial Transaction Tax: Estimated Impact on Pension Funds”, Kirsten Wegner, *Modern Markets Initiative* (2018), available at <https://www.modernmarketsinitiative.org/ftt>.

⁸See, e.g., “The Impact of a Financial Transactions Tax”, Colin Miller and Anna Tyger, Tax Foundation Fiscal Fact No. 690 (2020), available at <https://files.taxfoundation.org/20200122152248/The-Impact-of-a-Financial-Transactions-Tax.pdf>; and Angel (2019).

⁹Id.

¹⁰Id.

¹¹Id.

¹²Id.

¹See, e.g., “Financial Transaction Taxes: A Tax on Investors, Taxpayers, and Consumers”, James J. Angel, Center for Capital Markets Competitiveness (2019), available at <https://>

one study, under the version of the tax proposed by Senator Bernie Sanders (D-VT), a typical retirement investor will end up with 8.5 percent less in his or her 401(k) or IRA after a lifetime of savings.² In dollar terms, the average IRA investor would have \$20,000 less at retirement as a result of this tax.³ FTTs paid by pension funds would reduce their returns and worsen existing problems with underfunded pensions.⁴

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Q.2. If the U.S. were to institute an FTT, would you expect many firms would moving their trading operations to an international exchange with a more hospitable tax environment?

A.2. Jurisdictions that do not impose an FTT win at the expense of jurisdictions that do. For example, when the Sweden imposed an FTT in the 1980s, a significant amount of trading volume simply move to the London stock market.¹⁰ Keep in mind that this occurred 40 years ago when it was much more difficult and costly to divert trading activity across borders. A similar tax imposed in the United States today would result in immediate, devastating, quite possibly irreversible results.

Q.3. Is it your belief that Congress should actively use the tax code to limit the practice of short selling? And is there any evidence to suggest that imposing an FTT would reduce the prevalence of short selling?

www.centerforcapitalmarkets.com/resource/financial-transaction-taxes-a-tax-on-investors-tax-payers-and-consumers/.

²Id.

³Id.

⁴See, e.g., Angel (2019); and “The Hidden Costs of a Financial Transaction Tax: Estimated Impact on Pension Funds”, Kirsten Wegner, *Modern Markets Initiative* (2018), available at <https://www.modernmarketsinitiative.org/ftt>.

⁵See, e.g., “The Impact of a Financial Transactions Tax”, Colin Miller and Anna Tyger, Tax Foundation Fiscal Fact No. 690 (2020), available at <https://files.taxfoundation.org/20200122152248/The-Impact-of-a-Financial-Transactions-Tax.pdf>; and Angel (2019).

⁶Id.

⁷Id.

⁸Id.

⁹Id.

¹⁰See, e.g., Umlauf (1993).

A.3. Imposing a financial transaction tax (FTT) in the United States would result in many negative effects, including unnecessarily hurting the global competitiveness of U.S. capital markets.

In 2009, when I was a senior economist at the President's Council of Economic Advisers, I was asked to conduct research and prepare a memo for President Obama's top economic policy advisors on the potential effects of a financial transaction tax. My research showed that, without exception, every time an FTT was introduced in another jurisdiction, it resulted in disastrous consequences. In addition to finding that jurisdictions that do not impose an FTT win at the expense of jurisdictions that do (as I mentioned in my answer to your previous question, my research also found:

1. FTTs hurt market quality. Several empirical studies showed that the imposition of FTTs results in higher volatility, lower liquidity, and lower trading volume.¹¹ As a result, FTTs have negative effects on price discovery and lead to a reduction in the information efficiency of markets.¹²

2. FTTs never raise the expected revenue. Because trading volume declines (and moves to other jurisdictions) when FTTs are imposed, actual FTT revenues never come close to the projections made by proponents. As a result, the main "benefit" of an FTT is never worth the costs.

I was gratified to receive very positive feedback on my research and memo. More importantly—and quite correctly—the Obama administration never pursued a policy of trying to impose an FTT in the United States.

**RESPONSES TO WRITTEN QUESTIONS OF SENATOR DAINES
FROM ANDREW N. VOLLMER**

Q.1. Many of my colleagues across the aisle have recently spoken in favor of implementing a Financial Transaction Tax (FTT). They argue that doing so is necessary in order to reduce market volatility and make sure that Wall Street is paying its fair share. However, given that data from the Federal Reserve shows that 53 percent of U.S. families owned some form of publicly traded stock in 2019 and that 80–100 million Americans have a 401k, what impact would the imposition of a FTT have on pensioners and retail investors?

A.1. The idea of an FTT is hotly debated. Supporters argue that an FTT would raise revenue for the government, reduce trading in securities, especially by high frequency traders, fall more on the wealthy than on middle- and low-income people, and therefore reduce the gap between the wealthy and less wealthy.¹ Opponents argue that an FTT would be harmful.² Extensive academic lit-

¹¹ See, e.g., "Securities Transaction Taxes and Financial Markets", Karl Habermeier and Andrei Kirilenko, IMF Working Paper 01-51 (2001) available at <http://www.imf.org/external/pubs/ft/wp/2001/wp0151.pdf>; and "Transaction Taxes and the Behavior of the Swedish Stock Market", Steven R. Umlauf, *Journal of Financial Economics*, Vol. 33, No. 2 (1993).

¹² Id.

¹ Naomi Jagoda, "Financial Trade Tax Gains Traction with 2020 Democrats", *The Hill*, February 25, 2020.

² SIFMA, "A Financial Transaction Tax Is a Retirement Tax Which Harms Working Americans", the U.S. Capital Markets and Individual Investors, 2019.

erature on FTTs exists.³ Scholars for the Mercatus Center have contributed to this literature.⁴

The cost of an FTT would fall on both professional investors and individual investors. An FTT would reduce the net returns of retail investors and retirees who have mutual funds or retirement funds because retirement plans and mutual funds buy and sell securities, which are transactions that would be subject to the tax. Writers dispute the amount of the cost to individuals with retirement accounts or mutual funds.⁵

Financial economists do not agree on all the effects of an FTT. They do tend to agree that a tax would reduce the volume of securities trading and would not produce as much revenue as expected.⁶ Some analysts claim that an FTT could cause riskier investments or more price volatility.⁷ It might be fair to say that the tax would alter securities trading behavior in unexpected and unintended ways.

Supporters of an FTT believe that it will discourage high-frequency trading (HFT).⁸ Neither Congress nor the staff of the SEC have concluded that HFT should be discouraged. As late as 2018, Congress had not determined that HFT causes undue harms that needed to be regulated and instead was keeping its policy options open while collecting further evidence. In legislation, Congress instructed the SEC staff to prepare a report assessing the benefits and risks of algorithmic trading to equity and debt markets and recommending necessary changes to Federal regulation.⁹ (For practical purposes, algorithmic trading is another term for HFT.)

The SEC staff delivered the requested report in early August 2020 but did not recommend any additional regulation to curtail HFT activities.¹⁰ In fact, the staff did not conclude that harms from HFT outweigh the benefits and, if anything, dwelled more on the benefits. Algorithmic trading in the equities markets, the staff

³ See, for example, Jean-Edouard Colliard and Peter Hoffmann, “Financial Transaction Taxes, Market Composition, and Liquidity”, *Journal of Finance* 72, no. 6 (2017): 2685-2716. Further studies are cited in Leonard E. Burman et al., “Financial Transaction Taxes in Theory and Practice”, *National Tax Journal* 69, no. 1 (2016): 171-216; and George H.K. Wang and Jot Yau, “Would a Financial Transaction Tax Affect Financial Market Activity?” (Policy Analysis No. 702, Cato Institute, Washington, DC, July 9, 2012).

⁴ Phillip Swagel and Cynthia Boruchowicz, “Policies To Address Income Inequality and Increase Economic Opportunities for Low-Income Families” (Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, May 2017), 26-27; Holly A. Bell, “Using the Market to Manage Proprietary Algorithmic Trading”, in *Reframing Financial Regulation: Enhancing Stability and Protecting Consumers*, ed. Hester Peirce and Benjamin Klutsey (Arlington, VA: Mercatus Center at George Mason University, 2016), 262-65; George H.K. Wang, “Securities Transaction Taxes and Market Quality of Equity and Futures Markets: Issues and Evidence” (Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, March 2014).

⁵ Michael Edesess, “Vanguard Opposes a Tax on Wall Street Its Founder John Bogle Favored—and the Reason May Surprise You”, *MarketWatch*, September 3, 2020. According to Edesess, “The real burden of an FTT will fall on the professional traders.” SIFMA, “A Financial Transaction Tax Is a Retirement Tax”; Burton G. Malkiel and George U. Sauter, “A Transaction Tax Would Hurt All Investors”, *Wall Street Journal*, December 8, 2009. According to Sauter, “‘Wall Street’ would not foot the bill for the presumed \$150 billion tax. In fact, the tax would simply be added to the cost of doing business, burdening all investors, including 401(k) plans, IRAs and mutual funds.”

⁶ Colin Miller and Anna Tyger, “The Impact of a Financial Transactions Tax” (Fiscal Fact No. 690, Tax Foundation, Washington, DC, January 2020), 1.

⁷ Miller and Tyger, “The Impact of a Financial Transactions Tax 1”.

⁸ Aaron Klein, “What Is a Financial Transaction Tax?” Voter Vitals, Brookings Policy, March 27, 2020).

⁹ Economic Growth, Regulatory Relief, and Consumer Protection Act, Pub. L. No. 115-174 §502, 132 Stat. 1296, 1361-62 (2018).

¹⁰ Staff of the Securities and Exchange Commission, Staff Report on Algorithmic Trading in U.S. Capital Markets, August 5, 2020.

wrote, “has improved many measures of market quality and liquidity provision during normal market conditions, though studies have also shown that some types of algorithmic trading may exacerbate periods of unusual market stress or volatility.”¹¹ In addition, the SEC staff discerned that algorithms help market participants reduce risks from the increasing complexity of many interconnected markets.¹²

The staff also surveyed the academic literature and concluded that, “Overall, most academic studies find that algorithmic trading and HFTs have improved market quality and helped reduce transaction costs. There is ample evidence suggesting that, under normal market conditions, algorithmic trading and HFTs improve liquidity and price efficiency and reduce short term volatility.”¹³

The staff noted that evidence of the effect of high-speed trading in periods of stress was mixed. At least “some academic studies . . . find that algorithmic trading and high-frequency trading continue to reduce volatility during periods of heightened volatility.”¹⁴

Q.2. If the U.S. were to institute an FTT, would you expect many firms would move their trading operations to an international exchange with a more hospitable tax environment?

A.2. Capital flows freely across international boundaries and seeks the most efficient markets. Adding costs with a new securities tax in the United States inevitably will drive some amount of securities trading to lower-cost jurisdictions. According to economist Aaron Klein, “Several countries attempted large FTTs in the past and experienced significant capital migration.”¹⁵

Q.3. Is it your belief that Congress should actively use the tax code to limit the practice of short selling? And is there any evidence to suggest that imposing an FTT would reduce the prevalence of short selling?

A.3. Short selling is socially valuable. Short sellers help to discover accurate prices and to identify companies that are overvalued or engaged in questionable conduct. Academic studies do not support the claims that short selling causes distress in the securities markets.¹⁶ Tax and regulatory policy should treat short selling and

¹¹ Staff of the Securities and Exchange Commission, Staff Report on Algorithmic Trading in U.S. Capital Markets, 4.

¹² Staff of the Securities and Exchange Commission, 4.

¹³ Staff of the Securities and Exchange Commission, 70 (footnote omitted). According to the report, most studies “find that algorithmic trading and high-frequency trading improve price efficiency and decrease the time it takes for prices to incorporate new information.” Staff of the Securities and Exchange Commission, Staff Report on Algorithmic Trading in U.S. Capital Markets, 77.

¹⁴ Staff of the Securities and Exchange Commission, Staff Report on Algorithmic Trading in U.S. Capital Markets, 79.

¹⁵ Klein, “What Is a Financial Transaction Tax?”; Bell, “Using the Market.”

¹⁶ For example, see Peter Molk and Frank Partnoy, “The Long-Term Effects of Short Selling and Negative Activism”, *University of Illinois Law Review* (forthcoming). See also Ekkehart Boehmer and Juan Wu, “Short Selling and the Price Discovery Process”, *Review of Financial Studies* 26, no. 2 (2013): 287-322. The authors state that stock prices are more accurate when short sellers are more active. See also Alessandro Beber and Marco Pagano, “Short-Selling Bans Around the World: Evidence From the 2007-09 Crisis”, *Journal of Finance* 68, no. 1 (2013): 343-81. According to Beber and Pagano, bans (a) were detrimental for liquidity, especially for stocks with small market capitalization, high volatility, and no listed options; (b) slowed down price discovery, especially in bear market phases, and (c) failed to support stock prices, except possibly for U.S. financial stocks). See also Pedro A.C. Saffi and Kari Sigurdsson, “Price Efficiency and Short Selling”, *Review of Financial Studies* 24, no. 3 (2011): 821-52. Saffi and Sigurdsson report that relaxing short-sales constraints are not associated with an increase in either price instability or the occurrence of extreme negative returns). Finally, see Securities and Exchange

short covering no better and no worse than long buying and selling. Tax, disclosure, and other obligations should be comparable and not more onerous for short transactions.

If an FTT is applied neutrally and equally to all securities sales and purchases, it would reduce short selling and covering to the same extent as long buying and selling. I am not aware of evidence that an FTT would reduce short sales more than it would reduce other securities transactions. As mentioned earlier, most commentators agree that an FTT would reduce the number of securities transactions.

The main objective of the Federal tax system should be to raise revenue to fund Congress's expenditures at the least cost to economic activity. Using tax provisions to encourage or discourage particular types of conduct or to benefit or penalize particular groups or activities leads to complexity in the law, difficulties in complying with the law, concealed differential treatment, and unforeseen and unpredictable consequences.

Commission, Office of Economic Analysis, "Economic Analysis of the Short Sale Price Restrictions under the Regulation SHO Pilot", February 6, 2007. This report provides analysis of price restrictions on short sales.

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

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Bloomberg Intelligence

Price Improvement: Core of Retail Execution Quality

BI Market Structure, Global Dashboard



Larry R. Tabb
Boast: Market Structure
BI Director: Market Structure Research

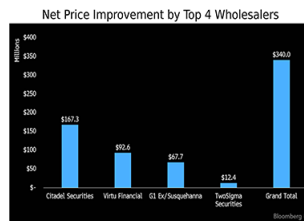
Price Improvement 3x Order-Flow Payments Weakens Conflict Case

(Bloomberg Intelligence) -- The 6.6% monthly increase in price improvement that market makers provided in January by internalizing retail equity order flow put \$401 million back in investors' pockets and counters perceived conflicts of interest ahead of a key Senate committee hearing. While the nine wholesalers we track on BI MKTS <GO> compensate brokers for directing trades, they're executing investor orders at better than market prices, which the sides hope will weaken calls to rein in order-flow payments. (03/09/21)

1. Top 4 Improved Retail Execution by \$340 Million

The four biggest wholesalers accounted for 85% of the \$401 million of price improvement on retail investors' trades they executed in January, up from a \$376 million total in December, based on our review of SEC 605 filings. Price improvement was relative to the market makers' size, with Citadel Securities and Virtu Financial leading the smaller G1 Execution/Susquehanna and Two Sigma Securities. The next five combined for \$61 million.

Wholesalers provide retail-price improvement by internalizing orders. Smaller trade sizes and fair-access rules force exchanges to display prices to all participants and allow the market makers to quote wider, as bids and offers can be hit not only by retail investors, but the largest institutions. (03/09/21)



Source: SEC 605 Reports, Bloomberg Intelligence

2. GameStop, Tesla: 10% of Majors' Price Improvement

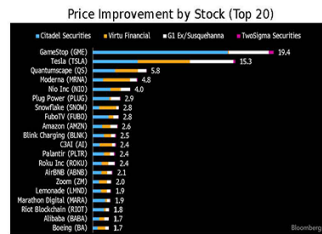
During the meme-stock trading frenzy of January, the four major market makers improved execution in GameStop and Tesla trades by \$34.7 million. Citadel Securities accounted for 73% of price improvement on GameStop, well ahead of G1 Execution/Susquehanna (21%). Tesla's was more evenly split between Virtu (37%), Citadel Securities (31%) and G1 Execution (31%); Two Sigma had 1%. Better pricing relates to stock price, spread and market makers' ability to hedge or trade out of the stock, which is contingent on order flow, access to other markets, technology and trading style. (03/09/21)

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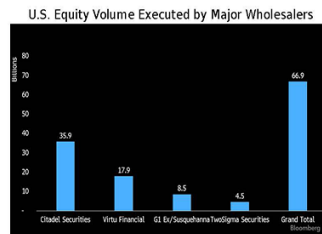


Source: SEC 605 Reports, Bloomberg Intelligence

3. Four Biggest Execute 11.5% of Retail Stock Trades

The top four wholesalers executed 67 billion shares in January (1.7 billion matched per day), translating to 11.5% of the 15.6 billion average daily U.S. equity volume traded. Citadel Securities executed 53%, followed by Virtu (27%), G1 Execution (13%) and Two Sigma (7%). The vast amount of execution by these four directly relates to the amount of retail order flow sent by the online self-directed brokers such as Charles Schwab-TD Ameritrade, Robinhood and Morgan Stanley/E*Trade.

The question of how market makers pay for orders yet improve execution was at the heart of the House committee hearing "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide" and will be taken up by a Senate panel on March 9: "Who Wins on Wall Street? GameStop, Robinhood, and the State of Retail Investing." (03/09/21)



Source: SEC 605 Reports, Bloomberg Intelligence

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March 15, 2021

The Honorable Sherrod Brown
Chairman
Committee on Banking,
Housing and Urban Affairs
United States Senate
Washington, DC 20510

The Honorable Patrick Toomey
Ranking Member
Committee on Banking,
Housing and Urban Affairs
United States Senate
Washington, DC 20510

Dear Chairman Brown and Ranking Member Toomey:

The U.S. Chamber of Commerce's (the Chamber) Center for Capital Markets Competitiveness (CCMC) writes regarding the hearing on March 9, 2021 titled "Who Wins on Wall Street? GameStop, Robinhood, and the State of Retail Investing." The Chamber is specifically concerned by proposals to impose a financial transaction tax (FTT). We submit this letter for the record to explain why an FTT is not a practical policy proposal and to bring greater clarity to several misleading statements made about FTTs during the hearing.

Opposition to an FTT

During the hearing, it was stated that an FTT is an idea whose time has come. The Chamber strongly disagrees with that idea, particularly based on what we know about the history of the FTT in the U.S., the deleterious impacts we know an FTT would have on the retirement community, investors, businesses, and the economy, and the 63% of bipartisan American poll respondents who are overwhelmingly opposed to an FTT.

Historic, Bipartisan Congressional Opposition: The U.S. has already lived through an unsuccessful experiment with an FTT from 1914 to 1965. After more than a half century with an FTT, the tax was ultimately repealed in an overwhelming bipartisan vote by a Democratic Congress. A 1965 report by the Committee on Ways and Means¹ found that taxes like the FTT "were not developed on any systematic basis and are often discriminatory in their application to the taxed industries or to the purchasers of the

¹ U.S. Government Printing Office. 1965. *Excise Tax Reduction Act of 1965, Report of the Committee on Ways and Means, House of Representatives, to Accompany H.R. 8371*. p. 1. Washington: <https://www.finance.senate.gov/imo/media/doc/SRpt89-324.pdf>

taxed products.” We strongly discourage the Committee from reintroducing an FTT in the U.S.

U.S. Chamber of Commerce: The Chamber has consistently opposed legislation that would impose a financial transaction tax on financial trades, such as equities, bonds, and derivatives. Our 2019 report “Financial transaction taxes: A tax on investors, taxpayers, and consumers,”² outlines the numerous, serious drawbacks of an FTT that extend beyond retirement savers and investors to Main Street, businesses, and the economy. Appendix A includes the Executive Summary from the report and highlights the many negative consequences of an FTT.

Bipartisan Americans: Americans are deeply concerned about proposals to reimpose an FTT and there is robust, bipartisan opposition to an FTT. CCMC recently conducted a national poll to understand views on a proposed FTT. When they learned about an FTT, an overwhelming bipartisan majority of 63% expressed opposition to an FTT. When questioned on the intensity of their opposition, nearly half of voters (49%) expressed strong opposition to an FTT. We are particularly concerned about the chilling effect that an FTT could have on Americans’ retirement savings. A majority responded that they would be less likely to invest if such a tax were to be enacted by Congress and a third said such a tax would make them less likely to invest in the market under this tax.

Furthermore, Americans surveyed believe an FTT would undermine Congress’ policy priorities, such as growing the economy and jobs and helping Americans get back on their feet following the COVID-19 pandemic, while making it more difficult for Americans to save money for retirement and pay for their children’s college. An FTT runs counter to these important policy goals. It is clear from respondents that they believe an FTT would hurt efforts to recover from the impact of the COVID-19 pandemic and harm Americans’ ability to save for retirement. Appendix B provides a summary of the polling results.

An FTT Would Place Significant Costs Upon Hard-working American Savers

FTTs have been pitched by various proponents as a painless way to raise vast sums of money from Wall Street to fund other projects under consideration by Congress. And yet, as made clear during the hearing, supporters of an FTT understand that the tax is actually borne by investors and believe it is a reasonable trade-off to tax investors in order to slow down and limit high frequency trading. It was further suggested at the hearing that an FTT would be a negligible cost to the everyday investor. The imposition of an FTT means that Americans would either have less saved for retirement, a first home or their children’s education, or they would have to extend their work years. It

² U.S. Chamber of Commerce, Center for Capital Markets Competitiveness. “CCMC 2019 Report.” https://www.centerforcapitalmarkets.com/wp-content/uploads/2019/08/CCMC_FTT-Report_v2-DIGITAL.pdf

should be noted that many Americans relied on their pension, 401(k) or IRA to ride out the financial crunch created by the COVID-19 pandemic. The extra burden of an FTT placed on hardworking families as they seek to save and rebuild their retirement accounts is not negligible and it would instead hurt long-term investors and families.

Specifically, the tax would result in a massive increase in transactions costs at a time when investors benefit from historically low transaction costs. Commissions for stock trades in the United States are quite low and are free for most retail investors. Institutional investors on average pay a mere 0.03%.³ However, the taxes proposed by both the Wall Street Tax Act and the Inclusive Prosperity Act would result in a massive increase in transaction costs for investors.

As the costs from an FTT compound over time, 401(k), IRA, and pension plan holders would see a diminution of their accounts. The Chamber has calculated the impact to investors under the Wall Street Tax Act and Inclusive Prosperity Act (See “Appendix C”). The analysis shows that despite working hard to save year after year, retirement savers would find themselves significantly penalized by an FTT. Specifically, a 401(k) participant who saves the average contribution each year would end up with \$31,912 less under the Wall Street Tax Act and \$153,401 less if subject to the Inclusive Prosperity Act. In both cases, these significant and unnecessary losses from one’s life savings can be entirely prevented by opposing such legislation.

Additional Consequences of an FTT

In addition to the significant negative impact to American retirement savers, the effects of imposing an FTT extend beyond retirement savers, as explained further in Appendix A. The tax also harms consumers who would pay higher prices for groceries and gas, homeowners who would pay higher mortgage rates, and all taxpayers who would pay more as the cost of public projects increases. The cascade of these negative impacts would exacerbate the fiscal pain felt by many American families who are struggling, particularly as they are already falling behind on retirement savings due to COVID-19.

By creating market inefficiencies, the FTT would also harm the ability of businesses to effectively raise capital or make capital more expensive. Impeding capital formation can have adverse ripple effects throughout the economy.

Although supporters claim that an FTT would raise revenue, experience has shown that FTTs would not raise the revenue that proponents expect. By suppressing economic and trading activity and driving more trading offshore, the amount of revenue raised would be far less than estimated. The experience in other countries is that FTTs collect far less

³ Virtu Global Cost Review, 4Q 2020.

https://www.virtu.com/uploads/documents/Virtu_EQ_GlobalCostReview_4Q20.pdf

than forecast, which is why so many countries that have imposed FTTs have eventually eliminated them.⁴

Economist's Position Mischaracterized at Hearing

At the hearing, specific reference was made to the support of an FTT by the late Professor James Tobin winner of the Nobel Prize. Professor Tobin proposed a tax on foreign currency trading, not domestic stocks and bonds.⁵ It should be noted that Professor Tobin's proposal was made in the aftermath of the collapse of the Bretton Woods exchange system and during a period of stagflation. His main concern was with foreign exchange rates and the ability of national governments to maintain control over their macroeconomic and monetary policies. Professor Tobin suggested that suppressing trading by private entities would presumably slow down capital movements that would impair the ability of a government to implement its fiscal and monetary policies. Instead, an FTT would impose a tax on the trading of domestic stocks, bonds, and derivatives.

Conclusion

For these many reasons, we strongly discourage Congress from reintroducing an FTT in the U.S.

We thank you for considering our feedback and welcome answering any questions on this issue.

Sincerely,



Tom Quaadman

cc: Committee on Banking, Housing, and Urban Affairs

⁴ CCMC 2019 Report. Countries like Germany, Sweden, and Japan have all tried imposing financial transaction taxes, but ultimately eliminated them.

⁵ For a succinct exposition of Tobin's views, see his prologue to *The Tobin Tax: Coping with financial volatility*, edited by Mahbub us Haq, Inge Kaul, and Isabelle Grunberg, Oxford University Press, 1996.



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Appendix A: Executive Summary from “Financial Transaction
Taxes: A tax on investors, taxpayers, and consumers,” authored
by the Center for Capital Markets Competitiveness

FINANCIAL TRANSACTION TAXES:

SUMMER 2019

A tax on investors,
taxpayers, and
consumers



CENTER FOR CAPITAL MARKETS
COMPETITIVENESS.

FINANCIAL TRANSACTION TAXES:

A tax on investors,
taxpayers, and
consumers

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All opinions are those of the author and do not necessarily reflect those of the Chamber or Georgetown University.*



CENTER FOR CAPITAL MARKETS
COMPETITIVENESS.

Executive Summary

Proposals for a financial transaction tax (FTT) have surfaced throughout the years in the United States and around the world. Recently, bills have been introduced in Congress that would tax financial transactions at rates of up to 0.5%. Similar bills have been proposed in previous Congresses. Proponents of such a tax contend that it would raise revenue while suppressing allegedly excessive trading activity. This paper examines the economic impact that an FTT would have in the U.S.

Key Findings:

- **Main Street will pay for the tax, not Wall Street.**

The real burden will be on ordinary investors, such as retirees, pension holders, and those saving for college. They will pay the tax directly when they trade, and pay it again as financial intermediaries pass on the taxes they face as a cost of doing business. FTTs are not actually a tax on financial intermediaries; they are a tax on investors.

- **An FTT will drive up the cost of trading by more than the amount of the tax.**

The cost to a retail investor who buys a round lot of a \$100.00 stock would be \$50.00 in direct costs and even more in indirect costs. This represents a more than tenfold increase in the cost of trading in a world of \$5.00 commissions.

- **Retirement savings will be hit hard.**

Under the version of the tax proposed by Sen. Bernie Sanders (D-VT), a typical retirement investor will end up with 8.5% less in his or her 401(k) or IRA after a lifetime of savings. In dollar terms, the average IRA investor would have \$20,000 less at retirement as a result of this tax.

- **An FTT will drive up the cost of home mortgages.**

The yields on mortgage-backed securities will go up because of both the direct impact of an FTT on the cost of trading them and the impact of an increase in benchmark Treasury rates. Because the rate on home mortgages is related to the yields on these mortgage-backed securities, an FTT will be passed on to homeowners through higher mortgage rates.

- **Mutual fund expenses will go up and reduce mutual fund returns.**

The transaction taxes paid directly and indirectly by mutual funds will increase their costs and decrease returns to investors. This will harm mutual fund investors such as 401(k) participants saving for retirement.

- **Pension fund expenses will go up and pension fund returns will go down.**

Likewise, the transaction taxes paid by pension funds will reduce their returns, worsening existing problems with underfunded pensions and making it more costly for governments and corporations to provide pensions.

- **Taxpayers will pay more because government financing costs will go up.**

An FTT on municipal and U.S. Treasury securities will lead to higher interest rates on those securities. This will increase government borrowing costs, which will be borne by all taxpayers, not just investors. This will also increase the cost of capital for public projects, such as infrastructure improvements.

- **Corporate financing costs will go up.**

While the proposed FTTs do exempt new issues of equity and debt, they would apply to secondary market transactions. Investors will expect higher returns to offset the reduced cash inflows caused by an FTT, which will raise the costs of corporate financing.

- **Hedging costs for producers will go up, and consumers will pay for it.**

Producers such as farmers, oil companies, and airlines use derivatives such as options and futures to manage their risk. Taxes such as FTTs are part of their cost of doing business that gets passed on to the consumer in the form of higher prices for groceries, gasoline, and travel.

- **GDP will be reduced by more than the net revenue raised.**

An FTT will depress economic activity in several ways. The higher cost of capital will result in less investment and thus less economic growth, fewer jobs, and less income tax revenue. At the same time an FTT will depress trading activity and send it offshore, resulting in a loss in jobs and tax revenue, consistent with what has occurred in other countries that have experimented with FTTs. European Union economists have estimated that a proposed EU FTT, similar to the ones proposed in the U.S., would actually reduce GDP by more than the revenue raised.

- **FTTs will not raise the revenue that proponents expect.**

By suppressing economic and trading activity and driving more trading offshore, the amount of revenue raised will be far less than estimated. The experience in other countries is that FTTs collect far less than forecast.

- **An FTT will cause stock prices to fall.**

Stock prices are a function of after-tax cash flows received by investors. By decreasing the after-tax cash flows investors receive, an increase in taxes will cause the value of stocks to fall. This will hurt retirement savers and impose additional stress on already underfunded state and local pension funds. It will also result in less capital gains tax revenue to the government.

- **FTTs may increase market volatility.**

In many cases around the world, the experience has been that volatility actually increased after FTTs were enacted due to trading activity shifting and liquidity decreasing, making markets less able to withstand future market stress events.

- **FTTs have consistently failed throughout history.**

FTTs around the world have generated less revenue than forecast due to trading activity shifting to other jurisdictions. They ended up being scaled back due to their deleterious impact on the economy. Indeed, a Democratic Congress and president wisely scrapped the previous FTT in the United States.

- **The proposed FTTs are more onerous than FTTs in foreign countries.**

Most countries with FTTs exempt liquidity providers such as market makers from FTTs because of their important role in smoothing market operations. The lack of such an exemption in the proposed FTTs would exacerbate their negative impacts.





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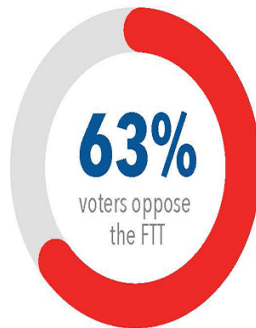
Appendix B: Poll Finds Bipartisan Opposition to Financial
Transaction Tax

Poll Finds Bipartisan Opposition to Financial Transaction Tax



No matter how you approach a Financial Transaction Tax (FTT), the outcome will be the same: Main Street, consumers, taxpayers, retirees, states, and localities are the ones who will suffer. The U.S. Chamber of Commerce's Center for Capital Markets Competitiveness (CCMC) conducted a poll of 2,000 likely voters nationally to understand their views on a proposed FTT. According to the poll:

When voters learn about an FTT, nearly two-thirds oppose the tax:



- 63% of voters oppose an FTT, including a majority of Democrats (51%), Independents (69%), and Republicans (80%).
- When questioned on the intensity of their opposition, 49% of respondents expressed strong opposition to an FTT, almost a majority of voters (more than one-in-three Democrats strongly oppose an FTT, along with 57% of Independents and 72% of Republicans).



Democrats oppose



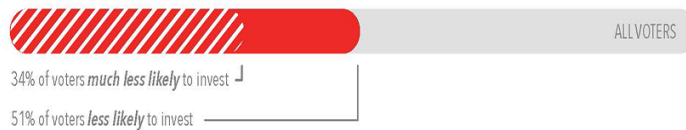
Independents oppose



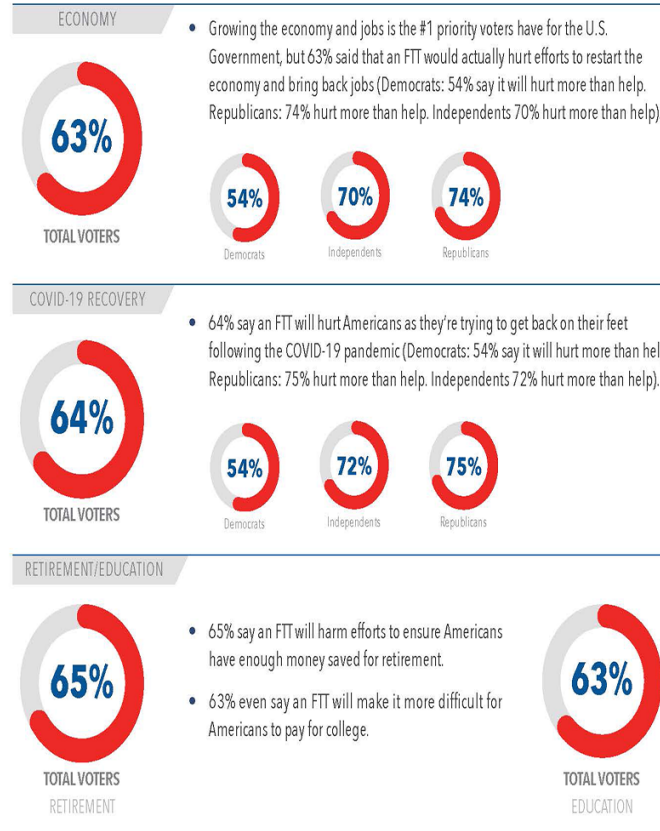
Republicans oppose

The tax itself is likely to have a chilling effect on voters' retirement savings:

- Half (51%) of voters say that if this tax were to pass, they would be less likely to invest.
- A third (34%) of voters would be much less likely to invest in the market under this new tax.



More importantly, voters believe an FTT will hurt efforts to achieve priority policy goals:



In a rare moment of bipartisanship, Democratic and Republican voters are united in opposition to an FTT. Majorities from both parties believe an FTT would hurt efforts to recover from the impact of the COVID-19 pandemic and harm Americans' ability to save for retirement.

Voters are looking to the federal government to help grow the economy and bring back jobs. They want the government laser-focused on the vaccine effort, along with longer-term goals of making healthcare more affordable and improving education. When voters from both parties speak with one voice, Congress needs to listen: Republicans and Democrats alike understand that an FTT runs counter to these goals.

If you have any questions, please contact Kristen Maliniconico, Director, U.S. Chamber Center for Capital Markets Competitiveness, at kmaliniconico@USChamber.com.

Methodology: The survey was conducted by Teneo Research. The data was collected online between February 23 and 25, 2021 among a nationally proportional sample of 2,000 likely voters. The survey has a credibility interval of $\pm 2.5\%$ at the 95% confidence level.





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Appendix C: Retirement Investment Scenario

Retirement Investment Scenario



This scenario estimates the impact of a Financial Transaction Tax (FTT) on a 401(k) investor who invests the average 401(k) contribution each year over the lifetime of his or her working career. The cumulative cost of the tax grows each year as the retirement saver loses the compounding of returns on the taxes paid.

A typical retirement investor will end up with \$31,912 less under the Wall Street Tax Act and \$153,401 less if subject to the Inclusive Prosperity Act.

ASSUMPTIONS

TIME FRAME | An employee makes annual contributions to a 401(k) plan for 45 working years (approximately ages 21 to 66).

ANNUAL 401(K) CONTRIBUTION | At the end of each year, the employee contributes \$11,350, which represents the average annual 401(k) contribution including the employee and the average employer match.¹

RATE OF RETURN | A real rate of return of 5% is used. This is a conservative estimate given that the average inflation-adjusted return on the S&P500 from 1926 to 2020 was 8.5%. The inflation-adjusted real return is used to make the retirement accumulation comparable in spending power to today's dollars.

ACCUMULATION WITHOUT AN FTT

With no FTT, this worker will accumulate \$1,812,597 at retirement.

ANALYSIS WITH AN FTT

The impact of the tax will be a function of the tax rate and turnover rate of the funds.

TAX RATE | We assess the impact of an FTT at both the proposed 0.10% rate from the Wall Street Tax Act and the 0.50% rate from the Inclusive Prosperity Act.

TURNOVER RATE | Retirement savers invest in a variety of different funds with widely varying turnover rates. Actively managed funds tend to have higher turnover. This analysis uses a turnover rate of 63%, which is the average turnover of a domestic stock fund according to Morningstar.²

RATE OF RETURN | The Wall Street Tax Act would reduce the return by the turnover rate times the tax rate, or $63\% \times 0.10\%$, or 0.063%. The rate of return with the FTT becomes $5.0\% - 0.063\% = 4.937\%$. For an FTT rate of 0.50%, the rate of return would be reduced to $5.0\% - (63\% \times 0.50\%) = 4.685\%$.

OTHER IMPACTS | No adjustment is made for the increases in transactions costs such as the bid-ask spread that are likely to occur as intermediaries such as market makers pass through the cost of the tax. Nor is any adjustment made for drops in overall asset prices in reaction to the tax. This results in a more conservative estimate of the impact.

Impact of FTT on Lifetime Retirement Savings Accumulation

	Without an FTT	With the Wall Street Tax Act	With the Inclusive Prosperity Act
Annual Real Return	5.000%	4.937%	4.685%
Annual Contribution	\$11,350	\$11,350	\$11,350
Years of Contributions	45	45	45
Accumulation at Retirement (today's dollars)	\$1,812,597	\$1,780,685	\$1,659,196
Change Due to Tax		\$31,912	\$153,401

1. Fidelity Investments, Building Financial Futures: trends and insights of those saving for retirement across America, 4th Quarter 2020, https://sponsor.fidelity.com/in-public/D6_PSW_Website/documents/Building_Financial_Futures.pdf

2. Investopedia, Turnover Ratios and Fund Quality, <https://www.investopedia.com/articles/mutualfund/09/mutual-fund-turnover-rate.asp>



March 8, 2021

The Honorable Sherrod Brown
Chair
Committee on Banking, Housing,
and Urban Affairs
United States Senate
Washington, D.C. 20515

The Honorable Patrick Toomey
Ranking Member
Committee on Banking, Housing,
and Urban Affairs
United States Senate
Washington, D.C. 20515

Dear Chairman Brown, Ranking Member Toomey, and Members of the Committee:

My name is Jennifer Schulp, and I am the Director of Financial Regulation Studies at the Cato Institute's Center for Monetary and Financial Alternatives. Thank you for providing the opportunity to submit a written statement in connection with the Committee's hearing entitled, "Who Wins on Wall Street? GameStop, Robinhood, and the State of Retail Investing." My comments below are focused on the state of retail investing and are similar to the written testimony that I submitted to the U.S. House Committee on Financial Services in connection with its February 18, 2021 hearing entitled, "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide."¹

Retail Investing

Retail, or individual, investors are important participants in our public equities markets. Although retail participation has ebbed and flowed over the years, approximately one-fifth of all market trading volume is now attributable to retail orders, which is a substantial increase over 2019.²

Most commentators pin the recent increase in retail participation to the availability of zero-commission trading. In late 2019, many large brokerages began offering zero-commission trading, following the lead of Robinhood Financial. But several other factors also likely attracted retail investors, including the widespread availability of fractional-share trading,³ the ability to

¹ Schulp. "Testimony before the Committee on Financial Services, U.S. House of Representatives." Available at <https://financialservices.house.gov/uploadedfiles/hhrg-117-ba00-wstate-schulpi-20210218.pdf>

² Alexander Osipovich. "Individual-Investor Boom reshapes U.S. Stock Market." *Wall Street Journal*, August 31, 2020. Available at <https://www.wsj.com/articles/individual-investor-boom-reshapes-u-s-stock-market-11598866200>; Piece Crosby. "Reflections on 2020 and What's In Store for 2021: Through the Eyes of Retail Traders." *Nasdaq*, December 22, 2020. Available at <https://www.nasdaq.com/articles/reflections-on-2020-and-whats-in-store-for-2021%3A-through-the-eyes-of-retail-traders-2020>

³ Fractional-share trading, which permits investors to buy a portion of a stock less than one share, increased in availability throughout 2020. Julia Carpenter. "When Some Investors Look at Stocks They See Dollars, Not Shares."

open accounts with low (or no) balances, and the ease of app-based trading platforms. Even limited entertainment options during the pandemic probably played a role in increased retail interest in investing. While Robinhood and other trading apps experienced tremendous growth in accounts in 2020, legacy brokerages, like Fidelity Investments, similarly experienced a surge in new retail accounts.⁴

Retail participation is beneficial for our equities markets. The fact that retail investors behave differently from institutional ones, and sometimes behave differently from each other can be particularly valuable in times of market stress. Where institutional liquidity dries up, for example, retail trading can help to lower bid-ask spreads and dampen the price impact of trades.⁵ In fact, retail investors may have been a market-stabilizing force during the March 2020 coronavirus-induced market crash by staying the course with their investments and buying when stock prices dipped.⁶

Investing in the stock market also benefits individual investors by providing an important path to wealth. With average annual returns for the S&P 500 during the past 60 years of approximately 8%, long-term investors generally benefit by being invested in the market.⁷

Fortunately, there is already a history of strong retail participation in U.S. equities markets. When measured in 2019, approximately 38% of total U.S. equities were held directly by households.⁸ However, with that said, only 15% of U.S. households directly hold stock, and ownership of equities is concentrated in the hands of the comparatively few and comparatively wealthy.⁹

Wall Street Journal, January 15, 2021. Available at <https://www.wsj.com/articles/when-some-investors-look-at-stocks-they-see-dollars-not-shares-11610706630>

⁴ Justin Baer. "Fidelity's Retail Investor Accounts Rise 17% to 26 Million." *Wall Street Journal*. Available at <https://www.wsj.com/articles/fidelitys-assets-under-management-rise-to-3-8-trillion-11614700831>

⁵ Gideon Ozik, Ronnie Sadka, and Siyi Shen. "Flattening the Illiquidity Curve: Retail Trading During the COVID-19 Lockdown." *SSRN*, February 10, 2021. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3663970

⁶ Ivo Welch. "The Wisdom of the Robinhood Crowd." *NBER Working Paper*, No. 27866. Available at https://www.nber.org/system/files/working_papers/w27866/w27866.pdf; Gideon Ozik, Ronnie Sadka, and Siyi Shen. "Flattening the Illiquidity Curve: Retail Trading During the COVID-19 Lockdown." *SSRN*, February 10, 2021. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3663970

⁷ J.B. Maverick. "What is the Average Annual Return for the S&P 500?" *Investopedia*, February 19, 2020. Available at <https://www.investopedia.com/ask/answers/042415/what-average-annual-return-sp-500.asp>

⁸ SIFMA. "Who Owns Stocks in America." *SIFMA Insights*. Available at <https://www.sifma.org/wp-content/uploads/2021/02/SIFMA-Insights-Who-Owns-Stocks-An-Update-FOR-WEB.pdf> The 38% figure excludes stocks indirectly held by retail investors through mutual funds or other institutions.

⁹ Board of Governors of the Federal Reserve System. "Changes in U.S. Family Finances from 2016 to 2019: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin*, Vol. 106, No. 5. Available at <https://www.federalreserve.gov/publications/files/scf20.pdf>; Board of Governors of the Federal Reserve System. "Survey of Consumer Finances (SCF)." Available at https://www.federalreserve.gov/econres/scf/dataviz/scf/chart/#series:Directly_Held_Stocks;demographic:income:1,2,3,4,5,6;units:have

In fact, even if you include pooled investment funds, which is how the vast majority of households indirectly hold stocks as a part of their retirement assets, ownership is still skewed towards the wealthy. In 2019, about 53% of all households had stock market investments, but only 31% of families in the bottom half of the income distribution were invested.¹⁰

Stock ownership is also highly correlated with race, education, and age.¹¹ For example, in 2019, approximately 19% of white households directly held stock, compared to approximately 7% of Black households and 4% of Hispanic households.¹² Those with a college degree are about twice as likely to directly hold stock than those who just had some college education, and more than three times more likely than those with only a high school diploma.¹³ And the older a person is, the more likely he or she is to own stock.¹⁴ These patterns equally apply to indirect ownership of stock.

The retail investors who opened accounts in 2020, though, are different. Data released by brokerage firms identifies a high number of new clients who are first-time investors and who are younger than the average investor.¹⁵ This is confirmed by recent research by the FINRA Investor Education Foundation and NORC at the University of Chicago (“FINRA/NORC Study”), which found that investors who opened a taxable investment account for the first time in 2020 were younger, had lower incomes, and were more racially diverse than those who had previously opened such accounts.¹⁶ These new investors also held lower account balances, with about a third holding account balances less than \$500. Indeed, the ability to invest with a small

¹⁰ Board of Governors of the Federal Reserve System. “Changes in U.S. Family Finances from 2016 to 2019: Evidence from the Survey of Consumer Finances.” *Federal Reserve Bulletin*, Vol. 106, No. 5. Available at <https://www.federalreserve.gov/publications/files/scf20.pdf>. By comparison, about 70% of families in the 50-80th percentiles held stock, and more than 90% of families in the top decile held stock.

¹¹ Lydia Saad. “What percentage of Americans Owns Stock?” *Gallup*, September 13, 2019. Available at <https://news.gallup.com/poll/266807/percentage-americans-owns-stock.aspx>

¹² Board of Governors of the Federal Reserve System. “Survey of Consumer Finances (SCF).” Available at https://www.federalreserve.gov/econres/scf/dataviz/scf/chart/#series:Directly_Held_Stocks;demographic:race&population:1,2,3,4;units:have

¹³ Board of Governors of the Federal Reserve System. “Survey of Consumer Finances (SCF).” Available at https://www.federalreserve.gov/econres/scf/dataviz/scf/chart/#series:Directly_Held_Stocks;demographic:edc&population:all;units:have

¹⁴ Board of Governors of the Federal Reserve System. “Survey of Consumer Finances (SCF).” Available at https://www.federalreserve.gov/econres/scf/dataviz/scf/chart/#series:Directly_Held_Stocks;demographic:age&population:1,2,3,4,5,6;units:have

¹⁵ “Millennials Working from Home May be Moving the Market.” *CNN*, June 12, 2020. Available at <https://www.cnn.com/2020/06/12/investing/millennials-investing-robinhood/index.html>; Vladimir Tenev. “Testimony before the Committee on Financial Services, U.S. House of Representatives.” Available at <https://financialservices.house.gov/uploadedfiles/hhrg-117-ba00-wstate-tenev-20210218.pdf>

¹⁶ FINRA. “Investing 2020: New Accounts and the People Who Opened Them.” *Consumer Insights: Money & Investing*, February 2021. Available at https://www.finrafoundation.org/sites/finrafoundation/files/investing-2020-new-accounts-and-the-people-who-opened-them_1_0.pdf Evidence also suggests that women may have opened accounts at a higher rate in 2020 than previously. Carol Ryan. “Why Women Investors Won’t Embrace Stocks.” *Wall Street Journal*. Available at <https://www.wsj.com/articles/why-women-investors-wont-embrace-stocks-11613125802>

amount of money was a commonly cited reason for opening an account for the first time in 2020.

The 2020 Ariel-Schwab Black Investor Survey underscores the increase in diversity among investors in 2020, reporting that Black investors under the age of 40 are now participating in the stock market at a rate equal to their white counterparts.¹⁷ Indeed, three times more young Black investors than young white investors entered the market for the first time in 2020.¹⁸

These changes in investor demographics may portend, as one of the FINRA/NORC Study researchers noted, “a shift towards more equitable investment participation.”¹⁹

The FINRA/NORC Study also calls into question the popular narrative that the rise in retail participation is fueled by those seeking to engage in speculative behavior. New investors most often cited saving for retirement and learning about investing as goals. About a third of investors who opened accounts in 2020 did cite speculating as a goal, but the self-reported trading behavior of these investors is not consistent with day trading or similar strategies. While those who opened new accounts in 2020 appear to trade more frequently than existing account holders, approximately 40% of new investors reported making no trades per month and almost 90% made three or fewer trades a month.

It is also not clear that these new retail investors collectively are making poor decisions. The investing behaviors of retail investors has long been the subject of debate, but there is little consensus that new retail entrants are making systematically worse decisions than their predecessors. Rather, retail investors have received praise for identifying the market bottom in March 2020 and generating better performance than some hedge funds through the same volatile period.²⁰ Recent research studying investor holdings on Robinhood suggests that the narrative that retail investors were “cannon fodder” for more sophisticated investors is “incomplete to the point of being misleading.”²¹ While Robinhood investors were

¹⁷ Charles Schwab. “New Ariel-Schwab Black Investor Survey Shows Black Americans Continue to Trail Their White Counterparts in Building Wealth.” *Charles Schwab*. Available at <https://www.aboutschwab.com/ariel-schwab-black-investor-survey-2021>

¹⁸ *Ibid.*

¹⁹ Angelita Williams and Eric Young. “New Research: Global Pandemic Brings Surge of New and Experienced Retail Investors into the Stock Market.” *FINRA Media Center*, February 2, 2021. Available at <https://www.finra.org/media-center/newsreleases/2021/new-research-global-pandemic-brings-surge-new-and-experienced-retail>

²⁰ Maggie Fitzgerald. “Robinhood Traders Nailed the Market Bottom, Debunking Theory Retail Investors are the Dumb Money.” *CNBC*, June 15, 2020. Available at <https://www.cnbc.com/2020/06/15/robinhood-traders-nailed-the-market-bottom-debunking-myth-retail-traders-are-the-dumb-money.html>; Maggie Fitzgerald. “Follow Robinhood Traders? Amateurs’ Favorite Stocks are Beating Hedge Fund Picks, Goldman Says.” *CNBC*, June 15, 2020. Available at <https://www.cnbc.com/2020/06/15/follow-robinhood-traders-amateurs-favorite-stocks-are-beating-hedge-fund-picks-goldman-says.html>

²¹ Ivo Welch. “The Wisdom of the Robinhood Crowd.” *NBER Working Paper*, No. 27866. Available at https://www.nber.org/system/files/working_papers/w27866/w27866.pdf

overrepresented in certain odd stocks, those unconventional holdings were the exception, not the rule.²²

The increased participation by retail investors in equities markets is positive news for both investors themselves and the markets. Opportunities for individuals to grow their own wealth should be welcomed and expanded, not restricted.²³

GameStop Phenomenon

It remains difficult to analyze the impact of the trading in GameStop and other stocks because many facts are unknown at this time. While the popular narrative is that retail traders rose up to target hedge funds, we do not have the data to know what portion of GameStop's rise was attributable to retail investor behavior versus the behavior of other market participants. More so, we may never have the data to determine the diverse motivations of all the individual investors who traded in GameStop.

But some things seem clear. Importantly, the temporary volatility in GameStop and others did not present a systemic risk to the functioning of our markets. As the Treasury Department recognized, following a meeting with officials from the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission, the Federal Reserve, and the Federal Reserve Bank of New York, the market's "core infrastructure was resilient during high volatility and heavy trading volume."²⁴ This is not surprising. Despite the huge trading volume and rapid increase in value, the GameStop phenomenon affected a very small part of the market.²⁵

The fact that GameStop traded temporarily, and perhaps still trades, above fair estimates of the company's value is not, by itself, a reason for concern. Stock prices move in and out of alignment all the time, and markets are no strangers to bubbles. If a company is valued by the market differently than a review of its "fundamentals" suggests, it might indicate that the analysis is missing relevant information about a company's prospects or that the company's stock price is due for a correction. The market's mechanisms, including the tool of short selling, generally work well to handle these circumstances. Stepping in to prevent trading when a stock

²² Ibid.

²³ Another place to expand opportunities for retail investors is by revising or eliminating the accredited investor definition, which limits investment in certain exempt offerings to those who meet a minimum wealth standard. The accredited investor definition has disproportionate impacts on minority and rural communities. Jennifer Schulp. "Let's Not Backtrack on Loosening 'Accredited Investor' Rules." *MarketWatch*, January 29, 2021. Available at <https://www.cato.org/article/lets-not-backtrack-loosening-accredited-investor-rules>

²⁴ Jeanna Smialek and Deborah Solomon. "Yellen and Regulators Met Amid GameStop Frenzy to Discuss Market Volatility." *New York Times*, February 4, 2021. Available at <https://www.nytimes.com/2021/02/04/business/economy/yellen-gamestop.html>

²⁵ GameStop's market capitalization, even at its peak, was around \$24 billion in an approximately \$50 trillion market. YCharts. "GameStop Corp (GME)." *YCharts Data*. Available at https://ycharts.com/companies/GME/market_cap; Sibilis Research. "Total Market Value of U.S. Stock Market." *Sibilis Research Database*. Available at <https://sibilisresearch.com/data/us-stock-market-value/>

price soars (or declines) contrary to conventional wisdom could limit legitimate information important to the market.

The SEC, among a host of others, is reviewing the relevant trading and conducting a study of the events.²⁶ I believe they likely have the tools necessary to address misconduct, if any occurred.

I cannot say, on this incomplete record, whether any regulatory changes are warranted, but areas for improvement may be identified as regulators learn more about what happened. Any proposals for change must recognize the potential for unintended consequences, which is particularly acute where retail investors participate in the market both in their own capacity and through the institutions that manage their retirement assets.

By no means, though, should the GameStop phenomenon result in changes that restrict retail investors' access to the markets. Reintroducing undue barriers to participation that have been removed, or introducing new restrictions, endangers the benefits brought by wider retail participation in our equities markets.

Respectfully,



Jennifer J. Schulp
Director of Financial Regulation Studies
Center for Monetary and Financial Alternatives
The Cato Institute

²⁶ Kate Davidson and Eliza Collins. "Regulators Say Market Infrastructure was Resilient in GameStop Frenzy." *Wall Street Journal*, February 4, 2021. Available at <https://www.wsj.com/articles/u-s-regulators-met-to-discuss-recent-market-volatility-11612479757>



March 12, 2021

The Honorable Sherrod Brown
Chairman, Committee on Banking, Housing
and Urban Affairs
U.S. Senate
Washington, DC 20510

The Honorable Pat Toomey
Ranking Republican, Committee on Banking,
Housing and Urban Affairs
U.S. Senate
Washington, DC 20510

Dear Chairman Brown and Ranking Member Toomey,

The Securities Industry and Financial Markets Association (SIFMA)¹ respectfully submits this letter for the record in connection with the March 9, 2021 hearing titled “Who Wins on Wall Street? GameStop, Robinhood and the State of Retail Investing.”

The U.S. capital markets are where people – individually through direct investment in stocks and bonds and collectively through pension funds and mutual funds – invest and grow savings. By putting their capital to work in our markets, they invest in companies that drive innovation. They also invest in state and local infrastructure like roads, schools and hospitals. Combined, their savings fuel economic growth and job creation. As SEC Chairman nominee Gary Gensler said at his recent confirmation hearing before your committee, “the capital markets touch every part of our economy. They enable businesses to develop new products, build new facilities, and grow their payrolls. They help working families save for retirement and invest in their children’s futures. And although it may not seem intuitive, when someone goes to take out a mortgage or open a credit card, our capital markets are on the other side of those transactions as well.”

We believe that proposals to impose a financial transaction tax (FTT) on securities transactions would harm the very individuals that rely on the capital markets to grow savings and fund retirement. While proponents of an FTT claim that it would be a tax on the securities industry, in fact, it would be a new tax on all individual investors and pension beneficiaries.

Not only would this new tax harm average investors, retirement accounts and pension funds, it would also negatively impact the efficiency of U.S. markets, the deepest and most liquid in the world. At a time when the costs of investing for individuals have never been lower, it would be counterintuitive to raise such costs through an FTT, particularly when policy makers are rightfully seeking to increase retirement savings.

¹ SIFMA is the leading trade association for broker-dealers, investment banks and asset managers operating in the U.S. and global capital markets. On behalf of our industry’s nearly 1 million employees, we advocate for legislation, regulation and business policy, affecting retail and institutional investors, equity and fixed income markets and related products and services. We serve as an industry coordinating body to promote fair and orderly markets, informed regulatory compliance, and efficient market operations and resiliency. We also provide a forum for industry policy and professional development. SIFMA, with offices in New York and Washington, D.C., is the U.S. regional member of the Global Financial Markets Association (GFMA). For more information, visit <http://www.sifma.org>.



To understand how a financial transaction tax would impact Americans saving for retirement and other priorities, it is important to know who owns stocks in the U.S. We believe some of the testimony given at the March 9th hearing mischaracterizes stock ownership in America. One witness asserted that “directly owned stocks (and bonds) make up a relatively small share of near retirees’ wealth at 8%” and “only 24% of older households own stocks directly outside of their retirement account.” These statistics completely overlook the fact that Americans are building their retirement accounts with mutual funds and individual stocks.² Individual retirement accounts (IRAs) comprise \$11 trillion in assets, of which 43.7% are mutual funds and 47.1% include individual stocks, ETFs and assets held in brokerage or trust accounts. Defined contribution plans comprise \$7.4 trillion in assets, with 52.1% in annuities and 23.2% in equities. Additionally, 401k accounts continue to grow reaching \$6.4 trillion in 2019 and these accounts are predominately equity based.

According to the Federal Reserve, 52.6% of households in the U.S. own stocks (65 million households). The Federal Reserve data also shows a median value of \$40,000 for a household’s stock holdings, which demonstrates a much wider universe of Americans own stocks. Extrapolating this \$40,000 median stock holdings value to the U.S. Census Bureau data, it is in line with the median income listed for the third and fourth quintile income levels. These quintiles are the equivalent to an income range of \$77,200 to \$126,600 and therefore shows a large portion of the middle-class own stocks, not just the wealthiest Americans. Nevertheless, more can be done to give more Americans access to wealth building opportunities.

If an FTT were to be imposed, many retirement accounts such as pension funds, 401ks, IRAs, as well as 529s and the Federal Thrift Savings Plan, which are invested in target date funds, would be charged with this new tax each time they are rebalanced or the asset mix is changed, which occurs with great regularity. This year, Vanguard published an analysis³ demonstrating that an FTT could “hinder millions of American investors striving to reach their long-term financial goals.” According to the analysis, if a person saves \$10,000 per year over 40 years in a balanced portfolio of actively managed stocks and bonds, a 10-basis-point tax would cost the investor nearly \$36,000 — more than 3 ½ years of investor savings. If levied on purchases and sales, the tax would cost these same Americans more than \$56,000. All told, such a penalty could cost the retirement saver as much as \$200,000 — equivalent to 20 years of an investor’s annual contributions. Given the financial stress facing Americans of all backgrounds due to the COVID-19 pandemic, policymakers should not make it harder for citizens to secure their financial future.

In addition to the cost on American savers, an FTT would also reduce the competitiveness and liquidity of the U.S. capital markets. As shown in SIFMA’s report entitled “The Ramifications of a Financial Transaction Tax”, an FTT would increase volatility as trading volumes decline, increase financing costs for municipalities, the federal government and corporations, increase prices for consumer goods, and generally damage economic growth by decreasing revenues and jobs in the U.S.

² SIFMA Insights: Who Owns Stocks, An Update, February 2021

³ Vanguard. (2020). Financial Transaction Tax: Main Street Bears the Burden.

⁴ SIFMA. (2019). [Ramifications of an FTT: A Financial Transaction Tax Will Harm U.S. Capital Markets & Individual Investors](#)



Hong Kong is occasionally cited as an example of a market that has successfully implemented the FTT (stamp duty), however the facts tell a different story. In Hong Kong, the average cost to trade is 19.2 basis points. Of this, 17.5 basis points stems from the stamp duty or 91% of the cost to trade. While the explicit cost of the stamp duty is 10 basis points, there is a secondary increase in implicit costs from the widened bid-ask spread. More generally, across 14 separate transaction tax changes in Asia-Pacific markets, a 23% rise in transaction costs causes an immediate 1% decline in daily market returns.

Finally, as history shows us, the revenues generated by an FTT consistently fail to meet expectations. In nearly every jurisdiction that has enacted an FTT, the tax has not produced the projected revenue. Experiences with an FTT in Sweden, Italy and France only managed to deliver 3%, 20%, and 50% of expected revenues respectively in their first year while their capital markets experienced heightened volatility, lower returns, and the flight of trading volume to other jurisdictions.

A 1% tax on equity trades in Sweden resulted in a market decline of 5.3% in the 30 days leading up to the introduction of the tax. Given the lack of revenue raised and the amount of trading migration by the end of 1991, the FTTs in Sweden were eliminated, but trading volume never returned and the markets never fully recovered. In Italy, volatility and bid-ask spreads increased and while volumes did not decrease significantly in the second stage of implementation, academics believe this is because the volumes declined in the first stage when the high frequency trading tax was added. Finally, in France, the FTT resulted in 16% declines in trading within two months at the NYSE Euronext Paris, a 21% decline in volumes in the French CAC 40 in the first ten days and 16% in the first 40 days. Order book depth declined almost instantly after adoption.

In sum, we believe the imposition of an FTT would have negative consequences for individual investors and U.S. markets to the detriment of the broader economy. It would tax savings, reduce market liquidity, and discourage investment. We appreciate your consideration of our views on this important subject.

Sincerely,

A handwritten signature in dark ink, appearing to read "K. Bentsen".

Kenneth E. Bentsen, Jr.
President and CEO



VIA ELECTRONIC MAIL

The Honorable Elizabeth Warren
 United States Senate
 309 Hart Senate Office Building
 Washington, D.C. 20510

RE: February 16, 2021 Letter

Dear Senator Warren:

We write in response to your letter dated February 16, 2021. We appreciate the opportunity to explain Citadel Securities' business relationships and to respond to the requests in your letter, broken out by question number.

1. Citadel Securities executes trades on behalf of institutions and every major retail broker dealer in the U.S., including Fidelity, Morgan Stanley/ E*Trade, Robinhood, Schwab/ TD Ameritrade, Vanguard, and many others. Robinhood is one of many retail broker dealers that directs a portion of its clients' orders to Citadel Securities, and Citadel Securities is one of a number of market makers receiving client orders from Robinhood. Neither Citadel Securities nor any affiliated entity own any stake in Robinhood.

By way of background, retail broker dealers are legally obligated to route their clients' orders to the source of best execution, which is determined, among other things, by price improvement, speed of completion, and platform resiliency.¹ While many retail broker dealers charge market makers a fee to execute those trades—a practice known as payment for order flow or PFOF—some do not, and we execute trades for both. PFOF is a long-standing and transparent practice that is accepted and regulated by the SEC.²

As disclosed quarterly under SEC Rule 606, certain retail broker dealers charge Citadel Securities a fee, or PFOF. Such arrangements are publicly reported and disclosed in retail broker dealers' 606 reports, which provide information on any PFOF arrangements with market makers, including Citadel Securities. As necessitated by its role as a market maker, Citadel Securities receives order information, generally by the receipt of FIX protocol messages. The FIX message protocol – which is used across the industry – provides the terms of that order (e.g., security name, price, size, order type). Citadel Securities does not receive any personally identifiable information from Robinhood or any other retail broker dealer.

2. In its role as a market maker, Citadel Securities handles approximately 40 percent of all retail orders in the U.S. on a typical day. Because retail order execution is a very competitive business, the magnitude of the orders routed to Citadel Securities reflects our firm's consistent provision of price

¹ See FINRA Rule 5310.

² See 17 C.F.R. § 242.606.



improvement, our ability to deliver best execution in all market conditions, and the resilience of our systems. It also reflects the corresponding confidence the retail brokerage community has in our firm and our track record of success, which benefits retail investors.

Citadel Securities' computation based on publicly available data provides that the average daily bid-ask spread in GameStop from December 1, 2020, through February 11, 2021, was approximately \$0.024.³ Bid-ask spreads reflect the consideration of the risk that market makers take on in making two-way markets and, as Citadel Securities has done, in keeping those markets available at all times. During the last week in January, for example, Citadel Securities was the only major market maker to provide continuous liquidity every minute of every day. Citadel Securities continued handling all of the retail volume that it received even as others were unable or unwilling to handle the heavy volumes.

3. On January 25, 2021, it was announced that Citadel, the separate hedge fund business, and its partners had made a strategic investment in Melvin Capital's largest fund. As of January 31, 2021, Citadel's investment in Melvin Capital was not profitable. Citadel Securities, the market making business, had no role in the investment in Melvin Capital.

Consistent with its regulatory obligations under Section 13(f) of the Securities Exchange Act of 1934, Citadel discloses its securities holdings (as defined under SEC rules) quarterly in its Form 13F, the latest of which was made publicly available on February 16, 2021.

4. As has now been widely acknowledged, neither Citadel nor Citadel Securities played a role in Robinhood's decision to impose trading restrictions on January 28, 2021. Allegations to the contrary are completely false. The internet-generated conspiracy theories on which they are based have long since been debunked, including by the sworn testimony of both Robinhood and Citadel executives, and in detailed explanations by the clearing agency whose margin calls are what in fact triggered the trading restrictions.

Citadel Securities has publicly confirmed it had "not instructed or otherwise caused any brokerage firm to stop, suspend, or limit trading or otherwise refuse to do business," and Citadel has likewise confirmed that it was "not involved in, or responsible for, any retail brokers' decision to stop trading in any way."⁴ Citadel and Citadel Securities had absolutely no involvement in—or advance knowledge of—Robinhood's decision to restrict trading of GameStop or any other "meme" stock. In his sworn testimony before the U.S. House Committee on Financial Services ("HCFS"), Mr. Kenneth C. Griffin was unequivocal: "I want to be perfectly clear: we had no role in Robinhood's decision to limit trading in GameStop or any other of the 'meme' stocks."⁵ Mr. Griffin testified that he first learned of Robinhood's trading restrictions only after they were publicly announced,⁶ and that no one

³ This has been calculated, based on publicly available data, as the time-weighted median of the bid-ask spread during each day from 12/1/2020 through 2/11/2021, using 1-minute samples of the National Best Bid and Offer each day from 9:35 AM to 3:55 PM ET.

⁴ See Michael Mackenzie et al., *Robinhood Raises \$1bn from Investors and Taps Banks at End Of Wild Week*, FIN. TIMES (Jan. 29, 2021), <https://www.ft.com/content/9a1b24e6-0433-462a-a860-c2504ea565e4>.

⁵ *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm on Fin. Services*, 117th Cong. 1 (2021) (written testimony of Kenneth C. Griffin), <https://financialservices.house.gov/uploadedfiles/hlrg-117-ba00-wstate-griffin-20210218.pdf>.

⁶ *Id.*



at Citadel or Citadel Securities had discussed with Robinhood restricting or otherwise doing anything to prevent trading in GameStop.⁷

As Robinhood has confirmed publicly, including in a February 12, 2021 letter responding to your request for information from the company (which has been publicly released),⁸ Robinhood imposed trading restrictions on GameStop stock due to depository requirements from its clearinghouse, the National Securities Clearing Corporation (“NSCC”), and not as a result of direction from any market maker or other market participants. Robinhood has been crystal clear on this important point since such unfounded rumors surfaced. On January 31, 2021, Vlad Tenev, the Founder and CEO of Robinhood, was asked about the trading restrictions and responded: “[t]here was a rumor that Citadel or other market makers kind of pressured us into doing this and that’s just false . . . from our perspective, you know, Citadel and other market makers weren’t involved in that.”⁹ The following week, in a sworn declaration submitted in federal court, Jim Swartwout, Robinhood’s President & COO, stated that the “speculation” that Citadel or Citadel Securities played a role in Robinhood’s decision to restrict trading was “completely false.”¹⁰ He added that “[t]his was a decision [he] made on behalf of RHS and in consultation with [his] operations team at RHS and others at Robinhood.”¹¹ On February 18, 2021, when asked during a hearing before the HCFs whether the decision to restrict trading was based on pressure from anyone on the witness panel—which included Mr. Griffin—Mr. Tenev responded, “Not at all. Zero pressure from anyone.”¹²

The capital-based drivers of Robinhood’s trading restrictions have likewise been confirmed by the Depository Trust & Clearing Corp. (“DTCC”) (the parent company of the NSCC), the primary registered clearing agency for equities transactions in the U.S., which has publicly stated that it increased margin requirements for Robinhood (and other brokers) spurred by extraordinary volatility in share prices, including GameStop.¹³ Robinhood has similarly made clear that its decision to restrict

⁷ *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm on Fin. Services*, 117th Cong. at 3:11:25-3:11:51 (2021) (oral testimony of Kenneth C. Griffin).

⁸ Letter from Robinhood to the Honorable Elizabeth Warren (Feb. 12, 2021), <https://www.warren.senate.gov/imo/media/doc/Robinhood%20Response%20to%20Feb%202%20Letter.pdf>.

⁹ See Siladitya Ray, *Robinhood CEO Dismisses Elon Musk’s ‘Conspiracy Theories’ About GameStop Trade Limits*, FORBES (Feb. 1, 2021), <https://www.forbes.com/sites/siladityaray/2021/02/01/robinhood-ceo-dismisses-elon-musks-conspiracy-theories-about-gamestop-trade-limits>.

¹⁰ *Cobos v. Robinhood Financial LLC*, 21-cv-843, Declaration of Jim Swartwout, Dkt. No. 27-3 ¶ 33 (C.D. Cal. Feb. 8, 2021).

¹¹ *Id.* ¶ 34.

¹² *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm on Fin. Services*, 117th Cong. at 00:52:45 (2021) (oral testimony of Vlad Tenev, CEO, Robinhood Markets, Inc.).

¹³ See Wayne Duggan, *How And Why Did The Stock Market Crack This Week?* BUSINESS INSIDER (Jan. 29, 2021) (“In light of the controversial decisions made on Thursday, the Depository Trust & Clearing Corporation (DTCC) issued the following statement explaining the measures taken by its clearing house, National Securities Clearing Corporation (NSCC): ‘In recent days, certain securities, including GME, AMC and others, have experienced extreme volatility that have generated substantial risk exposures at firms that clear these trades at NSCC, particularly if the clearing member or its clients are predominantly on one side of the market. Because NSCC guarantees settlement of trades among its clearing members, NSCC collects margin according to calculations that are set forth in its rules. When volatility increases, portfolio margin requirements increase too, and NSCC clearing members may pass on these costs to their clients, including brokerages that clear through them. Margin requirements protect the entire industry against defaults and systemic risk in volatile markets.’”), <https://markets.businessinsider.com/news/stocks/how-and-why-did-the-stock-market-crack-this-week-1030021400>; see also Letter from DTCC to The Hon. Patrick McHenry, Ranking Member, House Committee on Financial Services at 4 (Feb. 18,



trading resulted from depository requirements from its clearinghouse, the NSCC. Mr. Tenev testified to the HCFS that, at approximately 5:11 a.m. on January 28, 2021, Robinhood received an email from the NSCC that Robinhood had a deposit deficit of around \$3 billion due to volatility in the “meme” stocks, and that as a result of this “unprecedented” depository requirement, Robinhood restricted trading of certain stocks.¹⁴ This timeline is corroborated by a written statement submitted to the HCFS by the DTCC that details the reasons behind NSCC’s decision to increase daily margin requirements for Robinhood and others as noted in the 5:11 a.m. January 28 email referenced above.¹⁵ Robinhood’s explanation is further supported by its decision to raise approximately \$3.4 billion in new capital in the days after January 28, 2021 to—in the words of Mr. Tenev—“ensure that we could meet future potential deposit requirements.”¹⁶

Citadel Securities is committed to the healthy functioning of the U.S. equities markets, and we appreciate the opportunity to provide information on the recent market events. Please do not hesitate to contact us if you have further questions.

Sincerely,

Shawn F. Fagan
Managing Director and Chief Legal Officer

2021) (“Many clearing members whose unsettled portfolios were exposed to volatile meme stocks saw significant increases in the VaR charges that derived from the risk posed by increased volume and price volatility in these securities. Substantial VaR charge increases also generated capital premium charges for clearing members whose core requirements exceeded their capital cushions. Several clearing members were subject to capital premium charges, which were automatically generated by NSCC’s systems based on the formula in NSCC’s rules.”).

¹⁴ *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm on Fin. Services*, 117th Cong. at 9 (2021) (written testimony of Vlad Tenev, CEO, Robinhood Markets, Inc.), <https://financialservices.house.gov/uploadedfiles/hlrg-117-ba00-wstate-tenevv-20210218.pdf>.

¹⁵ Letter from DTCC to Hon. Patrick McHenry at 4 (Feb. 18, 2021), <https://www.dtcc.com/-/media/Files/PDFs/DTCC-Statement-February-2021-Mike-Bodson.pdf>.

¹⁶ *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm on Fin. Services*, 117th Cong. at 10 (2021) (written testimony of Vlad Tenev, CEO, Robinhood Markets, Inc.), <https://financialservices.house.gov/uploadedfiles/hlrg-117-ba00-wstate-tenevv-20210218.pdf>.



Robert W. Cook
President and Chief Executive Officer

February 23, 2021

The Honorable Elizabeth Warren
United States Senate
309 Hart Senate Office Building
Washington, DC 20510

Dear Senator Warren:

The Financial Industry Regulatory Authority (FINRA) appreciates the opportunity to respond to your letter of February 16, 2021, regarding the recent market events related to trading in GameStop and similarly volatile stocks, particularly with respect to the activities of online trading platforms and their dealings with retail customers.

FINRA's mission is to protect investors and promote market integrity, and we agree that these events require thorough investigation and careful study – not only to ensure enforcement of existing rules, but also to assess whether current standards applicable to broker-dealers should be enhanced to better protect investors in light of changes in technology, investor behavior and the broader evolution of the markets. Your letter raises important issues in that regard. Below, we have set out responses to your specific question topics.

Background

As you know, FINRA is a not-for-profit, self-regulatory organization responsible for regulating its member broker-dealers and their associated persons pursuant to the Securities Exchange Act of 1934 (Exchange Act). Operating under the oversight of the Securities and Exchange Commission (SEC or Commission), FINRA fulfills its mission by, among other things, adopting rules that supplement those of the SEC (and that are subject to approval by the SEC), examining its member firms for compliance with FINRA rules and SEC rules applicable to broker-dealers, surveilling trading in the securities markets and enforcing member firm compliance where necessary.

The SEC has stated that it will be conducting a review of recent market events¹ and publishing a report of its findings.² FINRA has offered to support that effort however the SEC deems appropriate. We believe that a comprehensive review of these events by the SEC is both a necessary and important step to help inform potential regulatory responses by the SEC, FINRA or other regulators.

In considering such responses, we note that the SEC has primary regulatory authority with respect to several of the topics raised in your letter. These include: the development

¹ See Statement of Acting Chair Lee and Commissioners Peirce, Roisman, and Crenshaw Regarding Recent Market Volatility, dated January 29, 2021.

² See Statement from Treasury Regarding the Meeting Between the Treasury Department, Securities and Exchange Commission, Federal Reserve Board, Federal Reserve Bank of New York, and Commodity Futures Trading Commission, dated February 4, 2021.

The Honorable Elizabeth Warren
 February 23, 2021
 Page 2

by the SEC of a national market system defining the overall structure of the securities markets, which has included decades of analysis and regulation by the SEC of the practice of payment for order flow on the exchanges and over-the-counter markets; the SEC's financial responsibility requirements for broker-dealers, whether or not FINRA member firms, which govern their capital, liquidity and protection of customer funds and securities; determining the scope and application of Regulation Best Interest (Reg BI) (which imposes a "best interest" standard of conduct for recommendations of securities and strategies to retail customers) with respect to online trading platforms; and the authority to prohibit mandatory predispute arbitration agreements between broker-dealers or investment advisers and their customers. As discussed below, certain of FINRA's own rules, as approved by the SEC, help supplement or support the SEC's approach to these areas under federal law.

In further support of the SEC, FINRA has responsibility to help enforce the SEC's requirements with respect to FINRA member broker-dealers – in addition to enforcing FINRA's own rules. Even as the SEC conducts its broader review of the recent market events, FINRA is actively considering a range of matters related to those events, closely coordinating with the SEC and other regulatory authorities. Those efforts involve extensive collaboration across multiple FINRA departments, including those that supervise member firm activities involving customers and the markets and those that investigate potential regulatory violations and bring enforcement actions for those violations. While we are not in a position to address any specific investigative or supervisory matter, FINRA will thoroughly investigate the conduct of those over whom it has jurisdiction – its member firms and their registered personnel – and take appropriate regulatory or disciplinary action to remediate violations of applicable legal requirements where warranted.

FINRA is committed to dedicating the resources and expertise needed to supervise broker-dealers' compliance with applicable requirements. To support this objective, FINRA deploys a risk assessment program to monitor member broker-dealers for potential risks to investors and markets. Informed by these risk assessments, FINRA examines member firms regularly to assess and test their policies, procedures and supervision for compliance with applicable rules.³ FINRA also conducts automated surveillance of market activities. Based on these risk monitoring, examination and surveillance activities, FINRA investigates and takes disciplinary actions against firms and individuals as necessary. When it encounters potential violations that involve persons beyond FINRA's jurisdiction or that are linked to an existing SEC matter, FINRA refers the matter to the SEC (or other relevant authority) for its action.

In addition, the FINRA Investor Education Foundation (Foundation) provides free, unbiased information and tools to help investors protect themselves and better understand the markets and basic principles of investing through multiple channels.⁴ The

³ In addition to routine firm examinations, FINRA also conducts many investigations and reviews "for cause," meaning these investigations and reviews are triggered by specific allegations or events, such as customer complaints, whistleblower tips or arbitrations.

⁴ More information about the Foundation is available at: <https://www.finrafoundation.org/>. See also, *Following the Crowd: Investing and Social Media* (January 29, 2021), available at <https://www.finra.org/investors/alerts/following-crowd-investing-and-social-media>

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Foundation also engages in research to better understand the financial capability of American households and to explore trends and circumstances affecting the way Americans manage and invest their money. For example, to assist us in understanding new investors and their educational needs in light of the changing nature of technology and investor demographics, the Foundation conducted a review in the past year of investors who opened new, taxable investment accounts during 2020, including first-time investors.⁵

Responses to Question Topics

Question 1: Best Execution

A firm's duty of best execution is one component of the overarching national market system regulatory structure implemented and overseen by the SEC. As discussed more fully in response to Question 4 below, this regulatory structure also addresses, among many other related matters, the payment for order flow in exchange and over-the-counter markets.⁶

FINRA oversees member firms' compliance with their duty of best execution through an array of approaches, including automated surveillance of trading, routine examinations, targeted "sweep" examinations, rulemaking and detailed interpretive guidance and economic analysis. For example, in *Regulatory Notice* 15-46, FINRA comprehensively rearticulated broker-dealers' best execution requirements. FINRA also has identified best execution in its annual regulatory priorities since 2013 and has provided firms additional guidance on common best execution examination findings each year since 2017, when FINRA began publishing its annual examination findings report.⁷

⁵ FINRA Investor Education Foundation & NORC, *Investing 2020: New Accounts and the People Who Opened Them* (February 2, 2021), available at <https://www.finrafoundation.org/insights-new-accounts>.

⁶ As discussed below, the SEC has reviewed the practice of payment for order flow a number of times since the practice emerged in the 1980s and has pursued an approach based primarily on disclosure to address concerns about the potential conflicts of interest caused by payment for order flow arrangements. See, e.g., Memorandum to the Equity Market Structure Advisory Committee (EMSAC) from the SEC Division of Trading and Markets, *Certain Issues Affecting Customers in the Current Equity Market Structure* (January 26, 2016), at pg. 7-8, available at <https://www.sec.gov/spotlight/equity-market-structure/issues-affecting-customers-emsac-012616.pdf> (describing the SEC's prior reviews of the practice and discussing relevant payment for order flow disclosure requirements in Exchange Act Rule 10b-10 and Rules 606 and 607 of Regulation NMS).

⁷ All of these annual reports are available publicly on FINRA's website at <https://www.finra.org/media-center/reports-studies>. Beginning this year, FINRA replaced the separate annual priorities letters and reports on exam and risk monitoring findings with the 2021 Report on FINRA's Examination and Risk Monitoring Program (Examination and Risk Monitoring Report, or Report). For selected regulatory obligations, the Report: (1) identifies the applicable rules and key related considerations for member firm compliance programs; (2) summarizes noteworthy findings from recent examinations and

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Where member firms fall short of their best execution obligations, enforcement is an important tool, as was the case in the proceeding you note against Robinhood. In that particular matter, Robinhood was censured and fined,⁸ and FINRA further required Robinhood to comply with specific undertakings that included retaining an independent consultant to review the adequacy of the firm's policies, systems, procedures and training related to achieving compliance with FINRA's best execution rule. Consistent with this required undertaking, Robinhood engaged an independent consultant to review its best execution program and received the independent consultant's report in April 2020. In June 2020, Robinhood certified to FINRA that it adopted and implemented all recommendations as set forth in the independent consultant's report. Further in response to the report, Robinhood revised its Written Supervisory Procedures and Execution Quality Procedures Manual.⁹

These steps were noted recently in the separate SEC action against Robinhood that you cite, which concluded after the FINRA action but concerned distinct best execution violations under federal antifraud provisions that preceded FINRA's action and the undertakings that FINRA imposed. FINRA notes that the SEC action also imposed new undertakings that require a similar independent consultant report. While we are not able to address ongoing supervisory, investigative or enforcement matters involving Robinhood or any other particular firm, we do review firms for compliance with undertakings in the course of FINRA's continued focus on an area of conduct that has required them.

Question 2: "Game-Like" Features and Emerging Communication Risks

FINRA's 2021 Examination and Risk Monitoring Report noted member firms' use of emerging digital communication channels, including app-based platforms with interactive or "game-like" features that may be intended to influence customers, and related forms of marketing.¹⁰ The game-like features we have seen across multiple firms include, among others, items such as badges that serve as visual markers of achievement,

outlines effective practices that FINRA observed during its oversight; and (3) provides additional resources that may be helpful to member firms in achieving compliance.

⁸ See Robinhood Financial, LLC, Letter of Acceptance, Waiver and Consent (AWC) (FINRA Case No. 2017056224001).

⁹ See In the Matter of Robinhood Financial, LLC, Securities Exchange Act Release No. 90694 (December 17, 2020) (discussing, in the context of the SEC's action against Robinhood, the remedial steps the firm took in response to FINRA's action). This letter refers to Robinhood generally for discussion purposes. FINRA notes that while its proceeding specifically involved Robinhood Financial, LLC, the remediation steps described in the SEC action in response to FINRA's action discuss improvements made both by Robinhood Financial, LLC, as well as its affiliated firm, Robinhood Securities, LLC, to which Robinhood Financial, LLC began sending all customer orders for trade execution beginning in November 2019.

¹⁰ See 2021 Report on FINRA's Examination and Risk Monitoring Program at p.22. <https://www.finra.org/sites/default/files/2021-02/2021-report-finras-examination-risk-monitoring-program.pdf>

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leaderboards that rank participants, social networking features (including in-app messaging) and prizes for games (such as free stock) to encourage account sign-ups. These developments in product offerings are not confined to broker-dealers and appear in many financial services and other consumer-oriented businesses.

These features can appear in many aspects of how broker-dealers interact with customers, from initial advertisements through the opening of accounts and the presentation of different investment choices to communications following a trade. While some of these offerings may be designed to better enable the delivery of information to investors or to improve investor access to firm systems and investment products and services, they may also result in increased risks to customers if not designed with appropriate compliance considerations in mind, raising important regulatory questions, such as:

- *Advertising and marketing.* Are a member broker-dealer's communications to investors – regardless of format and technology – in compliance with FINRA's rules regarding communications with the public?¹¹
- *Recommendations to customers.* Depending on the facts and circumstances, do some of these interactions constitute "recommendations" that would be covered by the SEC's Reg BI, which requires a broker-dealer making recommendations of securities to act in a retail customer's "best interest"? If not, should they?¹²
- *Other influences on customers.* Are there other game-like aspects of platform design that are intended to influence customers where the potential risks to investors and markets warrant attention beyond the application of existing rules?

FINRA agrees with the SEC that "this is a dynamic, expanding, and ever-changing marketplace, and that it is our responsibility to consider whether existing protections can be improved."¹³ Accordingly, we are committed to supporting the SEC staff's review (announced in October 2020)¹⁴ of the increase in self-directed trading by retail investors that is not covered by Reg BI, and the effectiveness of existing regulatory requirements in protecting investors in those circumstances. FINRA is also committed to supporting the SEC as it continues to oversee the implementation of Reg BI and considers further

¹¹ See FINRA Rule 2210(d)(1).

¹² Reg BI applies if there is a "recommendation," and the determination of whether there is a "recommendation" depends on the facts and circumstances of a firm's interaction with its customer. Differences in platform design and the nature of communications may affect whether or not a firm provides a "recommendation" for purposes of Reg BI.

¹³ See Joint Statement Regarding Complex Financial Products and Retail Investors, dated October 28, 2020.

¹⁴ See *id.*

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refinements in Reg BI's application. At the same time, FINRA is also considering the effectiveness of its own rules in addressing these developments.

Although Robinhood is in the best position to describe its services in detail, the firm's platform incorporates digital interactions that could be viewed as having game-like features, as has been widely reported. At this point we cannot discuss the status or conclusions of any FINRA supervisory, investigative or enforcement matters involving Robinhood or any other particular firm. However, as noted above we are generally assessing the use of these types of digital interactions within the securities industry, how they may impact investors' decision-making, both positively and negatively, and risks they may create for investors.

Question 3: Registration and Licensing

FINRA rules require generally that individuals associated with a FINRA member and engaged in the investment banking or securities business of the member be appropriately registered with FINRA as a "principal" or "representative."¹⁵

- The term "principal" is defined under FINRA rules as any person associated with a member,¹⁶ including, but not limited to, sole proprietor, officer, partner, manager of office of supervisory jurisdiction, director or other person occupying a similar status or performing similar functions, who is actively engaged in the management of the member's investment banking or securities business, such as supervision, solicitation, conduct of business in securities or the training of persons associated with a member for any of these functions.¹⁷

¹⁵ See FINRA Rule 1210 (Registration Requirements); see also Exchange Act Rule 15b7-1 (Compliance with Qualification Requirements of Self-Regulatory Organizations). Exemptions from registration are set forth in Rule 1230.

¹⁶ For purposes of the FINRA registration rules, the term "person associated with a member" includes: (1) a natural person who is registered or has applied for registration with FINRA; (2) sole proprietor, partner, officer, director, or branch manager of a member or other natural person occupying a similar status or performing similar functions; or (3) a natural person engaged in the investment banking or securities business who is directly or indirectly controlling or controlled by a member. See Article I, Section (rr) of the FINRA By-laws. The term "investment banking or securities business" generally means the business of underwriting or distributing shares of securities, purchasing securities and offering the same for sale as a dealer or purchasing and selling securities upon the order and for the account of others. See Article I, Section (u) of the FINRA By-laws.

¹⁷ See FINRA Rule 1220(a)(1) (Definition of Principal). The term "actively engaged in the management of the member's investment banking or securities business" includes: (1) the management of, and the implementation of corporate policies related to, the member's investment banking or securities business; (2) the exercise of managerial decision-making authority with respect to the member's investment banking or securities business; or (3) the exercise of management-level responsibilities for supervising any aspect of the member's investment banking or securities business, such as serving as a

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- A “representative” is defined under FINRA rules as any person associated with a member, including assistant officers other than principals, who is engaged in the member’s investment banking or securities business, such as supervision, solicitation, conduct of business in securities or the training of persons associated with a member for any of these functions.¹⁸

A FINRA member firm’s chief executive officer (CEO) and chief financial officer (CFO), or individuals who are the functional equivalent of a member firm’s CEO or CFO, are considered principals under FINRA rules.¹⁹ Other senior or executive management of a member firm, such as officers, may be considered principals either because they are persons associated with the member who are actively engaged in the management of the member’s investment banking or securities business or because they are performing a function, such as the head of a business unit, that is required to be performed by a principal of the member. The determination of whether an individual is functioning as a principal or representative and of the appropriate registration category for such individual can be fact-specific and requires careful assessment of the individual’s activities.

The FINRA registration requirements are not limited in scope to executives of FINRA member firms. Many member firms are subsidiaries of one or more holding companies. Senior individuals employed at a holding company for a member firm may be subject to registration as principals depending on their functions with respect to the member firm. For instance, the requirement to be appropriately registered with FINRA as a principal would apply to an individual who is directly or indirectly controlling a FINRA member firm, such as the CEO of the parent or holding company of a FINRA member firm, if under the relevant facts and circumstances that person is “actively engaged in the management of the member’s investment banking or securities business.” On the other hand, depending on the nature of the person’s responsibilities, and other facts and circumstances, the CEO or other senior person of the parent or holding company of a FINRA member may not be required to register with FINRA.

Question 4: Payment for Order Flow

As noted above, FINRA’s approach to best execution operates in the context of the broader set of interrelated market structure rules established by the SEC, and FINRA continues to coordinate closely with the SEC in this area.

The SEC has periodically reviewed the practice of payment for order flow since it emerged in the 1980s, including most recently with its Equity Market Structure Advisory Committee (EMSAC). In a 2016 SEC staff memorandum addressed to the EMSAC, the SEC Division of Trading and Markets described components of a broker-dealer’s duty of best execution as articulated under SEC guidance and FINRA rules, and noted the Commission’s longstanding view that “a broker-dealer does not necessarily violate its

voting member of the member’s executive, management or operations committees. See *id.*

¹⁸ See FINRA Rule 1220(b)(1) (Definition of Representative).

¹⁹ See FINRA Rule 1220(a)(1). A FINRA member’s CEO and CFO (or equivalent officers) are considered principals based solely on their status.

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best-execution obligation merely because it receives payment for order flow," but that "the existence of payment for order flow raises the potential for conflicts of interest for broker-dealers handling customer orders."²⁰ The memorandum explained further that "[t]o date, the Commission has pursued an approach based primarily on disclosure to address concerns about the potential conflicts of interest caused by payment-for-order-flow arrangements."²¹

Following the EMSAC's debate of several regulatory alternatives to address payment for order flow, which considered, among other things, the potential unintended consequences of banning the practice altogether, the EMSAC recommended certain enhanced disclosures,²² and the Commission subsequently took steps that advanced its disclosure-based approach. Specifically, in 2018, the Commission adopted amendments to Rule 606 of Regulation NMS that require, among other things, new aggregate payment for order flow disclosures in broker-dealer's public quarterly reports.²³ These new disclosures have increased the public transparency of payment for order flow arrangements and have served to inform much of the current debate around the practice.

Operating in the context of this overall approach to best execution and payment for order flow, FINRA reviews whether member firms – including wholesale retail market makers and introducing firms – are meeting their regulatory obligations. FINRA recently highlighted these efforts in the Examination and Risk Monitoring Report.²⁴ The Report

²⁰ See Division of Trading and Markets Memorandum to the EMSAC, *supra* note 6, at pg. 7-8. Specifically, as noted in the memorandum, Exchange Act Rule 10b-10 requires that a broker-dealer indicate on customer confirmation statements when payment for order flow – which is defined broadly under the rule – has been received on a transaction, and also indicate that the source and nature of the compensation received in connection with the particular transaction will be furnished upon the customer's written request. The memorandum also cites relevant disclosure requirements in Rule 606 of Regulation NMS, which generally requires broker-dealers to publish quarterly public reports that identify the top ten venues to which they route orders for execution and discuss material aspects of payment for order flow arrangements, and Rule 607 of Regulation NMS, which requires broker-dealers to disclose upon opening a new customer account and on an annual basis thereafter policies relating to payment for order flow and order routing. See *id.* (discussing these requirements in more specific detail).

²¹ See *id.* at p. 8.

²² See EMSAC Recommendations Regarding Modifying Rule 605 and Rule 606 (November 29, 2016), available at <https://www.sec.gov/spotlight/emsac/emsac-recommendations-rules-605-606.pdf>.

²³ See Securities Exchange Act Release No. 84528 (November 2, 2018), 83 FR 58338 (November 19, 2018) (Disclosure of Order Handling Information Adopting Release). In addition to the enhanced Rule 606 disclosures the Commission adopted following EMSAC discussion, the Commission also adopted a rule to require a pilot program designed to study the impacts of exchange access fees and rebates on order routing, although that rule was recently vacated in federal court. See *N.Y. Stock Exch. LLC v. SEC*, 962 F.3d 541 (D.C. Cir. 2020).

²⁴ See 2021 Report on FINRA's Examination and Risk Monitoring Program at pg. 31-33. <https://www.finra.org/sites/default/files/2021-02/2021-report-finras-examination-risk-monitoring-program.pdf>.

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identified a number of considerations a member firm should take into account in achieving best execution compliance, including how the firm ensures that it is not unduly influenced by economic incentives, such as payment for order flow or other routing inducements. The Report further discussed examination findings indicating areas in which some firms needed to improve their procedures for assessing execution quality and mitigating routing conflicts. In addition, FINRA noted its ongoing targeted examination efforts to evaluate, among other things, whether "zero-commission" trading adversely affected firms' compliance with their best execution obligations.²⁵

As FINRA reviews member firms' order handling and routing activity, FINRA applies SEC guidance as well as the requirements set out in FINRA Rule 5310 and published guidance thereunder. In particular, FINRA guidance – consistent with controlling SEC guidance referred to above – makes clear that member firms cannot allow routing inducements (including payment for order flow) to interfere with their duty of best execution. FINRA guidance also stresses the need for member firms to consider price improvement opportunities, including those that may be available outside existing internalization or payment for order flow arrangements, when conducting customer order execution quality reviews.²⁶ Simply put, FINRA Rule 5310 requires member firms to assure that they direct customer orders to markets that provide the most beneficial terms for such orders.²⁷ To support this overarching objective, the Rule requires member firms to compare any material differences in execution quality their customers will receive at competing markets – including markets they may have existing routing arrangements with, as well as those they do not.²⁸ And the Rule states that firms should consider how existing routing arrangements that involve internalization or payment for order flow factor into their routing decisions.²⁹ Where firms have not sufficiently considered whether their customers may receive better execution quality at competing markets that the firms do

²⁵ FINRA's targeted examination letters on zero commissions are posted publicly on FINRA's website and available at <https://www.finra.org/rules-guidance/guidance/targeted-examination-letters>. In addition to the targeted review currently underway on the impact of zero commissions, FINRA previously conducted targeted examinations of order routing and execution quality, beginning in 2014, and order routing conflicts, beginning in 2017. These best execution examinations of numerous firms focused on equities and, in some cases, options. They included a review of the impact of the receipt of order routing inducements, such as payment for order flow and liquidity rebates, on a firm's order routing practices and decisions. These examinations also included a review of the firms' procedures related to the requirement that they regularly and rigorously examine execution quality likely to be obtained from the different markets or market makers trading a security.

²⁶ See, e.g., *Regulatory Notice* 15-46 (November 2015) (discussing payment for order flow and the execution quality review requirements in FINRA Rule 5310.09).

²⁷ See FINRA Rule 5310.09(b).

²⁸ See *id.*

²⁹ See FINRA Rule 5310.09(b)(8).

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not have relationships with, FINRA has charged them with violations of the best execution rule.³⁰

In addition to reviewing firms' best execution practices, FINRA also examines firms for compliance with the SEC's new Rule 606 disclosure requirements referred to above. FINRA is also considering whether it can take further steps – including focused economic analysis, investor education, and tools to facilitate investor access to Rule 606 disclosures – to support the effectiveness of the new requirements and thereby complement the Commission's efforts. FINRA stands ready to engage with the SEC and Congress on any other steps that may be appropriate to address routing conflicts and reinforce the duty of best execution.

Question 5: Dispute Resolution and Arbitration

As you note, broker-dealers and investment advisers often require customers to enter into agreements to arbitrate disputes arising from the services provided to such customers. With respect to FINRA's member firms, FINRA rules do not require such agreements, nor do they preclude customers from pursuing relief in state or federal courts.³¹

It is important to note that the Supreme Court has held that predispute arbitration agreements are enforceable as to claims brought under the Exchange Act.³² Subsequently, in Dodd-Frank, Congress provided the SEC (not FINRA) with explicit

³⁰ See, e.g., Robinhood Financial, LLC, Letter of Acceptance, Waiver and Consent (FINRA Case No. 2017056224001), *supra* note 8 (describing violations of FINRA's best execution rule because the firm routed its customers' order to four broker-dealers that all paid for the order flow, and "did not exercise reasonable diligence to ascertain whether these four broker-dealers provided the best market for the subject securities to ensure its customers received the best execution quality from these as compared to other execution venues"); E*Trade Securities LLC, Letter of Acceptance, Waiver and Consent (FINRA Case No. 20130368815-01) (describing violations of FINRA's best execution rule because the firm lacked sufficient information to reasonably assess the execution quality it provided to its customers because, among other things, the firm "did not take into account the internalization model employed by the firm" and "was overly reliant on comparisons of the firm's overall execution quality with industry and custom averages, rather than focusing on comparisons to the actual execution quality provided by the market centers to which the firm routed orders").

³¹ See FINRA Rule 12200.

³² Until the Supreme Court's decision in *Shearson/American Express, Inc. v. McMahon*, 482 U.S. 220 (1987), the courts would not enforce predispute arbitration agreements relating to federal securities law claims. In addition, until its rescission in 1987, SEC Rule 15c2-2(a) provided that: "It shall be a fraudulent, manipulative or deceptive act or practice for a broker or dealer to enter into an agreement with any public customer which purports to bind the customer to the arbitration of future disputes between them arising under the federal securities laws, or to have in effect such an agreement, pursuant to which it effects transactions with or for a customer." As a result of *McMahon* and the rescission of Exchange Act Rule 15c2-2(a), firms can compel arbitration of customer claims through inclusion of predispute arbitration provisions in their customer agreements.

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authority to prohibit or place limitations on the use of such agreements.³³ The SEC has not exercised that authority.

Where member firms do use mandatory arbitration clauses, FINRA rules establish minimum disclosure requirements regarding the use of such agreements, and impose certain other conditions and limitations.³⁴ For example, FINRA rules protect a customer's right to pursue class actions in court notwithstanding any predispute arbitration agreement.³⁵ Member firms with provisions in predispute arbitration agreements or any other customer agreements that do not comply with FINRA rules may be subject to disciplinary action.³⁶

FINRA's primary role in the arbitration process is to administer cases brought to the forum in a neutral, efficient and fair manner. In its capacity as a neutral administrator of the forum, FINRA does not have any input into the outcome of arbitrations.³⁷ Investors have the option to have their case decided exclusively by public arbitrators, who have no ties to the securities industry. To provide transparency about awards rendered in the forum, FINRA makes all awards publicly available and publishes detailed arbitration statistics on its website, including the number of cases filed and their respective outcomes.³⁸

FINRA recognizes the importance of providing a diverse pool of arbitrators from which parties can choose. FINRA has embarked on an aggressive campaign to recruit new arbitrators with a particular focus on adding arbitrators from diverse backgrounds,

³³ Section 921 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010), authorizes the SEC to limit or prohibit the use of customer agreements to arbitrate future disputes if it finds that such limitation or prohibition is in the public interest and for the protection of investors.

³⁴ See FINRA Rule 2268.

³⁵ See FINRA Rules 2268 and 12204.

³⁶ For example, in 2014, FINRA's Board of Governors issued a decision finding that a firm violated FINRA rules when it inserted provisions in predispute arbitration agreements that prevented customers from bringing or participating in judicial class actions and prevented FINRA arbitrators from consolidating more than one party's claims. See *Dep't of Enforcement v. Charles Schwab & Co.*, No. 2011029760201, 2014 FINRA Discip. LEXIS 5 (FINRA Bd. of Governors Apr. 24, 2014).

³⁷ The arbitration forum administered by FINRA is intended to provide impartial dispute resolution that is less costly and faster than traditional litigation. The forum charges low arbitration fees, uses a customer friendly discovery guide, strictly limits dispositive motions made prior to the party resting its case, and provides sanctions for frivolous motions and abusive motion practices. See, e.g., FINRA Rules 12212, 12504, 12506 and 12511. In addition, member firms pay for most costs, and FINRA waives fees for customers experiencing financial hardship. Information regarding FINRA's arbitration program is available at <http://www.finra.org/arbitration-and-mediation>.

³⁸ See <http://www.finra.org/arbitration-and-mediation/arbitration-awards> and <http://www.finra.org/arbitration-and-mediation/dispute-resolution-statistics>.

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professions and geographical locations, and we publish on our website information regarding the results of an anonymous and voluntary demographic survey sent to FINRA arbitrators.³⁹

Your letter also asks about FINRA's requirements for payment of arbitration awards. FINRA rules require prompt payment of such awards.⁴⁰ FINRA suspends from membership (or association with a member) any member firm or associated person who fails to pay an arbitration award.⁴¹ FINRA also publishes a list of firms and associated persons responsible for unpaid awards,⁴² and makes this information available to investors through the firm's or individual's BrokerCheck® record. However, FINRA's suspension for nonpayment of awards applies only to the activities under FINRA's jurisdiction and cannot prevent the person from continuing to work with retail investors in *other* parts of the financial services industry, such as by acting as an investment adviser.⁴³

³⁹ As of February 17, 2021, FINRA's arbitrator roster is composed of 4,327 non-public arbitrators and 3,873 public arbitrators, totaling 8,200 arbitrators. Based on the above-referenced survey, of the arbitrators who joined the roster in 2020, 40 percent were female, 14 percent were African American or Black, 3 percent were Hispanic or Latino, and 4 percent were Asian. In 2019, 39 percent were female, 19 percent were African American or Black, 6 percent were Hispanic or Latino, and 3 percent were Asian. In addition to greater diversity among newer arbitrators, the demographics of the established roster are beginning to shift. Notably, the percentage of women on the established roster has increased from 24 percent in 2016 to 30 percent in 2020 and the percentage of African American or Black arbitrators has increased from 5 percent in 2016 to 9 percent in 2020. See <https://www.finra.org/arbitration-mediation/our-commitment-achieving-arbitrator-and-mediator-diversity-finra>.

⁴⁰ See FINRA Rule 12904(j). Customers who obtain a monetary award in arbitration can have the award confirmed in court, putting them in the same position – in terms of their ability to collect on that award – as if they had initially obtained the award through court proceedings. Thus, a customer's recovery depends on factors such as the ability of the respondent to pay, not on whether the customer obtained the award in arbitration or in court.

⁴¹ See FINRA Rule 9554(a). An associated person or firm has four available defenses to FINRA disciplinary measures for nonpayment in customer cases. See *Notice to Members 00-55* (August 2000).

⁴² See <https://www.finra.org/arbitration-mediation/member-firms-and-associated-persons-unpaid-customer-arbitration-awards>. The list also includes those firms and individuals with unpaid customer arbitration awards, but where bankruptcy is a defense to the non-payment. These firms or individuals may be active in the brokerage industry notwithstanding any unpaid award due to the bankruptcy defense to non-payment.

⁴³ See FINRA Rule 9554(a). In addition, firms with unpaid awards cannot re-register with FINRA, and individuals cannot register as representatives of any member firm, without paying or discharging the outstanding award. With respect to new member firms, in accordance with the standards for admission under the rules governing FINRA's Membership Application Program, FINRA can presumptively deny a new membership

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FINRA has been focused on other ways to strengthen its rules to reinforce payment of awards.⁴⁴ For example, FINRA recently amended its Membership Application Program rules to create further incentives for the timely payment of awards.⁴⁵ In addition, FINRA continues to focus on addressing member firms and brokers with a significant history of misconduct, and has recently taken significant steps in this area, which may have important ancillary benefits for the payment of awards.⁴⁶ As our new rule changes go into effect, we will continue to review our practices in this area.

Regarding reporting of settlements of arbitration claims, while we are not in a position to address any specific investigative or supervisory matter, member firms are required to report to FINRA if the member firm or an associated person is a defendant or respondent in a securities- or commodities-related civil litigation or arbitration, or is the subject of any

application if the applicant or its associated persons have a pending arbitration claim or are subject to an unpaid arbitration award. See FINRA Rule 1014(a).

⁴⁴ FINRA issued a Discussion Paper – entitled [FINRA Perspectives on Customer Recovery](#) – to encourage a continued dialogue about addressing the challenges of customer recovery across the financial services industry, including recovery in FINRA's forum. In addition, to better inform discussions regarding customer recovery, FINRA also makes available on its website data on unpaid arbitration awards arising in the FINRA forum for the past five years. See <https://www.finra.org/arbitration-mediation/statistics-unpaid-customer-awards-finra-arbitration>.

⁴⁵ The amendments prevent a member firm with substantial arbitration claims from avoiding payment of the claims should they go to award or result in a settlement by shifting its assets, which are typically customer accounts, or its managers or owners, to another firm and closing down. The amendments also address situations in which member firms are considering hiring individuals with pending arbitration claims. See Securities Exchange Act Release No. 88482 (March 26, 2020), 85 FR 18299 (April 1, 2020) (Order Approving File No. SR-FINRA-2019-030).

In addition, FINRA has amended its rules to expand a customer's options to withdraw an arbitration claim (or take certain other steps) if a member firm or associated person becomes inactive before a claim is filed or during a pending arbitration. See Securities Exchange Act Release No. 88254 (February 20, 2020), 85 FR 11157 (February 26, 2020) (Order Approving File No. SR-FINRA-2019-027).

⁴⁶ For example, FINRA recently filed with the SEC a proposed rule change to adopt Rule 4111 (Restricted Firm Obligations) to allow FINRA to impose obligations on FINRA member firms that have significantly higher levels of risk-related disclosures than similarly sized peers. The proposal is designed to address a broad range of investor protection concerns and may deter behavior that could otherwise result in unpaid arbitration awards, incentivize firms to obtain insurance coverage for potential awards, and incentivize the payment of unpaid awards through presumptions that would apply to requests for withdrawals from restricted deposits. See Securities Exchange Act Release No. 90527 (November 27, 2020), 85 FR 78540 (December 4, 2020) (Notice of Filing of No. SR-FINRA-2020-041).

In addition, FINRA recently amended its rules to address brokers with a significant history of misconduct. See Securities Exchange Act Release No. 90635 (December 10, 2020), 85 FR 81540 (December 16, 2020) (Order Approving File No. SR-FINRA-2020-011).

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claim for damages by a customer that relates to the provision of financial services or relates to a financial transaction, and such civil litigation, arbitration or claim for damages has been disposed of by judgment, award or settlement exceeding certain dollar thresholds.⁴⁷ FINRA staff review arbitration claims and disclosures reporting arbitration awards or settlements to determine whether the issues raised in the arbitration or settlement require a further regulatory review or response.

Question 6: Financial Responsibility and Market Volatility

We are not in a position to discuss any FINRA investigative or supervisory matter involving a particular firm. Generally, however, a broker-dealer's financial responsibility is subject to extensive regulation by the SEC, primarily through the SEC's Net Capital Rule⁴⁸ and Customer Protection Rule.⁴⁹

The SEC's Net Capital Rule is designed to assure that a broker-dealer always has sufficient liquid assets to promptly satisfy the claims of customers and creditors if the broker-dealer goes out of business.⁵⁰ In addition to the maintenance of liquid assets sufficient to satisfy customer and creditor claims required by the Net Capital Rule, the SEC and FINRA have emphasized the importance of broker-dealers developing and maintaining funding and liquidity risk management practices to prepare for adverse circumstances.⁵¹ Moreover, the SEC's Customer Protection Rule protects customer

⁴⁷ See FINRA Rule 4530(a)(1)(G). In addition, member firms are generally required to file with FINRA copies of any customer-initiated securities- or commodities-related civil litigation or arbitration in which the member or an associated person is named as a defendant or respondent as well as to report to FINRA summary information regarding any written customer complaints, which may include a customer claim for damages. See FINRA Rules 4530(d) and (f). Member firms must comply with these initial filing and reporting obligations irrespective of the eventual disposition of the matter.

⁴⁸ See Exchange Act Rule 15c3-1.

⁴⁹ See Exchange Act Rule 15c3-3.

⁵⁰ More specifically, the SEC's Net Capital Rule requires a broker to compute its "net capital" by beginning with its GAAP equity (*i.e.*, the amount by which the value of its assets exceeds the amount of its liabilities under Generally Accepted Accounting Principles) and qualifying subordinated debt, and then subtracting the value of any illiquid assets (*e.g.*, non-marketable securities, fixed assets and any other assets that cannot be readily converted to cash) and also subtracting specified percentages of the values of its securities positions ("haircuts") that are intended to provide a cushion for market fluctuations and to allow for the costs of their liquidation. A broker that carries customer accounts must maintain minimum net capital that is generally equal to two percent of its aggregate reserve formula debits. See Exchange Act Rule 15c3-1(a)(1)(ii). Subject to a number of procedural and other requirements, FINRA Rule 4110 provides a special process for FINRA to supplement the SEC's Net Capital Rule by prescribing greater net capital requirements for its carrying or clearing member firms when necessary for the protection of investors or in the public interest.

⁵¹ See, *e.g.*, Exchange Act Rule 17a-3(a)(23) (requiring larger broker-dealers to "document the credit, market, and liquidity risk management controls established and maintained by the broker or dealer to assist it in analyzing and managing the risks associated with its business activities"); SEC Office of Compliance Inspections and Examinations (OCIE)

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funds and securities held by a broker-dealer by generally prohibiting the broker-dealer from using those funds and securities to support its proprietary trading activities.⁵²

The Federal Reserve sets initial margin requirements for broker-dealers,⁵³ and FINRA sets maintenance margin requirements.⁵⁴ In addition, a member firm is expected to have procedures to evaluate and if necessary adjust its own higher "house margin" requirements in response to volatile trading conditions.⁵⁵ Margin helps protect the member firm from credit risk from the customer and is a key part of the financial responsibility requirements for broker-dealers. In particular, FINRA's maintenance margin requirements are designed to require member firms to protect themselves by obtaining margin that is generally sufficient to satisfy their customers' obligations to them in the event a liquidation is necessary.

Increases in a broker-dealer's deposit requirements at clearing organizations (resulting, for example, from an increased level of customer or proprietary trading activity or increased volatility)⁵⁶ may have a significant impact on a broker-dealer's cash flow needs

Examination Priorities 2016 (including evaluation of broker-dealers' liquidity risk management practices as an examination focus); FINRA *Regulatory Notice* 15-33, Liquidity Risk (providing additional guidance on effective liquidity risk management practices that firms should consider and implement, including descriptions of specific stress criteria that FINRA has used in reviews of liquidity risk at its member firms and descriptions of effective and ineffective practices observed in the course of those reviews); FINRA *Regulatory Notice* 10-57, Funding and Liquidity Risk Management Practices (announcing FINRA's expectation that broker-dealers regularly assess their funding and liquidity risk management practices to maximize the likelihood that they can continue to operate under adverse circumstances and describing elements of sound practices for funding and liquidity risk management); Joint Statement: Broker-Dealer Risk Management Practices, OCIE, NYSE & NASD (July 29, 1999), available at <https://www.sec.gov/news/studies/bdriskp.htm>.

⁵² More specifically, the SEC's Customer Protection Rule requires broker-dealers to have possession or control of all fully paid and excess margin securities held for the account of customers. It also requires brokers to make periodic computations using a specified "reserve formula" to determine the amount (if any) by which the aggregate amount of money it has received from customers or obtained from the use of customer securities ("credits" in the reserve formula) exceeds the amount owed to it by customers or in respect of customer transactions ("debits" in the reserve formula), and to deposit such excess in a special reserve bank account for the exclusive benefit of customers.

⁵³ Regulation T, 12 C.F.R. part 220.

⁵⁴ FINRA Rule 4210(c)-(g).

⁵⁵ FINRA Rule 4210(d), (f)(1) and Interpretation /01 to Rule 4210(f)(1). FINRA also periodically reminds member firms of these obligations. See, e.g., FINRA *Regulatory Notices* 11-15 and 09-53, and NASD *Notice to Members* 99-33.

⁵⁶ Clearing organization deposit requirements do not impact a broker-dealer's net capital for purposes of the SEC's Net Capital Rule, because that rule specifically provides that such clearing deposits do not need to be deducted in the computation of a broker-dealer's net capital. See Exchange Act Rule 15c3-3(c)(2)(iv)(E)(3).

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and operating liquidity, depending on the relative size of the increase and the broker-dealer's liquidity. Increased clearing deposit requirements generally must be satisfied by depositing proprietary liquid assets (cash or liquid securities) in accordance with the rules of the relevant clearing organization.

FINRA's risk monitoring program includes the regular review and assessment of a member firm's financial filings (in addition to a wide range of other information, such as arbitration filings, customer complaints, tips, actions by other regulators and externally sourced information). FINRA staff involved in this risk monitoring program communicate with member firm staff concerning activities that may create financial pressures on the firm's capital and liquidity, including deposits required by clearing organizations. The frequency and nature of those communications, which can be initiated by a firm or FINRA staff, depend on our assessment of a firm's risks and its systemic impact. In times of significant market volatility, communications between impacted firms and their assigned risk monitoring staff typically increase and focus closely on operational issues (e.g., system outages), net capital status, liquidity pressures, credit and market risk concerns and sales practice issues. In connection with these communications, we may request additional reporting by the firm to facilitate enhanced monitoring. In addition, FINRA staff actively coordinate and share this type of information with the SEC in times of market volatility or other market- or firm-specific stress events. During the market volatility events of late January, FINRA maintained communications with a number of firms and with the SEC consistent with this approach.

Question 7: Existing Regulations and Resources

As noted above, we are reviewing recent market events to determine whether any existing rules or regulations were violated. In addition, we look forward to supporting the SEC, as appropriate, in conducting its review of these events. We expect to align our regulatory responses with the findings and recommendations resulting from that review and to coordinate those responses with the SEC, particularly since as discussed above many of the relevant issues being considered are primarily governed by SEC rules and policy. As always, we will share insights from our regulatory operations with the SEC to help inform its response to recent events.

In the interim, we are also considering whether additional guidance or rulemaking by FINRA would be appropriate in a variety of areas highlighted by recent market events. This evaluation will consider, for example, FINRA rules and guidance concerning firms' operations and engagement with customers during volatile market conditions. We are also considering whether there are ways to apply current SEC rules and policies more effectively.

FINRA draws on personnel from various departments across the organization, including its Enforcement, Member Supervision and Market Regulation functions, among others, to respond to major market events such as this. We will continue to assess the adequacy of our personnel and other resources to support our extensive efforts to protect investors and preserve market integrity and will add resources if needed.

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Conclusion

FINRA is committed to its mission of protecting investors and promoting market integrity, and to adapting its regulatory programs to new broker-dealer business models and technologies, as well as the evolving ways in which investors access the capital markets. The recent market events involving trading in GameStop and similarly volatile stocks have raised important questions regarding the rules governing broker-dealer activity, many of which involve areas of market oversight and policymaking traditionally conducted primarily by the SEC. Accordingly, FINRA supports the SEC's announced review of these matters and will coordinate its potential regulatory responses with the SEC and other regulatory authorities based on the results of that review. FINRA also will continue to investigate specific matters involving its broker-dealer members related to these market events and take appropriate action, including potential disciplinary action, if the facts warrant. In addition, FINRA will consider whether additional rulemaking or guidance may be appropriate.

We share your interest in protecting investors and look forward to working with the SEC and Congress on these issues. If you have any questions, please do not hesitate to contact me at (202) 728-8425, or your staff may contact Greg Dean, Senior Vice President, Office of Government Affairs at (202) 728-8217. In addition, we would be happy to meet with you or your staff to discuss this matter further.

Sincerely,

A handwritten signature in black ink, reading "Robert W. Cook". The signature is written in a cursive, flowing style.

Robert W. Cook
President and Chief Executive Officer



OFFICE OF THE CHAIR

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

February 25, 2021

The Honorable Elizabeth Warren
United States Senate
309 Hart Senate Office Building
Washington, DC 20510

Dear Senator Warren:

Thank you for your January 29, 2021 letter regarding the recent volatility in the market, particularly with regard to shares of GameStop Corp. (GME). I appreciate your input and the thoughtful questions you have raised on these important and evolving issues. I remain focused on the functioning of our markets and particularly on any potential negative impacts these events may have on investors and market confidence. The staff has and will continue to consider all the issues you raise as they conduct a study of these events.

The Commission remains fully committed to its mission of protecting investors, maintaining fair, orderly, and efficient markets, and facilitating capital formation. This work includes closely monitoring and evaluating the recent volatility, consulting with our regulatory partners, and reviewing actions by market participants and others in order to protect investors and to identify and vigorously pursue any potential wrongdoing. Additionally, I am committed to working with staff and my colleagues to conduct a timely study of these market events and the myriad of issues implicated by them, including those you raised.¹

These events and associated impacts are still being analyzed. Based on this analysis, the Commission will consider what regulatory actions may be appropriate. In response to your letter's questions, I briefly discuss below our current understanding of the recent market volatility and its impact on the financial system, and regulatory actions we are taking in response to recent market volatility, including the enforcement of Commission rules designed to support market infrastructure operations and to promote resiliency. I further discuss fraud and market

¹ Treasury Secretary Yellen recently announced that, while the core market infrastructure was resilient during high volatility and heavy trading volumes, the top financial regulators "agree on the importance of the SEC releasing a timely study of the event." Prior staff studies following market events – such as following the 2010 flash crash and the 2014 Treasury market volatility – facilitated discussion and evaluation of appropriate policy considerations. See *Findings Regarding the Market Events of May 6, 2010*, Report of the Staffs of the CFTC and SEC to the Joint Advisory Committee on Emerging Regulatory Issues (Sept. 30, 2010), available at <https://www.sec.gov/files/marketevents-report.pdf>; *Joint Staff Report: The U.S. Treasury Market on October 15, 2014* (July 13, 2015), available at <https://www.sec.gov/files/treasury-market-volatility-10-14-2014-joint-report.pdf>.

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manipulation and highlight some of the Commission staff's actions to date in response to the recent volatility.

Market Volatility and Systemic Impact

In response to your first question, the Commission staff is diligently examining the causes of the recent dramatic shifts in GameStop share prices, including the impact of the short positions of large investors such as hedge funds, the role that social media such as online message boards may have played, as well as trading restrictions imposed by certain broker-dealers, and whether these practices violated existing securities laws.² Once we have a better understanding of the facts, we will be in a better position to assess whether the changes in GameStop share prices are consistent with a “fair, orderly, and efficient” market function.³ As discussed in more detail below, it would be premature to comment on whether or not any specific individual or entity's conduct violated existing law.

Regarding your second question, we share your concern that “wild swings in value of GameStop and other companies affected by similar trading schemes” may present “systemic concerns for financial systems or the stock market.”⁴ As we learned from the 2008 financial crisis and Congress's legislative response, it is important that regulators remain on guard against systemic risks to our financial system, and the Commission appreciates your consistent dedication to ensuring that the SEC is doing so. That said, it does appear that our core market infrastructure has proven resilient during the recent events, as my colleagues and I have noted.⁵ To date, the Commission staff are not aware of any structural issues resulting from recent significant volatility in the price of certain stocks that indicate a disruption of core market infrastructure. Additionally, the Commission staff regularly monitors the functioning of market infrastructure with an eye toward identifying structural issues that may interfere with fair and orderly markets. Nevertheless, I will be instructing the staff in the ongoing study to take a focused look at the possibility that such trading events could pose systemic risks in the future. I welcome the opportunity to engage with you and your staff on this subject going forward.

In response to your question about “what steps ... the SEC [will] take to ensure that securities markets better reflect prices that are in line with the intrinsic and fundamental value of underlying companies,”⁶ I share your concerns about stock prices that significantly deviate from what appears justified by market fundamentals, and the Commission is considering this carefully in its study. At all times, but especially in times of market turbulence, it is imperative that

² See NPR, *SEC Acting Chair Unpacks the GameStop, Reddit, Robinhood, Wall Street Debacle* (Feb. 1, 2021, 4:28pm), available at <https://www.npr.org/2021/02/01/962946809/sec-acting-chair-unpacks-the-gamestop-reddit-robinhood-wall-street-debacle>.

³ Letter from Sen. Elizabeth Warren to Allison Herren Lee, Acting Chair, Commission 4 (Jan. 29, 2021), available at https://www.warren.senate.gov/imo/media/doc/01_29_2021%20Letter%20from%20Senator%20Warren%20to%20Acting%20Chair%20Lee.pdf.

⁴ Letter from Sen. Elizabeth Warren to Allison Herren Lee, *supra* note 3, at 4.

⁵ *Statement of Acting Chair Lee and Commissioners Peirce, Roisman, and Crenshaw Regarding Recent Market Volatility* (Jan. 29, 2021), available at <https://www.sec.gov/news/public-statement/joint-statement-market-volatility-2021-01-29>.

⁶ Letter from Sen. Elizabeth Warren to Allison Herren Lee, *supra* note 3, at 4, 5.

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markets continue to function and remain fair, orderly, and efficient. As you note, disorderly, inefficient, and unfair securities markets can have a negative impact on investors, communities, consumers, and workers. For example, if a short seller disseminates misleading or false information about a company, this could negatively impact the company and even threaten its viability as an on-going business, thereby harming: (1) investors through a reduction in the stock price; (2) workers who are laid off or see a reduction in the value of their stock holdings in the company; (3) communities through the economic effects of those layoffs; and (4) consumers who may lose access to the company's products or services.⁷ Significant volatility in prices of particular equities can ultimately increase the likelihood of investor harm,⁸ and, consequently, the Commission staff monitors situations such as these very closely.

The Commission is always concerned with the impact of significant volatility that is not explained by apparent market fundamentals. As you know, the Commission and other governmental authorities and market participants continue to work together to ensure that markets function during times of market volatility. Our regulatory tools have evolved to address the challenges that our markets have confronted in previous stressful events, such as the market volatility in March 2020 and the "flash crash" in May 2010. The Commission also has regulations in place designed to address market infrastructure and to promote resilience. For example, the Commission's Regulation Systems Compliance and Integrity (SCI) strengthens the technology infrastructure of the U.S. securities markets. Specifically, the rules are designed to reduce the occurrence of systems issues, improve resilience when systems problems do occur, and enhance the Commission's oversight and enforcement of securities market technology infrastructure. The Commission staff will examine closely whether these rules and others performed as designed in response to the issues raised by these events in order to identify any gaps that may need to be addressed.

Further, the Commission has always remained focused on whether investors have access to sufficient information to make informed investment decisions. As part of the staff's efforts to protect investors in response to the recent volatility, the Commission's Office of Investor Education and Advocacy recently issued a staff bulletin highlighting the risks associated with volatile markets and short-term trading based on social media.⁹ Our Division of Corporation Finance also issued a sample comment letter that highlights disclosure considerations for companies seeking to raise capital in securities offerings amid market and price volatility. This letter includes sample comments regarding disclosure, among other things, about inconsistencies between recent changes in a company's stock price and changes in actual or expected operating performance, financial condition, or other indicators of value.

That said, these tools clearly have not eliminated all extreme volatility from the markets. I believe the Commission should take this opportunity to consider additional changes to our regulations to, among other things, provide better safeguards against prices dramatically departing from fundamental values. Our markets are the best in the world, but we do not rest on

⁷ See, e.g., Joshua Mitts, Short and Distort, Columbia Law and Economics Working Paper No. 592 (Feb. 13, 2020), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3198384.

⁸ See George Sisti, Do the math: Volatility hurts your portfolio, MARKETWATCH (Feb. 26, 2013), available at <https://www.marketwatch.com/story/do-the-math-volatility-hurts-your-portfolio-2013-02-26>.

⁹ Investor Alert: Thinking About Investing in the Latest Hot Stock? Understand the Significant Risks of Short-Term Trading Based on Social Media (Jan. 29, 2021), available at <https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-alerts/investor-62>.

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that premise. We must ensure that our regulations and actions keep pace with the challenges of modern markets. Until we have a better understanding of exactly what happened, it is premature to identify fully all the steps that should be taken to fix potential issues. Nevertheless, at this point, I believe we should seriously consider additional regulations in a few areas. Specifically, I believe the Commission should consider crafting regulations that require firms providing options trading to retail customers to disclose more information to those customers and more closely examine whether retail customers understand such products. It is critical that firms conduct sufficient due diligence about whether individual customers qualify to trade options and other complex products before those customers begin trading such products. Additionally, I believe the Commission should consider requiring increased disclosure of short-selling to regulators and the general public as well as completion of the Dodd-Frank mandate for a rule under Section 929X of Dodd-Frank.¹⁰ Finally, I believe the Commission should examine the effects of certain firms receiving payment for access to their order flow to determine, among other things, whether these practices are properly and thoroughly disclosed and fully consistent with best execution obligations. As noted above, however, we are continuing to analyze the recent market events, and the outcome of that review may ultimately lead us toward different or additional policy considerations.

Fraud and Market Manipulation

With respect to your fourth question regarding market manipulation, the Commission takes market manipulation seriously and has a long history of investigating and prosecuting those who seek to fraudulently manipulate stock prices and interfere with the free and fair operation of the market. While I am unable to discuss the existence or nature of any specific investigation regarding recent market events or provide a detailed timeline regarding steps we are taking to update and implement rules defining market manipulation, I can assure you that in the course of our review of the events, we are evaluating whether the SEC's current regulatory regime is sufficient to address potential misconduct that may have occurred in connection with the recent market volatility. To the extent it is helpful for now, I provide below a brief overview of regulations designed to prevent market manipulation.

As you know, the federal securities laws and regulations broadly prohibit fraud in the offer, purchase, or sale of securities, including activity designed to fraudulently manipulate a stock's price. For example, it can be a violation of Section 10(b) of the Securities and Exchange Act of 1934, or Section 17(a) of the Securities Act of 1933, to disseminate false or misleading information about a security in an effort to artificially pump up its price and profit therefrom. Similarly, Section 9(a) of the Exchange Act makes it illegal to engage in trading that is designed to artificially increase or decrease the price of a security for the purpose of inducing others to buy or sell the stock. These are only some examples of ways in which individuals or entities may engage in market manipulation in violation of the federal securities laws. To the extent that our review of the facts in this situation reveals regulatory gaps in the SEC's enforcement regime, we would welcome a conversation regarding potential action to fill those gaps.

It should be noted, however, that some of the activities associated with recent market events may not squarely fall within our current authority to prevent and police market

¹⁰ See Dodd-Frank Act Section 929X(a) (codified as amended at 15 U.S.C. § 78m(f)(2) (2012)).

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manipulation. Much of our enforcement authority regarding market manipulation revolves around the concept of “deceit;” in other words, conduct with an intent to knowingly mislead or misrepresent a person’s interests or holdings. If a person or persons involved in causing a major market event could not be shown to have engaged in knowing or reckless deceit, there could be uncertainty regarding the success of an action brought for market manipulation. We continue to analyze and consider this issue carefully.

In addition, the Commission’s examination and enforcement efforts to address conduct that violates the federal securities laws also promote market integrity. Timely identification of misconduct that harms investors and undermines confidence in our markets is critical, and the Commission’s examination and enforcement staff routinely inspect and investigate potential non-compliance with applicable regulatory obligations.

In particular, the Division of Examinations is currently conducting examinations to review actions taken by various regulated entities (including broker-dealers and clearing agencies) related to the recent volatility to, among other things, promote compliance with the federal securities laws. Coordinating with divisions and offices across the Commission, our Division of Enforcement proactively surveils the market for possible violations of the federal securities laws, including misconduct involving fraud, manipulation, and misrepresentations in disclosures to the customers of broker-dealers. When Commission staff identify possible instances of such violations, they work to halt the misconduct and prevent or minimize investor harm.

As a matter of policy, the Commission conducts investigations on a confidential basis and generally does not acknowledge the existence or non-existence of any investigation unless or until charges are filed. This is to protect the integrity of our investigations, safeguard the privacy of witnesses, and avoid damaging the reputation of persons who may not be charged. Accordingly, as noted above, I cannot comment specifically on whether any particular matters raised in your letter are currently under investigation, but I assure you that the Commission staff is considering carefully the information included in your correspondence in connection with our statutory and regulatory responsibilities.

I would also note that data collected by the Consolidated Audit Trail (CAT) is intended, in part, to assist Commission staff in investigations of potentially manipulative trading. Broker-dealers are now reporting core transactional data for equities and simple electronic options to the CAT. This data assists in understanding trading activities and in conducting investigations, but will be most useful when all data elements are reported and complete. Pursuant to amendments adopted by the Commission on May 15, 2020, an implementation plan and quarterly progress reports are now published on the CAT NMS Plan website (catnmsplan.com). The implementation timeline provided on the website for the CAT NMS Plan indicates that implementation should be completed in 2022.

While we would welcome additional resources given the size and complexity of our markets and the ongoing and evolving risk of fraud and market manipulation, we are working to identify and address possible violations of the existing federal securities laws. The Commission staff are also considering the effectiveness of existing regulations to protect investors, to

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maintain fair, orderly, and efficient markets, and to facilitate capital formation, and will make recommendations for potential action to address any issues or gaps identified.

Thank you again for your letter and your continued, thoughtful focus on our mission. Please do not hesitate to contact me at (202) 551-2100, or have a member of your staff contact Justin Slaughter, Director of the Office of Legislative and Intergovernmental Affairs, at (202) 551-2010 if you have any additional concerns or comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Allison Herren Lee".

Allison Herren Lee
Acting Chair



85 Willow Road
Menlo Park, CA 94025
robinhood.com

February 12, 2021

The Honorable Elizabeth Warren
309 Hart Senate Office Building
Washington, DC 20510

Response to February 2, 2021 Letter re: Robinhood

Dear Senator Warren,

I write in response to your letter, dated February 2, 2021, regarding the measures taken by Robinhood¹ in response to the recent market volatility. We appreciate your interest in this matter, and welcome the opportunity to describe why RHS decided temporarily to restrict the purchase of certain securities on January 28, 2021. We continue to prioritize our customers and our mission to increase access to investing, and we believe the steps taken by RHS reflect this commitment. Should additional responsive information become available, we respectfully reserve the right to supplement this response as appropriate.

* * *

1. Robinhood announced on January 28, 2021 that it was restricting “transactions for certain securities to position closing only,” abruptly changing the rules for small investors with no warning or recourse. Why did Robinhood make this decision?

a. Please explain in detail the factors that led Robinhood to limit customers from making trades on GameStop and other stocks.

As brokerage firms, RHF and RHS have many financial requirements, including U.S. Securities and Exchange Commission (“SEC”) net capital obligations and clearinghouse deposit requirements. Some of these requirements fluctuate based on volatility in the markets and can be substantial in the current environment. These requirements exist to protect investors and the markets, and we take our

¹ Unless otherwise specified, references to Robinhood herein refer collectively to Robinhood Markets, Inc. (“RHM”), Robinhood Financial LLC (“RHF”), and Robinhood Securities, LLC (“RHS”). RHM wholly owns RHF, which acts as an introducing broker for its customers by taking their trade orders. RHM also wholly owns RHS, which, as a member of SEC-registered clearinghouses, serves as a clearing broker for RHF. In that capacity, RHS executes customer orders received from RHF by routing them to market makers and also clears and settles trades for RHF.



responsibilities to comply with them seriously, including through the measures taken by RHS to temporarily limit customer purchases of certain securities.

In late January 2021, trading activity in a small number of stocks triggered massive volatility that prompted clearinghouses to take swift action to increase deposit requirements. These deposits are the collateral RHS posts to ensure access to clearinghouse services on behalf of Robinhood's customers. In a matter of days, RHS's clearinghouse-mandated deposit requirements related to stocks increased tenfold. This led us to put temporary buying restrictions on a small number of securities, including GameStop, which accounted for hundreds of millions of dollars in deposit requirements. Consistent with our customer agreement, we took steps to limit buying in those securities to ensure we could meet our deposit requirements. We met and have continued to meet these requirements.

b. Please explain what contractual provisions with its users allowed Robinhood to summarily bar or otherwise restrict trading activity related to GameStop and other companies and how these provisions were communicated to users.

When opening an account with RHF, all customers are required to sign a customer agreement, in which the customer acknowledges that RHF retains authority, in its "sole discretion and without prior notice," to restrict customer trading activity.² Agreements with these terms are standard across the industry.³

2. News reports indicate that Robinhood's actions to restrict trading of certain securities, such as GameStop stocks, "suggest that the stock trading platform may not have had enough cash on hand to stay within regulatory rules for brokerage firms," potentially because "Robinhood may have been exposed to too much risk associated with margin trading." Are these reports accurate?

By January 28, Robinhood customers could not trade GameStop, among other stocks, on margin. Other brokers took similar actions.⁴ As described above, RHS restricted trading in certain securities,

² See Ex. A (RHF & RHS Customer Agreement (last updated Dec. 30, 2020)) ¶ 5(F) ("I understand Robinhood may at any time, in its sole discretion and without prior notice to Me, prohibit or restrict My ability to trade securities."); *id.* ¶ 16 ("I understand that Robinhood may, in its discretion, prohibit or restrict the trading of securities . . . in any of My Accounts)."

³ See SEC Office of Investor Education & Advocacy, *Thinking About Investing in the Latest Hot Stock?*, SEC (Jan. 30, 2021), <https://www.sec.gov/oiea/investor-alerts-and-bulletins/risks-short-term-trading-based-social-media-investor-alert>. ("[B]roker-dealers may reserve the ability to reject or limit customer transactions. This may be done for legal, compliance, or risk management reasons, and is typically discussed in the customer account agreement. In certain circumstances, broker-dealers may determine not to accept orders where a transaction presents certain associated compliance or legal risks.").

⁴ Charles Schwab, eToro, E*Trade, Freetrade, Interactive Brokers, M1 Finance, Public, Revolut, TD Ameritrade, Trading 212, and Webull all either restricted trading or tightened certain restrictions on



including GameStop, as a risk management measure. RHS met the deposit requirements imposed by the clearinghouse on January 28 and has continued to meet those requirements to date. RHM also raised additional capital, a significant portion of which is being held as regulatory capital by RHS and can be deployed in the event deposit requirements increase significantly in the future.

- a. **Does Robinhood disclose the number of customers who hold margin accounts – which allows customers to borrow money from Robinhood to buy stocks – to federal regulators? If so, what is the average total margin among Robinhood margin account holders?**

Under current rules, RHF is not required to collect and disclose the number of customers who hold margin accounts.

- b. **Reports revealed that potential cash flows issues “could have put Robinhood out of compliance with very basic regulatory rules that every brokerage is required to follow.” According to one analyst, “[t]his raises the question of if [Robinhood was] negligent in their management of their net capital and other regulatory obligations.”**

- i. **Please describe in detail any findings of noncompliance with laws or regulations governing Robinhood’s platform or business practices during or preceding the recent market volatility.**

During the relevant period, RHF and RHS were in compliance with the SEC’s net capital requirements, and remain so through the present. To the best of our knowledge, Robinhood has acted in compliance with all other applicable laws and regulations related to the market volatility during the relevant period.

- ii. **Please describe in detail any conversations that Robinhood’s senior leadership had with staff of financial regulatory agencies regarding the recent market volatility.**

Robinhood has been in regular communications with the SEC, Financial Industry Regulatory Authority (“FINRA”), and other self-regulatory organizations regarding the recent market volatility events.

these stocks. See Harry Robertson, *Robinhood, Webull, M1 and these other platforms have resumed trading of GameStop and AMC shares*, MARKETS INSIDER (Jan. 29, 2021, 2:39 PM), <https://markets.businessinsider.com/news/stocks/robinhood-webull-m1-reopen-gamestop-stock-trading-2021-1-1030019926>.



3. Reports indicate that “Robinhood routes more than half of its customer orders to Citadel [Securities], by far its largest market-making partner by volume.”

a. Please describe in detail the relationship between Robinhood and Citadel Securities.

Like other clearing brokers, RHS routes customer trade orders to market makers, including Citadel Execution Services (which is an SEC registered broker-dealer), to execute RHS’s customers’ orders. RHS receives rebates for directing customer orders to market makers in an arrangement known as “payment for order flow.” This payment for order flow practice is regulated by the SEC, and RHS complies with its disclosure obligations under SEC Rule 606. Citadel Execution Services is one of seven market makers to which RHS routes customer orders. No Citadel entity including, but not limited to, Citadel Execution Services, holds any ownership stake directly, or to Robinhood’s knowledge indirectly, in Robinhood.⁵

b. Did Robinhood engage in any discussions with any Citadel businesses or affiliates prior to Robinhood reaching its decision to institute restrictions on trading for GameStop and other stocks? If so, please provide a full description of these discussions.

RHS is in regular dialogue with all of the market makers to which it routes customer orders including, among others, Citadel Execution Services. RHS’s decision to impose limits on purchases of certain securities was not prompted by nor the result of any such discussions.⁶ We have attached for your reference documentation regarding communications related to the decision to impose limits on certain securities.⁷

c. What user data does Robinhood share with Citadel Securities, and on what terms?

Robinhood does not share customer data beyond customer orders with any of RHS’s market makers. As stated above, RHS routes customer orders to market makers for order execution.

⁵ See Ex. B (Robinhood Financial LLC, Robinhood Securities, LLC & Robinhood Markets, Inc.’s Mem. Law Opp’n Pl.’s *Ex Parte* Appl. TRO & Order Showing Cause Prelim. Inj., *Cobos v. Robinhood Fin. LLC*, No. 21-cv-00835-VAP-MRW (C.D. Cal. Feb. 8, 2021), ECF Nos. 27-27-3) at 18.

⁶ See Ex. B at 142 (Decl. of James Swartwout).

⁷ See *id.*



d. How much revenue does Robinhood earn from its contractual relationship with Citadel Securities?

Consistent with its regulatory obligations under SEC Rule 606, RHS discloses on a quarterly basis its payment for order flow arrangements with market makers. RHS's Rule 606 disclosures are publicly available on Robinhood's website.⁸

In comparison, other major online brokers also route a significant portion of their customers' orders to Citadel Execution Services for order execution.

TD Ameritrade Clearing, Inc. - December 2020

S&P 500 Stocks

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit Orders (%)	Other Orders (%)
Citadel Execution Services	38.22	44.28	42.56	20.03	52.03
Virtu America, LLC	20.73	23.16	21.19	5.74	34.24
G1 Execution Services	16.15	30.03	29.42	12.92	8.74
UBS Securities, LLC	14.20	1.03	3.89	36.93	1.12
Two Sigma Securities, LLC	8.93	0.96	2.42	22.91	0.85

Non-S&P 500 Stocks

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit Orders (%)	Other Orders (%)
Citadel Execution Services	38.30	44.21	42.48	19.06	53.05
Virtu America, LLC	21.60	23.28	21.96	7.79	34.78
G1 Execution Services	15.08	29.80	29.03	8.80	7.20
UBS Securities, LLC	13.74	1.09	3.53	37.45	0.81
Two Sigma Securities, LLC	9.24	1.09	2.49	24.85	0.61

Options

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit Orders (%)	Other Orders (%)
Citadel Execution Services	44.67	44.81	44.76	44.49	45.15
Global Execution Brokers LP	35.08	44.50	44.05	34.85	26.33
Dash Financial	9.47	4.55	4.91	8.90	16.24
Wolverine Execution Services	6.43	3.45	3.58	8.82	1.52

⁸ See Robinhood Securities LLC - Held NMS Stocks and Options Order Routing Public Report, 4th Quarter, 2020 (Jan. 25, 2021, 11:07), <https://cdn.robinhood.com/assets/robinhood/legal/RHS%20SEC%20Rule%20606a%20and%20607%20Disclosure%20Report%20Q4%202020.pdf> (reflecting Q4 2020 Rule 606 Report).



Charles Schwab - December 2020

S&P 500 Stocks

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit Orders (%)	Other Orders (%)
Citadel Execution Services	31.08	32.02	30.36	27.32	40.32
Virtu Americas, LLC	26.73	26.75	24.17	24.83	36.12
G1 Execution Services, LLC	22.66	23.09	25.32	23.82	13.02
UBS Securities, LLC	13.99	13.05	14.46	16.87	8.66
Two Sigma Securities, LLC	4.68	5.03	5.38	4.70	1.57
Cboe EDGX Exchange, Inc.	0.54	0.07	0.28	1.50	0.21
Nasdaq Execution Services, LLC	0.31	0.00	0.03	0.96	0.11

Non-S&P 500 Stocks

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit Orders (%)	Other Orders (%)
Citadel Execution Services	30.46	30.44	30.58	27.54	40.55
Virtu Americas, LLC	26.21	24.42	24.99	25.19	39.43
G1 Execution Services, LLC	23.12	25.22	24.61	23.38	11.07
UBS Securities, LLC	14.56	14.36	14.64	16.90	7.43
Two Sigma Securities, LLC	4.78	5.53	5.37	4.61	1.30
Cboe EDGX Exchange, Inc.	0.54	0.03	0.17	1.45	0.14
Nasdaq Execution Services, LLC	0.33	0.00	0.03	0.93	0.08

Options

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit Orders (%)	Other Orders (%)
Citadel Execution Services	34.56	33.14	33.47	33.16	38.25
Global Execution Brokers LP	30.25	29.99	29.70	29.49	31.94
Wolverine Execution Services, LLC	18.53	18.96	19.44	20.65	14.24
Dash Financial Technologies, LLC	8.70	12.34	11.05	9.53	4.30
Morgan Stanley & Co., LLC	7.95	5.57	6.34	7.17	11.28

At this time, RHS does not expect the data reflected in its Rule 606 disclosures for Q4 2020 to materially change by the end of the current quarter. RHS can make its Rule 606 disclosures for Q1 2021 available to your office following their release at the end of the quarter.

- e. Does Robinhood have similar contracts with other large hedge funds, private equity funds, or other large financial services firms? If so, please provide a full description of these relationships.

Robinhood does not have any contracts with hedge funds or private equity funds regarding customer order execution. RHS currently has payment for order flow arrangements with seven other market makers: G1X Execution Services, LLC, Global Execution Brokers, LP, Morgan Stanley & Co.,



LLC, Two Sigma Securities, LLC, Virtu Americas, LLC, and Wolverine Securities, LLC, and Wolverine Execution Services LLC.⁹

4. Please describe Robinhood's requirements for addressing customers' complaints and grievances, in particular Robinhood's use of forced arbitration requirements.

a. Please explain in detail the terms of the arbitration processes that Robinhood customers are mandated to participate in when seeking relief.

When customers sign up for accounts, they must acknowledge their agreement to the terms set forth in the operative customer agreement. The disclosures in RHF's customer agreements regarding arbitration are consistent with RHF's and RHS's regulatory obligations under FINRA Rule 2268, which governs requirements when pre-dispute arbitration agreements are used. In particular, the customer agreements include the language set forth in FINRA Rule 2268(a).¹⁰ Further, as required by FINRA Rule 2268(b)(1), the operative customer agreement sets forth, before the customer indicates acceptance, that it contains a pre-dispute arbitration clause and refers to where that clause is located.¹¹

⁹ See *id.*

¹⁰ See Ex. A ¶ 38. The language set forth in FINRA Rule 2268, which is identical to the customer agreements, is as follows:

This agreement contains a predispute arbitration clause. By signing an arbitration agreement the parties agree as follows: (1) All parties to this agreement are giving up the right to sue each other in court, including the right to a trial by jury, except as provided by the rules of the arbitration forum in which a claim is filed. (2) Arbitration awards are generally final and binding; a party's ability to have a court reverse or modify an arbitration award is very limited. (3) The ability of the parties to obtain documents, witness statements and other discovery is generally more limited in arbitration than in court proceedings. (4) The arbitrators do not have to explain the reason(s) for their award unless, in an eligible case, a joint request for an explained decision has been submitted by all parties to the panel at least 20 days prior to the first scheduled hearing date. (5) The panel of arbitrators may include a minority of arbitrators who were or are affiliated with the securities industry. (6) The rules of some arbitration forums may impose time limits for bringing a claim in arbitration. In some cases, a claim that is ineligible for arbitration may be brought in court. (7) The rules of the arbitration forum in which the claim is filed, and any amendments thereto, shall be incorporated into this agreement.

¹¹ See Ex. A at 1 ("I also understand that by clicking 'submit application' I have acknowledged that this agreement contains a predispute arbitration clause in Section 38 herein.").



b. How many consumer complaints has Robinhood fielded from customers that were required to use the arbitration process to address their concerns?

As stated above at 4(a), under the operative customer agreement and consistent with FINRA regulations, all RHF customers agree to adhere to the terms of the pre-dispute arbitration clause. As of February 11, there are 24 arbitrations pending. RHF is open to reviewing its use of arbitration and will continue to be guided by what is in its customers' best interests with respect to resolving customer complaints.

c. How many of these customers went through the arbitration process?

One of the cases initiated in 2020 pursuant to the FINRA arbitration process under FINRA Rule 2268 resulted in a final determination by a FINRA arbitrator.

d. What was the outcome of these cases?

A FINRA panel issued a \$0 award for the one case initiated in 2020 that resulted in a final determination.

e. In cases where Robinhood lost in arbitration, was the settlement, or any part of it, made public?

As noted above, a FINRA panel issued a \$0 award for the one case initiated in 2020 that resulted in a final determination. All cases that have been finally determined by a FINRA arbitrator are publicly available on FINRA's website.¹²

* * *

¹² See <https://www.finra.org/arbitration-mediation/arbitration-awards-online>.



Thank you for the opportunity to address these issues. We would be happy to schedule a follow-up conversation at your convenience.

Sincerely,

/s/ Lucas Moskowitz

Lucas Moskowitz
Deputy General Counsel & Head of
Government Affairs
Robinhood Markets, Inc.

cc:

Allison Herren Lee, Acting Chair, Securities and Exchange Commission
Robert Cook, President and Chief Executive Officer, Financial Industry Regulatory Authority

EXHIBIT A

Revised December 30, 2020

Robinhood Financial LLC & Robinhood Securities, LLC Customer Agreement

In consideration of Robinhood Financial LLC, Robinhood Securities, LLC, and their agents and assigns (collectively, "Robinhood") opening one or more accounts on my behalf ("My Account(s)" or the "Account(s)") for the purchase, sale or carrying of securities or contracts relating thereto and/or the borrowing of funds, which transactions are cleared through Robinhood Securities, I represent and agree with respect to all Accounts, whether margin or cash, to the terms set forth below (the "Agreement"). When used in this Agreement, the words "I", "Me", "My", "We", or "Us" mean the owner(s) of the Account. For purposes of this Agreement, Business Days are Monday through Friday, excluding federal holidays. Any references to "days" found in this Agreement are calendar days unless indicated otherwise.

I UNDERSTAND THAT THE TERMS AND CONDITIONS OF THIS AGREEMENT GOVERN ALL ASPECTS OF MY RELATIONSHIP WITH ROBINHOOD REGARDING MY ACCOUNTS. I WILL CAREFULLY READ, UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT BEFORE I CLICK "SUBMIT APPLICATION" OR OTHER SIMILARLY WORDED BUTTON. IF I HAVE ANY QUESTIONS ABOUT ANY OF THE PROVISIONS IN THIS AGREEMENT, I WILL EMAIL HELP@ROBINHOOD.COM. I UNDERSTAND THAT CLICKING "SUBMIT APPLICATION" IS THE LEGAL EQUIVALENT OF MY MANUALLY SIGNING THIS AGREEMENT AND I WILL BE LEGALLY BOUND BY ITS TERMS AND CONDITIONS. BY ENTERING INTO THIS AGREEMENT, I ACKNOWLEDGE RECEIPT OF THE ROBINHOOD PRIVACY POLICY AND PRIVACY AND SECURITY STATEMENT. I UNDERSTAND THAT THIS AGREEMENT MAY BE AMENDED FROM TIME TO TIME BY ROBINHOOD, WITH REVISED TERMS POSTED ON THE ROBINHOOD WEBSITE. I AGREE TO CHECK FOR UPDATES TO THIS AGREEMENT. I UNDERSTAND THAT BY CONTINUING TO MAINTAIN MY SECURITIES BROKERAGE ACCOUNT WITHOUT OBJECTING TO ANY REVISED TERMS OF THIS AGREEMENT, I AM ACCEPTING THE TERMS OF THE REVISED AGREEMENT AND I WILL BE LEGALLY BOUND BY ITS TERMS AND CONDITIONS. IF I REQUEST OTHER SERVICES PROVIDED BY ROBINHOOD THAT REQUIRE ME TO AGREE TO SPECIFIC TERMS AND CONDITIONS ELECTRONICALLY (THROUGH CLICKS OR OTHER ACTIONS) OR OTHERWISE, SUCH TERMS AND CONDITIONS WILL BE DEEMED AN AMENDMENT AND WILL BE INCORPORATED INTO AND MADE PART OF THIS AGREEMENT. I ALSO UNDERSTAND THAT BY CLICKING "SUBMIT APPLICATION" I HAVE ACKNOWLEDGED THAT THIS AGREEMENT CONTAINS A PREDISPUTE ARBITRATION CLAUSE IN SECTION 38 HEREIN.

1. Capacity and Status.

If an individual, I am of legal age under the laws of the state where I reside and authorized to enter into this Agreement. If an entity, I am duly formed, validly existing and in good standing in My state of organization, have full power and authority to enter and perform this Agreement, and the persons signing the account application are fully authorized to act on My behalf. No person, except Myself, has any interest in the Account opened pursuant to this Agreement. I acknowledge that unless Robinhood receives written objection from Me, Robinhood may provide My name, address, and securities positions to requesting companies in which I hold securities. Except as otherwise disclosed to Robinhood in writing, neither I nor any member of My immediate family is an employee of any exchange, any corporation of which any exchange owns a majority of the capital stock, a member of any exchange or self-regulatory organization, a member of any firm or member corporation registered on any exchange, a bank, trust company, insurance company or any corporation, firm or individual engaged in the business of dealing either as a broker-dealer or as principal in securities. I understand and agree that I am obligated to promptly notify Robinhood in writing if I or a member of My immediate family becomes registered or employed in any of the above-described capacities. Except as otherwise disclosed to Robinhood in writing, I am not a Professional (as defined below). I further agree to promptly notify Robinhood in writing if I am now or if I become a Professional or an officer, director or 10% stockholder of any publicly traded company.

2. Market Data.

Robinhood may choose to make certain market data available to Me pursuant to the terms and conditions set forth in this Agreement. By executing this Agreement, I agree to comply with those terms and conditions.

A. Definitions.

1. "Market Data" means (a) last sale information and quotation information relating to securities that are admitted to dealings on the New York Stock Exchange ("NYSE"), (b) such bond and other equity last sale and quotation information, and such index and other market information, as United States-registered national securities exchanges and national securities associations (each, an "Authorizing SRO") may make available and as the NYSE may from time to time designate as "Market Data"; and (c) all information that derives from any such information.
2. "Nonprofessional" means any natural person who receives market data solely for his/her personal, non-business use and who is not a "Professional." A "Professional" includes an individual who, if working in the United States, is: (i) registered or qualified with the Securities and Exchange Commission (the "SEC"), the Commodity Futures Trading Commission (the "CFTC"), any state securities agency, any securities exchange or association, or any commodities or futures contract market or association; (ii) engaged as an "investment advisor" as that term is defined in Section 202 (a) (11) of the Investment Advisers Act of 1940 (whether or not registered or qualified under that Act); or (iii) employed by a bank or other organization exempt from registration under federal and/or state securities laws to perform functions that would require him or her to be so registered or qualified if he or she were to perform such functions for an organization not so exempt. A person who works outside of the United States will be considered a "Professional" if he or she performs the same functions as someone who would be considered a "Professional" in the United States.

B. Provisions Applicable to All Users.

1. Proprietary Nature of Data. I understand and acknowledge that each Authorizing SRO and Other Data Disseminator (as defined below) has a proprietary interest in the Market Data that originates on or derives from it or its market(s). I agree not to reproduce, distribute, sell or commercially exploit the Market Data in any manner.
2. Enforcement. I understand and acknowledge that (a) the Authorizing SROs are third-party beneficiaries under this Agreement and (b) the Authorizing SROs or their authorized representative(s) may enforce this Agreement, by legal proceedings or otherwise, against Me or any person that obtains Market Data that is made available pursuant to this Agreement other than as this Agreement contemplates.
3. Data Not Guaranteed. I understand that neither Robinhood nor any Authorizing SRO, other entity whose information is made available over the Authorizing SROs' facilities (an "Other Data Disseminator"), or information processor that assists any Authorizing SRO or Other Data Disseminator in making Market Data available (collectively, the "Disseminating Parties") guarantees the timeliness, sequence, accuracy, completeness, reliability, or content of Market Data or of other market information or messages disseminated to or by any Disseminating Party. I understand that neither Robinhood Financial nor any Disseminating Party guarantees the timeliness, sequence, accuracy, completeness, reliability or content of market information, or messages disseminated to or by any party. I understand that neither Robinhood Financial nor any Disseminating Party warrants that the service provided by any such entity will be uninterrupted or error-free. I further understand that Market Data by Xignite provides market data to Robinhood Financial customers. NEITHER ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, NOR ANY DISSEMINATING PARTY SHALL BE LIABLE IN ANY WAY FOR (A) ANY INACCURACY, ERROR OR DELAY IN, OR OMISSION OF (I) ANY MARKET DATA, INFORMATION OR MESSAGE, OR (II) THE TRANSMISSION OR DELIVERY OF ANY SUCH DATA, INFORMATION OR MESSAGE; OR (B) ANY LOSS (AS DEFINED IN THIS AGREEMENT) OR DAMAGE ARISING FROM OR OCCASIONED BY (I) ANY SUCH INACCURACY, ERROR, DELAY OR OMISSION, (II) NON-PERFORMANCE OR (III) INTERRUPTION IN ANY SUCH MARKET DATA, INFORMATION, OR MESSAGE, WHETHER DUE TO ANY ACT OR OMISSION BY ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, OR ANY DISSEMINATING PARTY, OR TO ANY "FORCE MAJEURE" (E.G., FLOOD, EXTRAORDINARY WEATHER CONDITIONS, EARTHQUAKE OR OTHER ACT OF GOD, FIRE, WAR, INSURRECTION, RIOT, LABOR DISPUTE, ACCIDENT, ACTION OF GOVERNMENT, OR COMMUNICATIONS OR POWER FAILURE, EQUIPMENT OR SOFTWARE MALFUNCTION) OR ANY OTHER

CAUSE BEYOND THE REASONABLE CONTROL OF ROBINHOOD FINANCIAL, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS AND EMPLOYEES, OR ANY DISSEMINATING PARTY.

4. Permitted Use. I shall not furnish Market Data to any other person or entity. If I receive Market Data other than as a Nonprofessional, I shall use Market Data only for My individual use.
5. Dissemination, Discontinuance, or Modification. I understand and acknowledge that, at any time, the Authorizing SROs may discontinue disseminating any category of Market Data, may change or eliminate any transmission method and may change transmission speeds or other signal characteristics. The Authorizing SROs shall not be liable for any resulting liability, loss or damages that may arise therefrom.
6. Duration; Survival. This Section 2 of this Agreement remains in effect for so long as I have the ability to receive Market Data as contemplated by this Section 2. In addition, Sections 2(B)(1)-(3) and the first two sentences of Section 2(B)(7), survive any termination of this Agreement.
7. Miscellaneous. The laws of the State of New York shall govern this Section 2 and it shall be interpreted in accordance with those laws. This Subsection is subject to the Securities Exchange Act of 1934, the rules promulgated under that act, and the joint-industry plans entered into pursuant to that act.

C. Provisions Applicable to Nonprofessionals.

1. Permitted Receipt. I understand that I may not receive Market Data from Robinhood as a Nonprofessional, and Robinhood may not provide Market Data to Me as a Nonprofessional, unless Robinhood first properly determines that I qualify as a Nonprofessional as defined above and I in fact qualify as a Nonprofessional. I agree that, as a prerequisite to Robinhood Financial qualifying Me as a Nonprofessional, I will provide to Robinhood truthful and accurate information about Me, such as: my occupation, employer, employment position and functions; my use of Market Data; my registration status with any securities agency, exchange, association, or regulatory body, or any commodities or future contract market, association, or regulatory body, whether in the United States or elsewhere; and any compensation of any kind I may receive from any individual or entity for my trading activities, asset management, or investment advice. Except as otherwise declared to Robinhood in writing, by executing this Agreement, I certify that I meet the definition of Nonprofessional as set forth in this Agreement.
2. Permitted Use. If I am a Nonprofessional, I agree to receive Market Data solely for my personal, non-business use.
3. Notification. I shall notify Robinhood promptly in writing of any change in my circumstances that may cause Me to cease to qualify as a Nonprofessional.

3. NASDAQ OMX Information.

A. Definitions.

1. "Information" means certain market data and other data disseminated that has been collected, validated, processed, and recorded by any system NASDAQ OMX has developed for the creation or dissemination of Information or other sources made available for transmission to and receipt from either a distributor such as RHF or from NASDAQ OMX relating to: a) eligible securities or other financial instruments, markets, products, vehicles, indicators, or devices; b) activities of a NASDAQ OMX company; c) other information and data from a NASDAQ OMX company. "Information" also includes any element of Information as used or processed in such a way that the Information can be identified, recalculated or re-engineered from the processed Information or that the processed Information can be used as a substitute for Information.
2. "NASDAQ OMX" means The NASDAQ OMX Group, Inc., a Delaware limited liability company and its subsidiaries and Affiliates (collectively, "NASDAQ OMX").

B. Use of Data.

I understand that I may use the Information only for personal use and not for any business purpose. I may not sell, lease, furnish or otherwise permit or provide access to the Information to any other natural person or entity ("Person") or to any other office or place. I will not engage in the operation of any illegal business use or permit anyone else to use the Information, or any part thereof, for any illegal purpose or violate any NASDAQ OMX or SEC Rule or any FSA rule or other applicable law, rule or regulation. I may not present the Information rendered in any unfair, misleading or discriminatory format. I shall take reasonable security precautions to prevent any Person other than Myself from gaining access to the Information.

C. Proprietary Data.

I acknowledge and agree that NASDAQ OMX has proprietary rights to the Information that originates on or derives from markets regulated or operated by NASDAQ OMX, and compilation or other rights to Information gathered from other sources. I further acknowledge and agree that NASDAQ OMX's third-party information providers have exclusive proprietary rights to their respective Information. In the event of any misappropriation or misuse by Me or anyone who accesses the Information through Me, NASDAQ OMX or its third-party information providers shall have the right to obtain injunctive relief for its respective materials.

D. System.

I acknowledge that NASDAQ OMX, in its sole discretion, may from time-to-time make modifications to its system or the Information. Such modifications may require corresponding changes to be made in Robinhood Financial's service. Changes or the failure to make timely changes by Me may sever or affect My access to or use of the Information. I understand that neither NASDAQ OMX nor Robinhood shall be responsible for such effects.

E. NASDAQ OMX Limitation of Liability.

Except as may otherwise be set forth herein, NASDAQ OMX shall not be liable to Me for indirect, special, punitive, consequential or incidental loss or damage (including, but not limited to, trading losses, lost profits, or other indirect loss or damage) of any nature arising from any cause whatsoever, even if NASDAQ OMX has been advised of the possibility of such damages. NASDAQ OMX shall not be liable to Me for any unavailability, interruption, delay, incompleteness or inaccuracy of the Information. This Section shall not relieve NASDAQ OMX or Me from liability for damages that result from their own gross negligence or willful tortious misconduct or from personal injury or wrongful death claims. I agree that the terms of this Section reflect a reasonable allocation of risk and limitation of liability.

F. Disclaimers of Warranties.

NASDAQ OMX and its third-party information providers make no warranties of any kind with respect to the Information—express, implied or statutory (including without limitation, timeliness, truthfulness, sequence, completeness, accuracy, freedom from interruption), any implied warranties arising from trade usage, course of dealing, course of performance or the implied warranties of merchantability or fitness for a particular use or purpose or noninfringement.

G. Termination by NASDAQ OMX.

I acknowledge that NASDAQ OMX, when required to do so in fulfillment of statutory obligations, may by notice to Robinhood unilaterally limit or terminate the right of any or all Persons to receive or use the

Information and that Robinhood will comply with any such notice and will terminate or limit the furnishing of the Information.

4. Authorization.

I understand that My Account is self-directed. Accordingly, I appoint Robinhood Financial as My agent for the purpose of carrying out My directions to Robinhood Financial in accordance with the terms and conditions of this Agreement and any attendant risks with respect to the purchase or sale of securities. Robinhood Financial is authorized to open or close My Account(s), place and withdraw orders and take such other steps as are reasonable to carry out My directions. All transactions will be effected only on My order or the order of My authorized delegate, except as described in Section 10. I understand Robinhood Financial provides trading and brokerage services through the Robinhood website (the "Website") and the Robinhood mobile application (the "App"). I agree to receive and transmit financial information through such electronic means. My use or My grant of access to My Account to any third party to access information or place transactions in My Account is solely at My risk.

5. Customer Representations and Responsibilities.

A. Self-directed Account.

I understand that My Account is self-directed, and so that I am solely responsible for any and all orders placed in My Account and that all orders entered by Me or on My behalf are unsolicited and based on My own investment decisions or the investment decision of My duly authorized representative or agent. Accordingly, I agree that neither Robinhood nor any of its employees, agents, principals, or representatives:

1. provide investment advice in connection with this Account;
2. recommend any security, transaction or order;
3. solicit orders;
4. act as a market maker in any security;
5. make discretionary trades; and
6. produce or provide first-party research providing a specific investment strategies such as buy, sell or hold recommendations, first-party ratings and/or price targets. To the extent research materials or similar information are available through the App or the Website or the websites of any entity controlled by, controlling, or under common control with Robinhood (such entity, an "Affiliate"), I understand that these materials are intended for informational and educational purposes only and they do not constitute a recommendation to enter into any securities transactions or to engage in any investment strategies.

B. Information Accuracy.

I: (i) certify that the information contained in this Agreement, the account application, and any other document that I furnish to Robinhood Financial in connection with My Account(s) is complete, true and correct, and acknowledge that knowingly giving false information for the purpose of inducing Robinhood Financial to extend credit is a federal crime; (ii) authorize Robinhood Financial to contact any individual or firm noted herein or on the documents referred to in subsection (i) of this Section and any other normal sources of debit or credit information; (iii) authorize anyone so contacted to furnish such information to Robinhood Financial as Robinhood may request; and (iv) agree that this Agreement, the account application and any other document I furnish in connection with My Account is Robinhood's property, as the case may be. I shall promptly advise Robinhood Financial of any changes to the information in such agreements and documents in writing within ten (10) calendar days. I authorize Robinhood Financial to obtain reports and provide information to others concerning My creditworthiness and business conduct. Upon My request, Robinhood agrees to provide Me a copy of any report so obtained. Robinhood may

retain this Agreement, the Account application, and all other such documents and their respective records at its sole discretion, whether or not credit is extended.

C. Risks.

I understand that all investments involve risk, that losses may exceed the principal invested, and that the past performance of a security, industry, sector, market, or financial product does not guarantee future results or returns.

D. Account Defaults.

I understand that My Account comes with many defaulted service instruction features and preferences. I further understand that I am not required to use these defaulted options or preferences and that once My Account is approved and opened I have the sole discretion to control and adjust such defaulted service preferences that relate to My account.

E. Knowledge of Account.

I understand that I am solely responsible for knowing the rights and terms for all securities purchased, sold and maintained in My Account including mergers, reorganizations, stock splits, name changes or symbol changes, dividends, option symbols, and option deliverables. I further understand that certain securities may grant Me valuable rights that may expire unless I take specific action. These securities include bonds, convertible securities, warrants, stock rights and securities subject to exchange offers or tenders. I am responsible for knowing all expiration dates, redemption dates, and the circumstances under which rights associated with My securities may be called, cancelled, or modified. Robinhood may, but are not obligated to, notify Me of any upcoming expiration or redemption dates, or take any action on My behalf without My specific instructions except as required by law and the rules of regulatory authorities. I acknowledge that Robinhood may adjust My Account to correct any error. If My Account has an option position on the last trading day prior to expiration, which is one cent or more in the money, Robinhood Financial will generally exercise the option, on My behalf. However, Robinhood Financial reserves the right at its discretion to close any option position prior to expiration date or any position resulting from the exercising/assignment after option expiration. I will be charged a commission for any such transaction. Robinhood Financial is not obligated to take any of these actions and Robinhood Financial is not liable for Losses should it not take them.

F. Purchases.

All orders for the purchase of securities given for My Account will be authorized by Me and executed in reliance on My promise that an actual purchase is intended. It is My obligation to pay for purchases immediately or on Robinhood's demand. I understand Robinhood may at any time, in its sole discretion and without prior notice to Me, prohibit or restrict My ability to trade securities. I further agree not to allow any person to trade for My Account unless a trading authorization for that person has been received and approved by Robinhood. Robinhood reserve the right to require full payment in cleared funds prior to the acceptance of any order. In the event that I fail to provide sufficient funds, Robinhood may, at its option and without notice to Me, i) charge a reasonable rate of interest, ii) liquidate the Property subject of the buy order, or iii) sell other Property owned by Me and held in any of My Accounts. Robinhood may also charge any consequential Loss to My Account. For purposes of this Agreement, "Property" shall mean all monies, contracts, investments and options, whether for present or future delivery, and all related distributions, proceeds, products and accessions.

G. Sales/Short Sales.

I promise to deliver all securities sold in My Account and to provide collateral of a type and amount acceptable to Robinhood Financial for all short sales in My Account. Robinhood Financial requires that a security be held in My Account prior to the acceptance of a sell order with respect to such security unless the order is specifically designated as a "short sale." If a security is not held in My Account and a sell order is processed, I must promptly deliver such security to Robinhood Financial for receipt in good deliverable form on or before the settlement date. Any order accepted without negotiable certificates or positions in My Account will be subject, at Robinhood Financial's sole discretion, to cancellation or buy-in. To ensure this will not occur, I agree to only place sell orders for securities owned by Me and held in My Account at the time My order is placed.

Proceeds of a sale will not be paid to Me or released into My Account until Robinhood Financial has received the security in good deliverable form, whether from a transfer agent or from Me and the settlement of the security is complete. If the security is not received on or before settlement date, or as market conditions warrant, Robinhood Financial may in its sole discretion purchase the security on the open market for My Account and may liquidate and close out any and all securities in My Account in order to pay for such purchase. In the event a security is bought in, I will be responsible for all resulting losses incurred by Robinhood Financial.

I understand that I may execute short sales only in a margin Account and that such execution must comply with applicable short sales rules.

H. Assistance by Robinhood.

I understand that when I request assistance from Robinhood or its employees in using the investment tools available on the Website or the App, it will be limited to an explanation of the tool's functionality and, if requested by Me, to the entry by Robinhood or its employees of variables provided by Me, and that such assistance does not constitute investment advice, an opinion with respect to the suitability of any transaction, or solicitation of any orders.

I. No Tax or Legal Advice.

I understand that Robinhood does not provide tax or legal advice.

J. Discontinuation of Services.

I understand that Robinhood may discontinue My Account and any services related to My Account immediately by providing written notice to Me.

K. Electronic Access.

1. I am solely responsible for keeping My Account numbers and PINs confidential and will not share them with third parties. "PINs" shall mean My username and password.
2. I agree and accept full responsibility for monitoring and safeguarding My Accounts and access to My Accounts.
3. I agree to immediately notify Robinhood in writing, delivered via e-mail and a recognized international delivery service, if I become aware of: (i) any loss, theft, or unauthorized use of My PINs or Account numbers; (ii) any failure by Me to receive any communication from Robinhood indicating that an order was received, executed or cancelled, as applicable; (iii) any failure by Me to receive an accurate written confirmation of an order, execution, or cancellation; (iv) any receipt by Me of confirmation of an order, execution or cancellation, which I did not place; (v) any

inaccurate information in or relating to My orders, trades, margin status, Account balances, deposits, withdrawals, securities positions or transaction history, or (vi) any other unauthorized use or access of My Account.

4. Each of the events described in subsections (K)(3)(i)-(vi) shall be deemed a "Potential Fraudulent Event". The use and storage of any information including My Account numbers, PINs, portfolio information, transaction activity, account balances and any other information or orders available on My wireless, web-enabled cellular telephone or similar wireless communications device (collectively, "Mobile Device") or My personal computer is at My own risk and is My sole responsibility. I represent that I am solely responsible for and have authorized any orders or instructions appearing in, originating from, or associated with My Account, My Account number, My username and password, or PINs. I agree to notify Robinhood immediately after I discover any Potential Fraudulent Event, but in no event more than twenty-four (24) hours following discovery. Upon request by Robinhood, I agree to report any Potential Fraudulent Event promptly to legal authorities and provide Robinhood a copy of any report prepared by such legal authorities. I agree to cooperate fully with the legal authorities and Robinhood in any investigation of any Potential Fraudulent Event and I will complete any required affidavits promptly, accurately and thoroughly. I also agree to allow Robinhood access to My Mobile Device, My computer, and My network in connection with Robinhood's investigation of any Potential Fraudulent Event. I understand that if I fail to do any of these things I may encounter delays in regaining access to the funds in My Account. I agree to indemnify and hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers, directors, and employees harmless from and against any Losses arising out of or relating to any Potential Fraudulent Event. I acknowledge that Robinhood does not know when a person entering orders with My username and password is Me.
5. Trusted Contact Person. I understand that, pursuant to FINRA regulations, Robinhood is authorized to contact the Trusted Contact Person (as defined by FINRA Rule 4512) designated for My Account and to disclose information about My account to address possible financial exploitation, to confirm the specifics of My current contact information, health status, or the identity of any legal guardian, executor, trustee or holder of a power of attorney, or as otherwise permitted by Rule 2165.

6. Clearance of Trades.

I understand that Robinhood Financial has entered into a clearing agreement with Robinhood Securities whereby Robinhood Financial will introduce My Account to Robinhood Securities, and Robinhood Securities will clear all transactions, on a fully-disclosed basis. I understand that Robinhood Securities carries My Account(s) and is responsible for the clearing and bookkeeping of transactions, but is not otherwise responsible for the conduct of Robinhood Financial.

Until receipt from Me of written notice to the contrary, Robinhood Securities may accept from Robinhood Financial, without inquiry or investigation, (i) orders for the purchase or sale of securities and other property on margin, if I have elected to have a margin account, or otherwise, and (ii) any other instructions concerning my Accounts. Robinhood Securities shall look solely to Robinhood Financial unless otherwise directed by Robinhood Financial, and not to Me, with respect to any such orders or instructions; except that I understand that Robinhood Securities will deliver confirmations, statements, and all written or other notices with respect to My Account directly to Me with copies to Robinhood Financial, and that Robinhood Securities will look directly to Me or Robinhood Financial for delivery of margin, payment, or securities. I agree to hold Robinhood Securities harmless from and against any Losses arising in connection with the delivery or receipt of any such communication(s), provided Robinhood Securities has acted in accordance with the above. The foregoing shall be effective as to My Account(s) until written notice to the contrary is received from Me by Robinhood Securities or Robinhood Financial.

7. Review of Confirmations and Statements.

I agree that it is My responsibility to review order execution confirmations and statements of My Account(s) promptly upon receipt. I agree to receive all confirmations and account statements, as well as all tax related documents, in electronic format. I understand that account statements will evidence all activity in My Account for the stated period, including securities transactions, cash balances, credits to My Account and all fees paid from My Account. Notwithstanding Section 36.B, confirmations will be considered binding on Me unless I notify Robinhood of any objections within two (2) calendar days from the date confirmations are sent. Account statements will be considered binding on Me unless I notify you

of any objections within ten (10) calendar days after My Account statements are posted online. Such objection may be oral or in writing, but any oral objection must be immediately confirmed in writing. In all cases, Robinhood reserves the right to determine the validity of My objection. If I object to a transaction for any reason, I understand and agree that I am obligated to take action to limit any losses that may result from such transaction or I will bear sole responsibility for any losses relating to the transaction, even if My objection to the transaction is ultimately determined to be valid. Nothing in this Section 7 shall limit My responsibilities as described in Section 5 of this Agreement.

8. Important Information Needed to Open a New Account.

To help the government better detect the funding of terrorism and money laundering activities, federal law requires all financial institutions to obtain, verify, and record information that identifies each person who opens an account. Therefore, I understand that when I open My Account Robinhood will ask for My name, address, date of birth and other identifying information. Robinhood may also ask copies of My driver's license, passport or other identifying documents. I understand that Robinhood may take steps to verify the accuracy of the information I provide to Robinhood in My Account application or otherwise, and that Robinhood may restrict My access to My Account pending such verification. I will provide prompt notification to Robinhood of any changes in the information including My name, address, e-mail address and telephone number.

I further understand that if I attempt to access My Account from a jurisdiction subject to certain U.S. sanctions or I am ordinarily resident in such a jurisdiction, or if you reasonably believe that I am attempting such access or have become a resident in such a jurisdiction, you may restrict My Account, and any pending orders may be cancelled. If this happens, I understand that I should contact help@robinhood.com, and that I may be asked to provide supplemental information as part of this process. I further understand that I must close My Account before establishing residency in any jurisdiction subject to U.S. sanctions.

9. Telephone Conversations and Electronic Communications.

I understand and agree that Robinhood may record and monitor any telephone or electronic communications with Me. Unless otherwise agreed in writing in advance, Robinhood does not consent to the recording of telephone conversations by any third party or Me. I acknowledge and understand that not all telephone or electronic communications are recorded by Robinhood, and Robinhood does not guarantee that recordings of any particular telephone or electronic communications will be retained or capable of being retrieved.

10. Oral Authorization.

I agree that Robinhood shall be entitled to act upon any oral instructions given by Me so long as Robinhood reasonably believes such instruction was actually given by Me or My authorized agent.

11. Applicable Laws and Regulations.

All transactions in My Account will be subject to federal securities laws and regulations, the applicable laws and regulations of any state or jurisdiction in which Robinhood Financial is registered, the rules of any applicable self-regulatory organization of which Robinhood Financial is a member and the rules, regulations, customs and usages of the exchange or market, and its clearing house, if any, where the transactions are executed. In no event will Robinhood Financial be obligated to effect any transaction it believes would violate any federal or state law, rule or regulation or the rules or regulations of any regulatory or self-regulatory organization.

12. Erroneous Distributions.

I agree to promptly return to Robinhood any assets erroneously distributed to Me. In the event that I sell a security prior to its ex-dividend/distribution date, and I receive the related cash/stock dividend or distribution in error, I direct Robinhood on My behalf to pay such dividend/distribution to the entitled purchaser of the securities I sold, and I guarantee to promptly reimburse Robinhood for, or deliver to Robinhood, said dividend or distribution.

13. Market Volatility; Market Orders; Limit Orders; and Queued Orders.

I understand that, whether I place a market or limit order, I will receive the price at which My order is executed in the marketplace, subject to any clarification stated below. Particularly during periods of high volume, illiquidity, fast movement or volatility in the marketplace, the execution price received may differ from the quote provided on entry of an order, and I may receive partial executions of an order at different prices. I understand that Robinhood Financial is not liable for any price fluctuations. I also understand that price quotes generally are for only a small number of shares as specified by the marketplace, and larger orders are relatively more likely to receive executions at prices that vary from the quotes or in multiple lots at different prices.

I understand that Robinhood Financial does not currently support sending traditional market buy orders and that Robinhood Financial collars all market buy orders (other than dollar-based buy orders executed during market hours) by using limit orders priced up to 5% above the last trade price. This is not the case for market sell orders. I further understand that when I send a market buy order through Robinhood Financial's trading system, the trading system generates a limit order up to 5% above the last trade price, and then Robinhood Financial sends the order to an executing broker. I understand that Robinhood Financial's implementation of market buy orders may vary depending on prices of instruments, market conditions, and other factors. I further understand that Robinhood Financial uses the following rounding mechanics with respect to buy orders: the last trade price is (i) multiplied by 1.05; (ii) rounded down to two decimal places if the last trade price is over \$1.00; otherwise, rounded down to four decimal places; and (iii) for securities included in the SEC's Tick Size Pilot Program, rounded down to the nearest \$.05 increment. I understand that securities may open for trading at prices substantially higher or lower than the previous closing price or the anticipated price. If I place a market order (whether during normal market hours or when the market is closed), I agree to pay or receive the prevailing market price at the time My market order is executed, subject to the specific clarification above relating to buy orders. I understand that the price I pay may be significantly higher or lower than anticipated at the time I placed the order. To avoid buying a security at a higher price and possibly exceeding My purchasing power, I understand My option to enter a limit order. I also understand that limit orders may not be executed at any particular time, or at all, if there is not sufficient trading at or better than the limit price I specify, and are only good until the end of the trading day in which they are entered. The Website contains further information regarding order types and limitations, which I agree to read and understand before placing such orders.

As a customer of Robinhood Financial, I understand that after the market has closed for the day, I have the ability to place in a queue order requests to be executed the following day upon the opening of the market ("Queued Order"). I understand that My Queued Order request is prioritized based on the order in which it is received by Robinhood Financial, and that the Queued Order requests are sent out for execution shortly after the market opens on the next day of trading. I further understand that each Queued Order request is sent out per customer and per security as Robinhood Financial market orders (described above), and that they are not aggregated.

A limit order may be "good till cancelled" which means the order remains valid until (A) it is executed; (B) I cancel the order; (C) approximately 90 days from when the order is placed; or (D) the contract to which it relates is closed. I understand that Robinhood will cancel a "good till cancelled" order at the end of every trading day (on the exchange on which the instrument to which the contract relates is traded) and place such order again at the start of the following trading day. This process will be repeated every day for as long as the "good till cancelled" order remains valid. I further agree that any "good till cancelled" orders I place should be treated as "do not reduce" orders.

14. Bulletin Board/Pink Sheet Stocks.

Bulletin board, pink sheet and other thinly-traded securities (collectively "bulletin board stocks") present particular trading risks, in part because they are relatively less liquid and more volatile than actively traded securities listed on a major exchange. I understand that bulletin board stocks may be subject to different trading rules and systems than other securities and that I may encounter significant delays in executions, reports of executions, and updating of quotations in trading bulletin board stocks. Robinhood Financial in its sole discretion may require limit orders on certain bulletin board stock transactions.

15. Research and Internet Links.

News, research, links to outside websites, and other information accessible through the App or Website ("Content") may be prepared by independent external providers not affiliated with Robinhood Financial,

including Morningstar, Inc. (all such providers, the "Providers"). I agree not to distribute, reproduce, sell, or otherwise commercially use the Content in any manner. I understand that Robinhood may terminate My access to the Content. I understand that none of the Content is a recommendation by Robinhood to buy or sell any securities or to engage in any investment strategy.

16. Restrictions on Trading.

I understand that Robinhood may, in its discretion, prohibit or restrict the trading of securities, or the substitution of securities, in any of My Accounts. I understand that Robinhood may execute all orders by Me on any exchange or market, unless I specifically instruct Robinhood to the contrary. In the event of a breach or default by Me under this Agreement, Robinhood shall have all rights and remedies available to a secured creditor under all applicable laws and in addition to the rights and remedies provided herein. I understand that Robinhood may at any time, at its sole discretion and without prior notice to Me: (i) prohibit or restrict My access to the use of the App or the Website or related services and My ability to trade, (ii) refuse to accept any of My transactions, (iii) refuse to execute any of My transactions, or (iv) terminate My Account. The closing of My Account will not affect the rights or obligations of either party incurred prior to the date My Account is closed.

Further, Robinhood will not tolerate any foul or abusive language, physical violence, threatening behavior, or other inappropriate conduct directed toward Robinhood, its Affiliates' officers, employees, contractors or customers. If I engage in any such behavior, as determined by Robinhood in its sole discretion, I agree that Robinhood is authorized to: (i) liquidate any securities, instruments or other property in My Account, (ii) send Me the proceeds, and (iii) close My account. Robinhood will not be responsible for any Losses caused by the liquidation of securities, instruments or other property pursuant to this paragraph, including any tax liabilities.

17. Waiver; Limitation of Liability; Indemnification.

I agree that My use of the App or the Website or any other service provided by Robinhood Financial or its Affiliates is at My sole risk. The Robinhood Financial service (including the App, the Website, the provision of Market Data, Information, Content, or any other information provided by Robinhood Financial, any of its Affiliates, or any third-party content provider or market data provider) is provided on an "as is," "as available" basis without warranties of any kind, either express or implied, statutory (including without limitation, timeliness, truthfulness, sequence, completeness, accuracy, freedom from interruption), implied warranties arising from trade usage, course of dealing, course of performance, or the implied warranties of merchantability or fitness for a particular purpose or application, other than those warranties which are implied by and incapable of exclusion, restriction or modification under the laws applicable to this Agreement.

Although considerable effort is expended to make the Website, App and other operational and communications channels available around the clock, Robinhood does not warrant that these channels will be available and error free every minute of the day. I agree that Robinhood will not be responsible for temporary interruptions in service due to maintenance, Website or App changes, or failures, nor shall Robinhood be liable for extended interruptions due to failures beyond our control, including but not limited to the failure of interconnecting and operating systems, computer viruses, forces of nature, labor disputes and armed conflicts.

EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, I UNDERSTAND AND AGREE THAT ROBINHOOD, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS, AND THE PROVIDERS (COLLECTIVELY THE "ROBINHOOD PARTIES") WILL NOT BE LIABLE TO ME OR TO THIRD PARTIES UNDER ANY CIRCUMSTANCES, OR HAVE ANY RESPONSIBILITY WHATSOEVER, FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES (INCLUDING TRADING LOSSES, DAMAGES, LOSS OF PROFITS, REVENUE, OR GOODWILL) THAT I MAY INCUR IN CONNECTION WITH MY USE OF THE SERVICE PROVIDED BY ROBINHOOD OR ANY OF ITS AFFILIATES UNDER THIS AGREEMENT (INCLUDING MY USE OF THE APP, THE WEBSITE, THE MARKET DATA, THE INFORMATION, OR THE CONTENT), BREACH OF THIS AGREEMENT, OR ANY TERMINATION OF THIS AGREEMENT, WHETHER SUCH LIABILITY IS ASSERTED ON THE BASIS OF CONTRACT, TORT (INCLUDING NEGLIGENCE), OR OTHERWISE, AND WHETHER OR NOT FORESEEABLE, EVEN IF ANY ROBINHOOD PARTY HAS BEEN ADVISED OR WAS AWARE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. THE ROBINHOOD PARTIES SHALL NOT BE LIABLE BY REASON OF DELAYS OR INTERRUPTIONS OF THE SERVICE OR TRANSMISSIONS, OR FAILURES OF PERFORMANCE OF THEIR RESPECTIVE SYSTEMS,

REGARDLESS OF CAUSE, INCLUDING THOSE CAUSED BY GOVERNMENTAL OR REGULATORY ACTION, THE ACTION OF ANY EXCHANGE OR OTHER SELF REGULATORY ORGANIZATION, OR THOSE CAUSED BY SOFTWARE OR HARDWARE MALFUNCTIONS.

Except as otherwise provided by law, Robinhood or any of its affiliates or respective partners, officers, directors, employees or agents (collectively, "Indemnified Parties") shall not be liable for any expenses, losses, costs, damages, liabilities, demands, debts, obligations, penalties, charges, claims, causes of action, penalties, fines and taxes of any kind or nature (including legal expenses and attorneys' fees) (whether known or unknown, absolute or contingent, liquidated or unliquidated, direct or indirect, due or to become due, accrued or not accrued, asserted or unasserted, related or not related to a third party claim, or otherwise) (collectively, "Losses") by or with respect to any matters pertaining to My Account, except to the extent that such Losses are actual Losses and are determined by a court of competent jurisdiction or an arbitration panel in a final non-appealable judgment or order to have resulted solely from Robinhood's or any of its affiliates' gross negligence or intentional misconduct. In addition, I agree that the Indemnified Parties shall have no liability for, and I agree to indemnify, defend and hold harmless the Indemnified Parties from all Losses that result from: (i) any noncompliance by Me with any of the terms and conditions of this Agreement; (ii) any third-party actions related to My receipt and use of any Information, Market Data, Content, market analysis, other third-party content, or other such information obtained on the App or Website, whether authorized or unauthorized under this Agreement; (iii) any third-party actions related to My use of the App or the Website; (iv) My or My agent's misrepresentation or alleged misrepresentation, or act or omission; (v) Indemnified Parties following My or My agent's directions or instructions, or failing to follow My or My agent's unlawful or unreasonable directions or instructions; (vi) any activities or services of the Indemnified Parties in connection with My Account (including any technology services, reporting, trading, research or capital introduction services); or (vii) the failure by any person not controlled by the Indemnified Parties and their affiliates to perform any obligations to Me. Further, if I authorize or allow third parties to gain access to Robinhood's services, including My Accounts, I will indemnify, defend and hold harmless the Indemnified Parties against any Losses arising out of claims or suits by such third parties based upon or relating to such access and use. Robinhood does not warrant against loss of use or any direct, indirect or consequential damages or Losses to Me caused by My assent, expressed or implied, to a third party accessing My Account or information, including access provided through any other third party systems or sites.

I consent to the use of automated systems or service bureaus by Robinhood and its respective affiliates in conjunction with My Account, including automated order entry and execution, record keeping, reporting and account reconciliation and risk management systems (collectively "Automated Systems"). I understand that the use of Automated Systems entails risks, such as interruption or delays of service, errors or omissions in the information provided, system failure and errors in the design or functioning of such Automated Systems (collectively, a "System Failure") that could cause substantial damage, expense, or liability to Me. I understand and agree that Indemnified Parties will have no liability whatsoever for any of my Losses arising out of or relating to a System Failure.

I also agree that Indemnified Parties will have no responsibility or liability to Me in connection with the performance or non-performance by any exchange, clearing organization, market data provider, or other third party (including other broker-dealers and clearing firms, and banks) or any of their respective agents or affiliates, of its or their obligations relative to any securities. I agree that Indemnified Parties will have no liability, to Me or to third parties, or responsibility whatsoever for: (i) any Losses resulting from a cause over which Indemnified Parties do not have direct control, including the failure of mechanical equipment, unauthorized access, theft, operator errors, government restrictions, force majeure (as defined in this Agreement), market data availability or quality, exchange rulings or suspension of trading; and (ii) any special, indirect, incidental, consequential, punitive or exemplary damages (including lost profits, trading losses and damages) that I may incur in connection with My use of the App, the Website, Robinhood's brokerage, and other services provided by Indemnified Parties under this Agreement.

18. Mutual Fund Transactions.

In the event that I purchase or hold a mutual fund, I agree to read and understand the terms of its prospectus. I understand that certain mutual funds reserve the right to change their purchasing, switching or redemption procedures or suspend or postpone redemptions under certain market conditions. I further understand that any mutual fund order entered with Robinhood is placed by Robinhood on a best efforts basis as prescribed and recognized by the individual fund, and that Robinhood is not responsible for unexecuted orders due to the failure of any communication system. I agree to be fully responsible for the information contained within the mutual fund prospectus and to hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers and employees harmless

for any deficiencies contained therein. I authorize Robinhood to act as My agent in the purchase and redemption of fund shares.

19. Exchange Traded Funds.

I understand that I should consider the investment objectives and unique risk profile of Exchange Traded Funds ("ETFs") carefully before investing, and that ETFs are subject to risks similar to those of other diversified portfolios. I further understand that leveraged and inverse ETFs may not be suitable for all investors and may increase exposure to volatility through the use of leverage, short sales of securities, derivatives, and other complex investment strategies, and that although ETFs are designed to provide investment results that generally correspond to the performance of their respective underlying indices, they may not be able to exactly replicate the performance of the indices because of expenses and other factors. I further understand that ETFs are required to distribute portfolio gains to shareholders at year end, which may be generated by portfolio rebalancing or the need to meet diversification requirements, and that ETF trading will also generate tax consequences. I understand that I can obtain prospectuses from issuers or their third party agents who distribute and make prospectuses available for review. Additional regulatory guidance on ETFs can be found [here](#).

20. Effect of Attachment or Sequestration of Accounts.

Robinhood shall not be liable for refusing to obey any orders given by or for Me with respect to any of My Accounts that has or have been subject to an attachment or sequestration in any legal proceeding against Me, and Robinhood shall be under no obligation to contest the validity of any such attachment or sequestration.

21. Event of Death.

It is agreed that in the event of My death, the representative of My estate or the survivor or survivors shall immediately give Robinhood written notice thereof, and Robinhood may, before or after receiving such notice, take such proceedings, require such papers and inheritance or estate tax waivers, retain such portion of, or restrict transactions in the Account as Robinhood may deem advisable to protect Robinhood against any tax, liability, penalty or loss under any present or future laws or otherwise. Notwithstanding the above, in the event of My death, all open orders shall be canceled, but Robinhood shall not be responsible for any action taken on such orders prior to the actual receipt of notice of death. Further, Robinhood may in its discretion close out any or all of the Accounts without awaiting the appointment of a personal representative for My estate and without demand upon or notice to any such personal representative. The estate of any of the Account holders who have died shall be liable and each survivor shall continue to be liable, jointly and severally, to Robinhood for any net debit balance or loss in said account in any way resulting from the completion of transactions initiated prior to the receipt by Robinhood of the written notice of the death of the decedent or incurred in the liquidation of the Account or the adjustment of the interests of the respective parties, and for all other obligations pursuant to this Agreement. Such notice shall not affect Robinhood's rights under this Agreement to take any action that Robinhood could have taken if I had not died.

22. Tax Reporting; Tax Withholding.

The proceeds of sale transactions and dividends paid will be reported to the Internal Revenue Service ("IRS") in accordance with applicable law.

A. U.S. Persons.

This subsection is applicable if I am a U.S. person. Under penalties of perjury, I certify that the taxpayer identification number that I have provided or will provide to Robinhood (including any taxpayer identification number on any Form W-9 that I have provided or will provide to Robinhood) is My correct taxpayer identification number. I certify that I am not subject to backup withholding and I am a United States Person (including a U.S. resident alien) as such term is defined in section 7701(a)(30) of the Internal Revenue Code of 1986, as amended ("U.S. Person"). If a correct Taxpayer Identification Number is not provided Robinhood Financial, I understand I may be subject to backup withholding tax at the appropriate rate on all dividends, interest and gross proceeds paid to me. Backup withholding taxes

are sent to the IRS and cannot be refunded by Robinhood Financial. I further understand that if I waive tax withholding and fail to pay sufficient estimated taxes to the IRS, I may be subject to tax penalties.

B. Non-U.S. Persons.

This subsection is applicable if I am not a U.S. Person. I certify that I fully understand all the information on any Form W-8BEN that I have submitted or will submit to Robinhood. Under penalties of perjury, I declare that (i) I have examined all the information (including all the information in the English language) on any Form W-8BEN that I have submitted or will submit to Robinhood and (ii) to the best of My knowledge and belief all such information is true, correct, and complete. I authorize Robinhood to provide any such Form W-8BEN to Robinhood Securities or any withholding agent that has control, receipt, or custody of the income of which I am the beneficial owner or any withholding agent that can disburse or make payments of the income of which I am the beneficial owner. I agree that I will submit a new Form W-8BEN to Robinhood within 30 calendar days if any certification made on any previously submitted Form W-8BEN becomes incorrect. I understand that the IRS does not require My consent to any provisions of such Form W-8BEN other than the certifications required to establish My status as a non-U.S. Person and, if applicable, obtain a reduced rate of withholding.

23. Equity Orders and Payment For Order Flow.

SEC rules require all registered broker-dealers to disclose their policies regarding any "payment for order flow" arrangement in connection with the routing of customer orders. "Payment for order flow" includes, among other things, any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker-dealer from any broker-dealer in return for directing orders. I understand that Robinhood transmits customer orders for execution to various exchanges or market centers based on a number of factors. These include: size of order, trading characteristics of the security, favorable execution prices (including the opportunity for price improvement), access to reliable market data, availability of efficient automated transaction processing and reduced execution costs through price concessions from the market centers. I further understand that certain of the exchanges or market centers may execute orders at prices superior to the publicly quoted market in accordance with their rules or practices and that while a customer may specify that an order be directed to a particular market center for execution, the order-routing policies, taking into consideration all of the factors listed above, are designed to result in favorable transaction processing for customers. The nature and source of any payments or credits received by Robinhood in connection with any specific transactions will be furnished upon written request.

24. Free Credit Balances and Sweep Service.

If I enroll in Robinhood Financial Cash Management ("Cash Management"), I understand that I am electing to participate in the Insured Network Deposit ("IND") sweep service (the "Sweep Service"). Under the Sweep Service, free credit balances in My Account will be deposited into interest-bearing accounts at one or more banks ("Participating Depository Institutions"), in accordance with the Insured Network Deposit Sweep Program Disclosures ("IND Disclosures") available on the Website and in the App. By enrolling in Cash Management, I represent and warrant that I have reviewed the IND Disclosures and agree to the terms set forth in the IND Disclosures. If I am not enrolled in Cash Management, free credit balances in My Account will remain in My Account, will not earn interest and will not be eligible for FDIC insurance, but will be eligible for SIPC protection as described in the IND Disclosures.

25. Fees and Charges.

I understand that Robinhood does not charge fees or commissions for executing buy and sell orders. However, I understand that other fees may apply. The current fees are included in the fee schedule available in the App and on the Website. I agree to pay any such fees at the then-prevailing rate. I acknowledge that the prevailing fees may change and that change may occur without notice. I agree to be bound by such changes once they are posted in the fee schedule available in the App and on the Website. I also agree to pay all applicable federal, state, local, and foreign taxes. I authorize Robinhood Financial to automatically debit My Account for any such fees and taxes. I also agree to pay such expenses incurred by Robinhood in connection with collection of any unpaid balance due on My Accounts including attorney's fees allowed by law.

26. ACH Transactions.

A. Debit Transactions.

Robinhood will initiate an ACH debit at My request to debit funds from an account that I own at another financial institution ("External Account") for deposit into My Account. I understand that in order for Robinhood to initiate an ACH debit, the financial institution holding my External Account must participate in the ACH system. I understand that for the ACH transfers to be established, at least one common name must match exactly between My Account and My External Account. I authorize Robinhood to take such steps as it deems appropriate to verify my ownership of External Account, including by telling the bank at which such External Account is held that I have authorized and consented to such bank disclosing to Robinhood any information that Robinhood may request about Me or My External Account. I also agree to cooperate with Robinhood's verification of my ownership of such External Account by promptly providing any identification and/or other documentation that Robinhood may request regarding such External Account. I represent and warrant that there are sufficient funds in My External Account to cover the amount of the deposit to My Account. Robinhood will initiate the ACH debit to My External Account on the Business Day or next Business Day after I request the transfer. A transfer request will be deemed to have been made on a Business Day if it is received by Robinhood by 7:00 p.m. (Eastern Time) on such Business Day; if received after that time, the transfer request will be deemed to have been made on the next Business Day.

Within 60 days of the date of My ACH deposit, My funds may only be withdrawn to the External Account from which such funds were debited.

I understand that an ACH debit transfer may be reversed or rejected if: (A) there are insufficient funds in My External Account; (B) there is a duplicate transaction; (C) the transaction is denied by the bank holding My External Account; or (D) My External Account does not support ACH transfers. I acknowledge that in the event of an ACH reversal, I will incur a fee. Before initiating making an ACH debit transfer, I agree to check Robinhood Financial's most recent [Commissions and Fees Schedule](#). I agree that I am solely liable and responsible for any ACH reversal fees that I incur.

B. Credit Transactions.

Robinhood will initiate an ACH credit at My request to transfer funds from My Account to a recipient that I designate. I agree that I will have sufficient Available Funds in My Account to cover the amount of any ACH credit that I ask Robinhood to initiate. Robinhood will debit the amount of such request from My Account on the Business Day or next Business Day after I request the transfer. A transfer request will be deemed to have been made on a Business Day if it is received by Robinhood on such Business Day; if received after that time, the transfer request will be deemed to have been made on the next Business Day.

I agree that Robinhood may use any means which Robinhood, in its sole discretion, considers suitable to execute my ACH credit transfers.

27. Fractional Shares.

I acknowledge and understand that Robinhood rounds all holdings of fractional shares to the sixth decimal place, the value of fractional shares to the nearest cent, and any dividends paid on fractional shares to the nearest cent. I further understand that Robinhood will not accept dollar-based purchases or sales of less than \$1.00 and that I will receive proceeds from the sale of any whole or fractional shares rounded to the nearest cent.

I understand that if I enter repeated fractional orders with individual notional values of less than \$0.01, my account may be restricted.

I understand that a vendor employed by Robinhood will aggregate any proxy votes for fractional shares of Robinhood's customers with all votes reported to the issuer or issuer's designated vote tabulator and that, while Robinhood's vendor will report such proxy votes on fractional shares, the issuer or tabulator may not fully count such votes.

I understand that Robinhood will execute all orders that include fractional shares ("Fractional Orders") on a principal basis. To the extent that Robinhood must purchase or sell shares in the market to fulfill any part of my Fractional Order, the fractional component of that order will be fulfilled at the execution price Robinhood received for the corresponding whole shares. To the extent that Robinhood fulfills my Fractional Order for national exchange-listed securities ("NMS Securities") entirely out of its inventory and without purchasing or selling shares in the market ("Inventory Fulfillment"), Robinhood will endeavor to price such shares or fractional shares at a price between the National Best Bid and Offer ("NBBO") at the time of the order for orders made during market hours, or, for such orders made during extended hours trading (9:00-9:30 a.m. and 4:00-6:00 p.m. Eastern), Robinhood will endeavor to price such orders between the best bid and offer at the time of the order, as reported by an external vendor ("Vendor BBO"). For Inventory Fulfillment of Fractional Orders for securities not listed on a national exchange ("Non-NMS Securities") made during market hours as well as extended hours trading, Robinhood will endeavor to price such orders between Vendor BBO.

All non-market orders placed outside market hours and extended hours trading are queued and fulfilled either at or near the beginning of extended hours trading (9:00 a.m. Eastern) or at or near market open (9:30 a.m. Eastern), according to my instructions. All market orders placed outside market hours and extended hours trading are queued and fulfilled at or near market open. To the extent that I trade outside of market hours, these trades are subject to Robinhood's [Extended Hours Trading Disclosure](#).

I understand Robinhood only accepts market orders for fractional shares at this time and does not permit limit orders for fractional shares. I understand that fractional shares within My Account (i) are unrecognized, unmarketable, and illiquid outside the Robinhood platform, (ii) are not transferrable in-kind, and (iii) may only be liquidated and the proceeds transferred out via a wire transfer. I acknowledge that, subject to applicable requirements, Robinhood may report holdings and transactions in My Account in terms of either U.S. Dollars, shares, or both.

I agree that my fractional share holdings shall be treated as a "financial asset" under Article 8 of the Uniform Commercial Code.

28. Phone Calls.

You agree that, by providing information Robinhood requests, Robinhood and its third party services providers may contact you via mail, phone or email.

Specifically, if you provide us with a phone number: (a) you represent and warrant that the number you provide is your phone number, and you will promptly notify us if that changes, and (b) you consent to receive calls (including text messages) made to that phone number that may be prerecorded and/or completed with an automatic telephone dialing system (automated calls) for purposes including but not limited to providing account-related communications (including security alerts), investigating or preventing fraud, and/or collecting amounts owed to Robinhood. We may share your number with third parties that provide services to us in connection with any of the foregoing purposes, including but not limited to debt collectors. You understand that message, telephone minute and data rates may apply for calls made to a mobile phone number. You may opt out at any time from receiving these types of calls orally or in writing to limitsharing@robinhood.com. Please note, even if you opt out, we may still make other calls as permitted by law.

You consent to our recording of phone calls, including calls we make to you or that we receive from you.

29. Dividend Reinvestment Program.

Except as expressly stated otherwise, the provisions of this Section 29 will only apply if I am enrolled in Robinhood's Dividend Reinvestment Program ("DRIP"). My enrollment in the DRIP will be activated within three business days after I notify Robinhood of my intention to enroll an eligible security through the App. "Eligible security" means all shares available for fractional investing through Robinhood. I understand that in order to be eligible for dividend reinvestment, the securities must be held in My Account.

I may specify individual securities or have all Eligible securities in My Account enrolled for dividend reinvestment. If I choose to reinvest dividends from all Eligible securities, I understand that individual securities could subsequently no longer be Eligible securities at Robinhood's discretion or under applicable law. In those cases, only those securities will be discontinued from the DRIP. If I specify individual securities, I may add additional Eligible securities to the DRIP at any time if I hold a position

in those securities. Enrollment with respect to these additional Eligible securities will be effective within three business days after Robinhood receives notification from me through the App. If I maintain open orders for securities I do not already hold, I may not enroll those securities for dividend reinvestment until my open orders are executed. If my entire Account is set up for dividend reinvestment, any eligible securities I purchase in the future will automatically participate in the DRIP.

All eligible cash distributions will be reinvested on all securities I have selected in the DRIP, provided that I owned the securities on the record date for determining shareholders eligible to receive dividends, and continue to hold the securities through payable date. "Eligible cash distributions" means most cash distributions, including regular and optional dividends, cash-in-lieu payments, and capital gains distributions. Special dividends, late ex-date, liquidation, and miscellaneous payments may not be eligible distributions. Optional dividends will be processed in accordance with dividend reinvestment instructions. If I have a margin account, Robinhood is permitted to borrow a dividend paying stock in the normal course of business and, as a result, in such situations instead of a dividend payment I may receive a cash in lieu payment. If I receive a cash in lieu payment, I authorize Robinhood to treat such payment as if it was not "in lieu" and reinvest it accordingly.

Robinhood will credit My Account upon completion of the dividend reinvestment. Robinhood will reinvest dividends on the business day following receipt of funds. In the rare instance in which Robinhood is unable to reinvest all dividends on the business day following receipt, it will reinvest the remaining funds as soon as reasonably possible thereafter, which may take up to five business days. I will not have use of the funds prior to reinvestment.

I understand that my participation in the DRIP is voluntary and that Robinhood has not made any recommendation that I should participate. I further understand that Robinhood is not recommending or offering any advice regarding the purchase of any security included as an Eligible security in the DRIP. I further understand that dividend reinvestment does not assure profits on my investments, nor does it protect against losses in declining markets.

I may terminate my participation in the DRIP, or the enrollment of individual securities in the DRIP, at any time by giving notice through the App. Termination will take effect prior to the next Eligible cash distribution provided my notice to terminate was received at least three business days prior to the record date of that distribution. I understand that my notice to terminate my participation in the DRIP will not affect any obligations that may result from transactions initiated prior to Robinhood's receipt and processing of my notice.

If I participate in the DRIP, I understand Robinhood will reinvest the dividends of a particular stock at or near the opening price on the trading day following receipt of the dividend. Robinhood will combine Eligible cash distributions from My Account with those from other Robinhood clients requesting dividend reinvestment in the same security and use these combined funds to purchase securities on my behalf and on behalf of these other clients. If the combined reinvested funds do not total the purchase price of at least one share, the distribution will be invested in fractional shares. On that same day, Robinhood will credit My Account with that number of shares, including fractional shares, equal to my Eligible cash distribution divided by the purchase price per share. Robinhood does not intend to charge a fee for transactions executed pursuant to the DRIP.

Dividend reinvestment may result in my owning interests in fractional shares of a security. I will be entitled to receive future dividend payments on my fractional shares, although other corporate actions may result in allocation of only whole shares and cash in lieu of fractions as determined by the issuer. In mandatory corporate reorganizations, my partial interest will be handled according to the specific terms of the reorganization. In voluntary corporate reorganizations, Robinhood will act on my instructions with respect only to my whole shares.

Because fractional share positions cannot be transferred, reorganized, or issued in certificate form, my partial interest will be liquidated, without commission charges to me, at prevailing market prices in the event My Account is transferred or closed, the stock is reorganized, or stock certificates are ordered out of My Account. The timing of such liquidations will be at the discretion of Robinhood.

Reinvestment of dividends may result in my owning a fractional share position in securities that are callable in part. In the event of a call, fractional shares to be called will be determined through a random selection process. The probability of my fractional share holdings being called will be proportional to the holdings of all Robinhood clients who own a fractional share position in that security. Prior to the publication date of such a call, I have the right to withdraw from My Account cash in lieu of my uncalled, fully paid partial holdings. Once a call is announced, however, all shares, whether registered or held in

street name, participate in the random selection process. If my fractional shares are selected and I no longer hold the shares that I held on the publication date of the call, I will be responsible for covering those shares.

30. Cash Management Services.

Except as expressly stated otherwise, the provisions of this Section 30 will only apply if I am enrolled in Cash Management.

A. General.

I understand and agree that by enrolling in Cash Management, I may apply for a Robinhood-branded debit card issued by the bank identified in My Robinhood Debit Card Agreement ("Card"). I further understand and agree that by using My Card, exercising My electronic fund transfer ("EFT") privileges offered in connection with My Account, and/or by successfully completing a request using Pay by Check, I authorize Robinhood to debit My Account immediately whenever an electronic draft or Card transaction is presented for payment on My behalf, when an EFT transaction is effected, when a Pay by Check request is successfully completed on My Account and/or when any fee or charge is due (collectively "Payment" or "Payments"). I further understand and agree that when I request a Payment or withdrawal or instruct Robinhood to make a purchase of securities from My Account, Robinhood is authorized to place a block on the amount of the transaction ("Blocked Amounts") prior to the settlement date of the Payment, withdrawal or trade, and that the Blocked Amounts will not be available for use for additional Payments or the purchase of securities. I agree to maintain Available Funds sufficient to pay for Payments made by Me or any Authorized Card User (as defined below) and to pay for any securities trades and for interest on any margin loans and other transaction fees. For this purpose, "Available Funds" in My Account will fluctuate daily and means the sum of (i) free credit balances, (ii) deposits to Participating Depository Institutions through the Sweep Service, and (iii) available margin loan value if My Account has margin privileges, minus (x) uncleared funds, (y) Blocked Amounts, and (z) deposits subject to a hold. The loan value of eligible securities for the purpose of margin is subject to regulatory requirements and Robinhood credit policies then in effect.

B. Payments and Withdrawals.

I agree that any Payments that I make from My Account will be lawful. I agree that Payments will be deducted from the Available Funds in My Account in the following order: first, from free credit balances; second, by withdrawal of funds deposited to Participating Depository Institutions as part of the Sweep Service; and third, if My Account has margin privileges, from margin loans on the eligible securities in My margin Account. Robinhood will debit My Account only up to an amount equal to the Available Funds. I understand and agree that (i) if there are insufficient Available Funds in My Account to cover Payments when they become due, Robinhood has no obligation to make such Payments, and (ii) Robinhood has no obligation to make partial Payments. Robinhood will not charge a fee with respect to any declined Payment for which there were insufficient Available Funds. I acknowledge and agree, however, that Robinhood will not be responsible for any costs or losses that I may incur (including fees, costs, charges, attorneys' fees, investment losses, claims, demands, or liability resulting from any litigation or other actions) as a result of Robinhood's decision to decline any Payment or withdrawal or other transaction because My Account has insufficient Available Funds.

I understand that if a Payment is funded by a margin loan, I will incur interest until the margin loan is repaid.

I agree that if my Available Funds at any time falls below zero, Robinhood may suspend my ability to make Payments and terminate My Card. If this occurs, I agree to immediately pay all amounts owed to Robinhood, including any purchases on My Card which will be immediately charged to My Account.

I acknowledge and agree that Robinhood reserves the right to decline any Payments at any time for any reason with or without notice to Me. If Robinhood decides to take such action, I understand and agree that I am responsible for any pending debits, which will be processed and deducted from My Account.

I understand that transactions will post to My Account in any order determined by Robinhood and that Robinhood may change that order without prior notice to Me. Robinhood will comply with requirements of applicable law regarding the order of posting transactions.

C. Limitation of Liability.

I agree that, subject to any limitations imposed by applicable law, and except as otherwise set forth in this Agreement or in the disclosures contained in the Robinhood Debit Card Agreement, which has been provided to Me or made available to me in connection with the opening of My Account, Robinhood, Robinhood's agents, any processing bank, and the Card issuer will not be liable for any loss I incur in connection with My Account and any Payments or other features of My Account unless Robinhood is grossly negligent in fulfilling this Agreement. In no event will Robinhood, Robinhood's agents, any processing bank, and the Card issuer shall not be liable for consequential, special or indirect damages or losses unless applicable law requires otherwise. I also agree that liability regarding online services or use of the App is further limited by the Robinhood Terms and Conditions, available at <https://about.robinhood.com/legal/>. To the extent I utilize online services or the App I acknowledge that I am bound by such Robinhood Terms and Conditions.

D. Debit Cards.

I understand and agree that My use of the Card is subject to the terms, conditions and disclosures set forth in the Robinhood Debit Card Agreement, which has been provided to Me in connection with the opening of My Account and which I may access on the Website.

I understand and agree that I cannot request a Card for another person to use. I agree, however, that if I permit another person to have access to use My Card or Card number (an "Authorized Card User"), I am authorizing all Card transactions by such person and I agree that there are no limits to my authorization. I accept all liability with respect to the Card transactions effected by Me and any Authorized Card Users. I further agree that I may terminate the authority of an Authorized Card User only by contacting help@robinhood.com, to cancel my Card. I agree that the cancellation of My Card is effective only after Robinhood has a reasonable period to act on My notice.

If My Card is cancelled, I agree to destroy, or if requested by Robinhood, return the Card to Robinhood. I acknowledge that I will be responsible for any Card transactions that are processed because of My failure to destroy or return the Card following cancellation.

If My Account includes margin privileges, I agree that transactions that exceed My free credit balances and deposits in the Sweep Service may result in margin credit being extended to My Account, for which I will be charged interest. I agree to review the Margin Disclosure Statement, which is available at <https://about.robinhood.com/legal/>.

E. Deposits.

The provisions in this Section 30.E shall apply to My Account whether or not I am enrolled in Cash Management.

General; Holds. I acknowledge and agree that funds that I deposit to My Account may be subject to one or more hold periods, which are described in the RHF Funds Availability schedule available at <https://about.robinhood.com/legal/>. I understand and agree that Robinhood reserves the right to modify the RHF Funds Availability schedule at any time by posting an updated schedule at <https://about.robinhood.com/legal/>, or otherwise providing notice to me. During the applicable hold period, My funds will not be available for Payments, withdrawal, or the settling of securities transactions, in each case as described in the RHF Funds Availability schedule. I further understand and agree that Robinhood reserves the right to further delay making deposited funds available for periods longer than the hold periods specified in the RHF Funds Availability schedule to the extent Robinhood determines that additional time is needed to verify information about the item deposited or the sender or if Robinhood otherwise believes there is a risk of fraud or other unlawful activity with respect to My Account.

Mistaken Deposits. If funds are deposited or transferred into My Account by mistake or otherwise, I agree that Robinhood may correct the situation and deduct any interest paid by Participating Depository Institutions, if applicable, without prior notice to Me.

Returned Funds. I acknowledge and agree that I am responsible for returned transactions. If I have funds transferred into My Account and that transfer is returned for any reason, Robinhood may charge the transfer and interest paid by Participating Depository Institutions, if applicable, against My Account, without prior notice to Me.

F. Electronic Fund Transfers.

The provisions in this Section 30.F relating to EFTs other than Card transactions shall apply to My Account whether or not I am enrolled in Cash Management.

I understand that My Account may be eligible for a variety of EFTs, which may be subject to separate agreements, terms and conditions. These services may include use of the Card, and the "Move Money" functionality of the App. I understand that I may be required to agree to separate terms and conditions governing the particular service I use to initiate EFTs. In addition, I understand and agree that my use of EFT services are subject to the disclosures set forth in Appendix A (Electronic Fund Transfer Disclosures), and acknowledge that I have received and reviewed such disclosures.

G. Security.

I agree to protect My Card, and My PINs, from access by anyone not authorized by Me to use them. I acknowledge that I will be liable for all Card and online transactions conducted by anyone to whom I have given access or who has obtained access even if not authorized by Me, up to applicable legal limits. I understand that I am responsible for reviewing My Account statement promptly to discover and report unauthorized activity, including use of My Card, Card number or PIN. I agree to notify Robinhood as provided in Appendix A (Electronic Fund Transfer Disclosures) if I believe or have reason to believe that there has been unauthorized activity in My Account or that My Card, Card number or PIN has been lost, stolen or may be used by an unauthorized person. Unless limited by law or as otherwise set forth in this Agreement or in the disclosures contained in Robinhood Debit Card Agreement, which is provided to Me as part of the Account opening process and is available on the Website, I agree that I will be responsible for losses that arise from My failure to (i) safeguard My Card and PINs, (ii) review My monthly statement for possible unauthorized activity and (iii) report any unauthorized activity to Robinhood as provided herein or in the Robinhood Debit Card Agreement.

H. No Illegal Purpose.

I agree and understand that I may not use my debit card or any Payments on My Account for any illegal purpose. I agree and understand that Robinhood may, in its discretion, deny any transactions that appear to be made for an illegal purpose.

I. Pay by Check.

I agree and understand that if I try to stop payment on a check after it has been mailed to the payee, Robinhood will attempt to but cannot guarantee that payment on the check will be stopped. I understand that a stop payment order on a check is valid for six months. I understand that if I wish to renew a stop payment on a check after the six month period, I must contact Robinhood to request another stop payment. I agree and understand that I may still be liable to the holder of the check even if I have requested a stop payment for the amount of the check. I agree and understand that Robinhood may deduct My Account for the amount on the check if the stop payment request is unsuccessful.

J. Disclosure of Information.

I agree and understand that all disclosures of My non-public personal information shall be made in accordance with the terms of the this Agreement or the Robinhood Privacy Policy (available on the Website at <https://about.robinhood.com/legal/>, as applicable. I agree that My consent to sharing non-public personal information will remain in effect until I revoke such consent by updating My settings and visibility, which I may do at any time through the App.

In addition, I understand and agree that Robinhood may disclose information about My Account and My related activities to third parties under the following circumstances: - As necessary to complete My Payment transactions; - To investigate any complaint, disputed transaction, transaction inquiry or request I make or as necessary to investigate potential fraud or misuse related to My Account; - To respond to requests from credit bureaus, creditors or other third parties for account-related information, to the extent such inquiries are necessary for processing My transactions or are usual and customary in the course of servicing similar products or accounts; - As necessary to comply with any applicable law, government or court order or subpoena; or - In accordance with My written permission or as otherwise permitted under the Robinhood Privacy Policy.

I. Termination.

I understand that Robinhood may terminate my participation in Cash Management or in specific features of Cash Management for any reason, upon notice to me.

31. Consent to Redeem Shares.

I understand and agree that whenever it is necessary for Robinhood's protection or to satisfy a margin call, deficiency, debit or other obligation owed to Robinhood, Robinhood may (but is not required to) sell, assign and deliver all or any part of the securities in My Account, or close any or all transactions in My Account. I understand that Robinhood may, but is not obligated to, attempt to contact Me before taking any such action. I understand and agree that Robinhood reserves the right to take any such action without prior notice or demand for additional collateral, and free of any right of redemption, and that any prior demand, call or notice will not be considered a waiver of our right to sell or buy without demand, call or notice.

I further understand that Robinhood may choose which securities to buy or sell, which transactions to close, and the sequence and timing of liquidation, and may take such actions on whatever exchange or market and in whatever manner (including public auction or private sale) that Robinhood chooses in the exercise of its business judgment. I agree not to hold Robinhood liable for the choice of which securities to buy or sell or of which transactions to close or for the timing or manner of the liquidation. I also agree not to hold Robinhood liable for taking such action.

I understand and agree that Robinhood is entitled to exercise the rights described in this section in its sole discretion, including, but not limited to, whenever any of the following occurs:

- The equity level in My Account falls below required minimums;
- Sufficient funds or securities are not deposited to pay for transactions in My Account;
- I reverse any ACH debit transfer to My Account;
- A petition of bankruptcy or for the appointment of a receiver is filed by or against Me;
- An attachment is levied against My Account;
- I die or become incapacitated or incompetent; or
- My Account is closed.

32. Electronic Delivery of Trade and Account Information; Notice.

All communications, notices, legal disclosures, and other materials related to My Account or this Agreement, including account statements, trade confirmations, margin calls, notices, disclosures, regulatory communications and other information, documents, data and records regarding My Account (the "Communications"), or an alert that any such Communication has been posted to the secure section of the Website or the App, and is available for viewing, may be sent to Me at the mailing address for My Account or the e-mail address that I have given to Robinhood in My account application or at such other

address as I may hereafter give Robinhood in writing or by e-mail at least ten (10) calendar days prior to delivery, and all communications so sent, whether in writing or otherwise, shall be deemed given to Me personally, whether actually received or not.

33. API.

A. Overview; Definitions.

Robinhood may, in Robinhood's sole discretion, provide third parties with an application programming interface and other materials in accordance with any accompanying documentation (collectively, the "API Package") (such third parties, "API Licensees"), to make available certain features and functionality of Robinhood's mobile applications, websites, or technology platform via the API Licensees' products (such products, the "Licensee Products"). The API Package and the Licensee Products are collectively referred to as the "API Products". "Personal Information" means My personally identifiable information (including username, login password, financial information, trade data, and other financial information) and all data exchanged between Robinhood and the API Products.

B. Access to My Personal Information.

Through My use of any API Products, I may be providing API Licensees with access to My Account and Personal Information. By using any API Products, I acknowledge that such API Products may employ security, policies, procedures and systems of API Licensees which may or may not be less stringent and secure than Robinhood's policies, procedures and systems. I agree that My use of any API Products shall be subject to the terms and conditions of this Agreement, in addition to any other agreements which I executed with respect to any such API Products. I understand and agree that any end user agreement that I executed with any API Licensee is concluded between Me and such API Licensee only, and not with Robinhood; and such API Licensee, not Robinhood, is solely responsible for such Licensee Product and the content thereof. I understand and agree that the API Products may deliver Personal Information to Robinhood, and that Robinhood is authorized to receive and store such Personal Information consistent with Robinhood's then-in-effect policies and procedures. Further, I agree that the API Products may request Personal Information stored by Robinhood, and I consent to Robinhood's disclosure of such Personal Information to the API Products.

C. No Recommendations.

To the extent the Licensee Products or API Licensees express opinions or make recommendations, I understand that such opinions and recommendations are expressed solely by API Licensees and are not the opinions or recommendations of Robinhood. The existence of the API Products and Robinhood's consent to any connectivity between any Licensee Products and Robinhood's technology, the App, the Website, or trading platform(s) does not constitute (i) any recommendation by Robinhood to invest in any security or utilize any investment strategy; or (ii) any representation, warranty, or other guarantee by Robinhood as to the present or future value or suitability of any sale, trade, or other transaction involving any particular security or any other investments. The existence of any and all information, tools and services provided by API Licensees or by the Licensee Products shall not constitute Robinhood's endorsement of API Licensees or the Licensee Products.

D. Data Provided by Robinhood to API.

From time to time, and subject to then-in-effect agreements between Robinhood and API Licensees, Robinhood may, in its own discretion, make market data feeds received from third parties available via the API Products. Robinhood does not make any guarantees in regard to such market data feeds. Furthermore, API Licensees or Licensee Products may make available to Me market data feeds independent of Robinhood. I am aware that from time to time that there may be discrepancy between the market data presented on the App or Website and information provided by any API Products due to a variety of reasons, including the time to update and transmit such data to a mobile application or website.

and latency caused by such API Product's or My local environment (such as computer set up, connection speed, etc.). Robinhood is not responsible for the accuracy of any market data displayed on any API Products or otherwise made available by API Licensees.

E. Risks; No Liability.

I acknowledge that there may be latency between the time an order (or other Personal Information) is submitted from the API Products and the time such order or Personal Information is received by Robinhood. Latency may also affect order modification and order cancellation requests. The time an order or a request is actually received by Robinhood (including for execution) will be the official time, including for the purposes of routing the order to the market for execution. In addition, all orders submitted to Robinhood are subject to order vetting by Robinhood. Orders created and submitted through any API Products are not vetted until they are received by Robinhood. It is possible that Robinhood may reject an order placed through any API Products. Robinhood cannot guarantee that any order will be accepted when such order is routed to the market for execution, and Robinhood cannot guarantee that notifications and Personal Information provided to Me by Robinhood will be successfully delivered to or displayed by any API Products.

Without limiting the generality of any other terms in this Agreement, I agree that:

1. Robinhood or its Affiliates shall not be liable for any Losses as a result of any issues addressed in this Section 33 of this Agreement, nor shall Robinhood or its Affiliates be liable for any Losses realized for technical issues involving any API Products or API Licensee technology or product offerings (including system outages or downtime).
2. Robinhood or its Affiliates shall not be responsible for any investment research provided by any API Licensee or any Licensee Products.
3. Robinhood or its Affiliates makes no representations, warranties or other guarantees as to the accuracy, timeliness or efficacy of any market data, information, or other functionality made available by any API Licensee or any API Products.

F. Intellectual Property.

My use of any API Products will not confer to Me any title, ownership interest or intellectual property rights that otherwise belongs to Robinhood or any of its affiliates. The API Package, including content, is protected under U.S. patent, copyright laws, international treaties or conventions, and other laws and will remain Robinhood's exclusive property, as applicable. Names, logos, and all related product and service names, design marks, and slogans displayed by or relating to Robinhood or any of its Affiliates or API Licensees in the context of the API Products shall remain the property of the respective owner, and use of such property by Robinhood or any API Licensee in marketing or provision of any API Products does not grant ownership of or entitle Me to use any such name or mark in any manner.

G. User's Representations and Warranties.

I represent and warrant that:

1. By virtue of utilizing any API Products, I consent to and accept any risk associated with Robinhood's sharing of Personal Information with any API Licensee and shall not hold Robinhood, its Affiliates, or their respective officers, directors, or employees responsible for any Losses resulting from the sharing of such Personal Information.
2. I agree that My use of any API Products or API Licensee's content, information, technology, or functionality is at My own risk.
3. I agree that Robinhood may revoke any API Licensee or API Products' authorization at any time, for any reason, with or without cause and without prior notice to Me.

34. Electronic Signatures; Modifications to the Agreement.

I agree to transact business with Robinhood electronically. By electronically signing an application for an Account, I acknowledge and agree that such electronic signature is valid evidence of My consent to be legally bound by this Agreement and such subsequent terms as may govern the use of Robinhood's services. The use of an electronic version of any document fully satisfies any requirement that the document be provided to Me in writing. I accept notice by electronic means as reasonable and proper notice, for the purpose of any and all laws, rules and regulations. I acknowledge and agree that Robinhood Financial may modify this Agreement from time to time and I agree to consult the Website from time to time for the most up-to-date Agreement. The electronically stored copy of this Agreement is considered to be the true, complete, valid, authentic and enforceable record of the Agreement, admissible in judicial or administrative proceedings to the same extent as if the documents and records were originally generated and maintained in printed form. I agree to not contest the admissibility or enforceability of Robinhood Financial's electronically stored copy of the Agreement.

35. Margin Accounts.

A. Election.

This numbered section applies to my account to the extent I elect and am approved for a Robinhood Gold margin account.

B. Margin Trading.

I understand that margin trading involves interest charges and risks, including the potential to lose more than deposited or the need to deposit additional collateral in a falling market. Before using margin, customers must determine whether this type of trading strategy is right for them given their specific investment objectives, experience, risk tolerance, and financial situation. If I have elected to have a margin Account, I represent that I have read the [Margin Disclosure Statement](#), [Day Trading Risk Disclosure](#), and [FINRA Investor Information](#). These disclosures contain information on Robinhood's lending policies, interest charges, and the risks associated with margin accounts.

C. Hypothecation.

Within the limitations imposed by applicable laws, rules and regulations, all securities now or hereafter held by Robinhood, or carried by Robinhood in any account for Me (either individually or jointly with others), or deposited to secure same, may from time to time, without any notice, be carried in your general loans and may be pledged, repledged, hypothecated or re-hypothecated, separately or in common with other securities for the sum due to you thereon or for a greater sum and without retaining in your possession or control for delivery a like amount of similar securities. The IRS requires Broker Dealers to treat dividend payments on loaned securities positions as payments received in lieu of dividends for 1099 tax reporting purposes. Taxation of substitute dividend payments may be greater than ordinary on qualified dividends. It is understood, however, that you agree to deliver to Me upon My demand and upon payment of the full amount due thereon, all securities in such accounts, but without obligation to deliver the same certificates or securities deposited by Me originally. Any securities in My margin or short account may be borrowed by you, or lent to others.

D. Interest.

Debit balances in My Accounts shall be charged with interest in accordance with your established custom, as disclosed to Me in the Customer Information Brochure pursuant to the provisions of the Securities Exchange Act.

E. Margin.

I agree to maintain in all accounts with Robinhood such positions and margins as required by all applicable statutes, rules, regulations, procedures and custom, or as you deem necessary or advisable. I agree to promptly satisfy all margin and maintenance calls.

F. Sales.

I agree to specifically designate any order to sell a security, which I do not own as a short sale, and understands that Robinhood will mark such order as a short sale. I agree that any order which is not specifically designated as a short sale is a sale of securities owned by me, and that I will deliver the securities on or before settlement date, if not already in the account. If I should fail to make such delivery in the time required, Robinhood is authorized to borrow such securities as necessary to make delivery for the sale, and I agree to be responsible for any loss you may thereby sustain, or which you may sustain as a result of your inability to borrow such securities.

36. Consent to Electronic Delivery of Documents.**A. Consent.**

By agreeing to electronic delivery, I am giving My informed consent to electronic delivery of all Account Documents, as defined below, other than those I have specifically requested to be delivered in paper form. "Account Documents" include notices, disclosures, current and future account statements, regulatory communications (such as prospectuses, proxy solicitations, and privacy notices), trade confirmations, tax-related documents, and any other information, documents, data, and records regarding My Account, this Agreement (including amendments to this Agreement), and the agreements and disclosures governing the services delivered or provided to Me by Robinhood Financial, the issuers of the securities or other property in which I invest, and any other parties. I agree that I can access, view, download, save, and print any Account Documents I receive via electronic delivery for My records.

B. Electronic Delivery System.

I acknowledge that Robinhood's primary methods of communication with Me include (A) posting information on the Website, (B) providing information via the App, (C) sending email(s) to My email address of record, and, to the extent required by law, (D) providing Me with notice(s) that will direct Me to the App or the Website where I can read and print such information. Unless otherwise required by law, Robinhood reserves the right to post Account Documents on the Website without providing notice to Me. Further, Robinhood reserves the right to send Account Documents to My postal or email address of record, or via the App or Website. I agree that all Account Documents provided to Me in any of the foregoing manner is considered delivered to Me personally when sent or posted by Robinhood, whether I receive it or not.

All e-mail notifications regarding Account Documents will be sent to My e-mail address of record. I agree to maintain the e-mail address that I have provided Robinhood until I provide Robinhood with a new one. I understand that e-mail messages may fail to transmit promptly or properly, including being delivered to SPAM folders. I further understand that it is My sole responsibility to ensure that any emails from Robinhood or its Affiliates are not marked as SPAM. Regardless of whether or not I receive an e-mail notification, I agree to check the Website regularly to avoid missing any information, including time-sensitive or otherwise important communication. If I authorize someone else to access the e-mail account I have provided Robinhood, I agree to tell them to share the Account Documents with Me promptly, and I accept the risk that they will see My sensitive information. I understand that if I use a work e-mail address or computing or communications device, My employer or other employees may have access to the Account Documents.

Additionally, I acknowledge that the Internet is not a secure network and agree that I will not send any confidential information, including Account numbers or passwords, in any unencrypted e-mails. I also

understand that communications transmitted over the Internet may be accessed by unauthorized or unintended third parties and agree to hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers and employees harmless for any such access regardless of the cause.

I agree to promptly and carefully review all Account Documents when they are delivered and notify Robinhood Financial in writing within five (5) calendar days of delivery if I object to the information provided (or other such time specified herein). If I fail to object in writing within such time, Robinhood Financial is entitled to treat such information as accurate and conclusive. I will contact Robinhood to report any problems with accessing the Account Documents.

C. Costs.

Potential costs associated with electronic delivery of Account Documents may include charges from Internet access providers and telephone companies, and I agree to bear these costs. Robinhood Financial will not charge Me additional online access fees for receiving electronic delivery of Account Documents.

D. Archival.

Upon My request, I may obtain copies of up to six (6) prior years of account statements, and three (3) prior years of trade confirmations.

E. Revocation of Consent.

Subject to the terms of this Agreement, I may revoke or restrict My consent to electronic delivery of Account Documents at any time by notifying Robinhood Financial in writing of My intention to do so. I also understand that I have the right to request paper delivery of any Account Document that the law requires Robinhood Financial to provide Me in paper form. Robinhood Financial will not treat My request for paper copies as a withdrawal of My consent to electronic delivery of Account Documents. I understand that if I revoke or restrict My consent to electronic delivery of Account Documents or request paper delivery of same, Robinhood Financial, in its sole discretion, may charge Me a reasonable service fee for the delivery of any Account Document that would otherwise be delivered to Me electronically, restrict or close My account, or terminate My access to Robinhood Financial's services. I understand that neither My revocation or restriction of consent, My request for paper delivery, nor Robinhood Financial's delivery of paper copies of Account Documents will affect the legal effectiveness or validity of any electronic communication provided while My consent was in effect.

F. Duration of Consent.

My consent to receive electronic delivery of Account Documents will be effective immediately and will remain in effect unless and until either I or Robinhood Financial revokes it. I understand that it may take up to three (3) Business Days to process a revocation of consent to electronic delivery, and that I may receive electronic notifications until such consent is processed.

G. Hardware and Software Requirements.

I understand that in order to receive electronic deliveries, I must have access to a computer or Mobile Device with Internet access, a valid e-mail address, and the ability to download such applications as Robinhood Financial may specify and to which I have access. I also understand that if I wish to download, print, or save any information I wish to retain, I must have access to a printer or other device in order to do so.

H. Consent and Representations.

I hereby agree that I have carefully read the above information regarding informed consent to electronic delivery and fully understand the implications thereof. Additionally, I hereby agree to all conditions outlined above with respect to electronic delivery of any Account Document. I will maintain a valid e-mail address and continue to have access to the Internet. If My e-mail address changes, I agree to immediately notify Robinhood Financial of My new e-mail address in writing.

37. Miscellaneous Provisions.

The following provisions shall also govern this Agreement:

A. Contact Information.

Robinhood Customer Service may be contacted by visiting support.robinhood.com or by email at help@robinhood.com.

B. Interpretation.

The heading of each provision hereof is for descriptive purposes only and shall not be (1) deemed to modify or qualify any of the rights or obligations set forth herein or (2) used to construe or interpret any of the provisions hereunder. When a reference is made in this Agreement to a Section, such reference shall be to a Section of this Agreement unless otherwise indicated. Whenever the words "include," "includes" or "including" are used in this Agreement, they shall be deemed to be followed by the words "without limitation." The word "or," when used in this Agreement, has the inclusive meaning represented by the phrase "and/or." Unless the context of this Agreement otherwise requires: (i) words using the singular or plural number also include the plural or singular number, respectively; and (ii) the terms "hereof," "herein," "hereunder" and derivative or similar words refer to this entire Agreement. References to any law shall be deemed to refer to such law as amended from time to time and to any rules or regulations promulgated thereunder.

C. Binding Effect; Assignment.

This Agreement shall bind My heirs, assigns, executors, successors, conservators and administrators. I may not assign this Agreement or any rights or obligations under this Agreement without first obtaining Robinhood's prior written consent. Robinhood may assign, sell, or transfer My Account and this Agreement, or any portion thereof, at any time, without My prior consent.

D. Severability.

If any provisions or conditions of this Agreement are or become inconsistent with any present or future law, rule, or regulation of any applicable government, regulatory or self-regulatory agency or body, or are deemed invalid or unenforceable by any court of competent jurisdiction, such provisions shall be deemed rescinded or modified, to the extent permitted by applicable law, to make this Agreement in compliance with such law, rule or regulation, or to be valid and enforceable, but in all other respects, this Agreement shall continue in full force and effect.

E. Website Postings.

I agree and understand that Robinhood Financial may post other specific agreements, disclosures, policies, procedures, terms, and conditions that apply to My use of the App, the Website, or My Account

on the Website ("Website Postings"). I understand that it is My continuing obligation to understand the terms of the Website Postings, and I agree to be bound by the Web Postings as are in effect at the time of My use.

F. Entirety of Agreement.

This Agreement, any attachments hereto, other agreements and policies referred to in this Agreement (including the Website Postings), and the terms and conditions contained in My Account statements and confirmations, contain the entire agreement between Robinhood and Me and supersede all prior or contemporaneous communications and proposals, whether electronic, oral, or written, between Robinhood and Me, provided, however, that any and all other agreements between Robinhood and Me, not inconsistent with this Agreement, will remain in full force and effect.

G. Amendment.

Robinhood may at any time amend this Agreement without prior notice to Me. The current version of the Agreement will be posted on the Website and My continued Account activity after such amendment constitutes My agreement to be bound by all then-in-effect amendments to the Agreement, regardless of whether I have actually reviewed them. Continued use of the App, the Website or any other Robinhood Financial services after such posting will constitute My acknowledgment and acceptance of such amendment. I agree to regularly consult the Website for up-to-date information about Robinhood Financial services and any modifications to this Agreement. Robinhood is not bound by any verbal statements that seek to amend the Agreement.

H. Termination.

Robinhood may terminate this Agreement, or close, deactivate, or block access to My Account at any time in its sole discretion. I will remain liable to Robinhood for all obligations incurred in My Account, pursuant to this Agreement, or otherwise, whether arising before or after termination. I may terminate this Agreement after paying any obligations owed upon written notice. This Agreement survives termination of My Account.

I. No Waiver; Cumulative Nature of Rights and Remedies.

I understand that Robinhood's failure to insist at any time upon strict compliance with any term contained in this Agreement, or any delay or failure on Robinhood's part to exercise any power or right given to Robinhood in this Agreement, or a continued course of such conduct on Robinhood's part, shall at no time operate as a waiver of such power or right, nor shall any single or partial exercise preclude any other further exercise. All rights and remedies given to Robinhood in this Agreement are cumulative and not exclusive of any other rights or remedies to which Robinhood is entitled.

J. International Customers.

The products and services described on the Website are offered only in jurisdictions where they may be legally offered. Neither the Website nor the App shall be considered a solicitation for or offering of any investment product or service to any person in any jurisdiction where such solicitation or offering would be illegal. I understand that Robinhood, in its sole discretion, may accept unsolicited accounts from non-U.S. residents, depending on the country of residence and other factors. I understand that Robinhood is based in the United States and that Robinhood accepts only U.S. currency in Robinhood's customer accounts.

K. Governing Law.

This Agreement and all transactions made in My Account shall be governed by the laws of the State of California (regardless of the choice of law rules thereof), except to the extent governed by the federal securities laws, FINRA Rules, and the regulations, customs and usage of the exchanges or market (and its clearing house) on which transactions are executed.

38. Arbitration.

A. This Agreement contains a pre-dispute arbitration clause. By signing an arbitration agreement, the parties agree as follows: (1) All parties to this Agreement are giving up the right to sue each other in court, including the right to a trial by jury, except as provided by the rules of the arbitration forum in which a claim is filed. (2) Arbitration awards are generally final and binding; a party's ability to have a court reverse or modify an arbitration award is very limited. (3) The ability of the parties to obtain documents, witness statements and other discovery is generally more limited in arbitration than in court proceedings. (4) The arbitrators do not have to explain the reason(s) for their award unless, in an eligible case, a joint request for an explained decision has been submitted by all parties to the panel at least 20 days prior to the first scheduled hearing date. (5) The panel of arbitrators will typically include a minority of arbitrators who were or are affiliated with the securities industry. (6) The rules of some arbitration forums may impose time limits for bringing a claim in arbitration. In some cases, a claim that is ineligible for arbitration may be brought in court. (7) The rules of the arbitration forum in which the claim is filed, and any amendments thereto, shall be incorporated into this Agreement. B. Any controversy or claim arising out of or relating to this Agreement, any other agreement between me and Robinhood, any Account(s) established hereunder, any transaction therein, shall be settled by arbitration in accordance with the rules of FINRA Dispute Resolution, Inc. ("FINRA DR"). I agree to arbitrate any controversy or claim before FINRA DR in the State of California. C. This agreement to arbitrate constitutes a waiver of the right to seek a judicial forum unless such a waiver would be void under the federal securities laws. If I am a foreign national, non-resident alien, or if I do not reside in the United States, I agree to waive My right to file an action against Robinhood in any foreign venue. D. No person shall bring a putative or certified class action to arbitration, nor seek to enforce any pre-dispute arbitration agreement against any person who has initiated in court a putative class action; or who is a member of a putative class who has not opted out of the class with respect to any claims encompassed by the putative class action until: (1) the class certification is denied; or (2) the class is decertified; or (3) the customer is excluded from the class by the court. Such forbearance to enforce an agreement to arbitrate shall not constitute a waiver of any rights under this Agreement except to the extent stated herein.

ACCEPTED AND AGREED: I acknowledge that I have read the preceding terms and conditions of this Agreement, that I understand them and that I hereby manifest my assent to, and my agreement to comply with, those terms and conditions by accepting this agreement. I ALSO UNDERSTAND THAT BY ACCEPTING THIS AGREEMENT I HAVE ACKNOWLEDGED THAT THIS AGREEMENT CONTAINS A PREDISPUTE ARBITRATION CLAUSE IN SECTION 38 HEREIN. I ALSO AGREE (1) THAT ANY OF MY MARGIN ACCOUNT SECURITIES MAY BE BORROWED BY ROBINHOOD OR LOANED TO OTHERS; (2) I HAVE RECEIVED OF A COPY OF THIS AGREEMENT AND (3) I HAVE REVIEWED A COPY OF THE MARGIN DISCLOSURE STATEMENT.

Appendix A

Electronic Fund Transfer Services Disclosures

The following disclosures apply to the use of any EFT services offered by Robinhood, including the Card, ACH transactions and the Move Money functionality of the App.

Solely for purposes of these disclosures: (i) references to the Bank shall include any financial institution that issues the Card or provides services in connection with ACH, Move Money or other EFT transactions; (ii) "you" and "your" mean the owner of the Account; and (iii) "we" and "us" means Robinhood and the Bank collectively.

1. Your Liability.

Contact Robinhood Customer Service AT ONCE if you believe your Card or PIN has been lost or stolen or if you believe that an electronic fund transfer has been made without your permission. Telephoning is the best way of keeping your losses down. You could lose all the Available Funds in your Account (plus your maximum overdraft line of credit). If you tell Robinhood within 2 business days after you learn of the loss or theft of your Card or PIN, you can lose no more than \$50 if someone used your Card or PIN without your permission.

If you do NOT tell Robinhood within 2 business days after you learn of the loss or theft of your Card or PIN, and Robinhood can prove that it could have stopped someone from using your Card or PIN without your permission if you had told Robinhood, you could lose as much as \$500.

Also, if your statement shows transfers that you did not make, including those made by Card or using your PIN, tell Robinhood at once. If you do not tell Robinhood within sixty (60) days after the statement was mailed to you, or otherwise made available to you, you may not get back any money you lost after the sixty (60) days if Robinhood can prove that Robinhood could have stopped someone from taking the money if you had told Robinhood in time. If a good reason (such as a long trip or a hospital stay) kept you from telling Robinhood, Robinhood will extend the time periods.

2. Contact in event of unauthorized transfer.

If you believe your Card or PIN has been lost or stolen, contact Robinhood by emailing help@robinhood.com.

3. Business Days.

Business Days are Monday through Friday, excluding federal holidays.

4. Transfer Types and Limitations.

You may use your Card to make purchases at any merchant that accepts Mastercard debit cards or debit cards of other networks in which the Bank participates, and to make ATM withdrawals, in each case subject to the Available Funds in your Account, the transaction limits described below, and the other terms and conditions of this Agreement. You acknowledge and agree that the value available to you for use with the Card is limited to the Available Funds in your Account. So long as you do not exceed the Available Funds in your Account, you may use the Card to purchase goods or services wherever the Card is honored, and to obtain cash by initiating cash withdrawal transactions through the Card from any financial institution or ATM that accepts the Card. Each time you use the Card, you authorize Robinhood to reduce the Available Funds in your Account by the amount of the purchase or withdrawal and any applicable fees, costs, or holdings. Nevertheless, if you exceed the Available Funds in your Account you shall remain fully liable to Robinhood for the amount of the transactions and any applicable fees and charges.

You may also make ACH withdrawals from your Account, either originated through Robinhood or originated by a third party (a "non-originated" withdrawal), subject to the Available Funds in your Account, the transaction limits described below, and the other terms and conditions of this Agreement. You also may make ACH deposits to your Account, either originated through Robinhood or originated by a third party (a "non-originated" deposit), subject to the transaction limits described below.

There are limits on the dollar amount of transactions you can make with your Card each day and each month, and limits on the amount of ACH withdrawals and deposits you can make each day. The following lists the limits for each type of transaction:

Originated ACH Withdrawals* Daily Limit: \$50,000.00
Weekly Limit: N/A Monthly Limit: N/A

Originated ACH Deposits* Daily Limit: \$50,000.00
Weekly Limit: N/A Monthly Limit: N/A

Non-Originated ACH Withdrawals* Daily Limit: \$250,000.00
Weekly Limit: N/A Monthly Limit: N/A

Non-Originated ACH Deposits* Daily Limit: \$250,000.00
Weekly Limit: N/A Monthly Limit: N/A

Point of Sale Purchases with the Card* Daily Limit: \$5,000.00 Weekly Limit: N/A Monthly Limit: \$15,000.00

ATM Withdrawals* Daily Limit: \$510.00 Weekly Limit: N/A Monthly Limit: \$5,000.00

Originated ACH* Daily Limit: N/A, subject to the Weekly Limit Weekly Limit: \$2,999 Monthly Limit: N/A

5. Fees.

We will not charge you any fees for use of ATMs that are part of the AllPoint or MoneyPass ATM networks, or for point of sale transactions using the Card, or for initiating other EFTs on your behalf. If you withdraw funds from ATMs outside of the AllPoint or MoneyPass ATM networks, you may be separately assessed fees by those ATM owners or operators.

6. Confidentiality.

We may disclose information to third parties about you, your Card, or the transactions you make using any of the EFT services we provide:

1. Where it is necessary or helpful for completing or correcting transactions and resolving claims regarding transactions;
2. In order to verify the existence and condition of your Card or your Account for a third party, such as a merchant;
3. In order to comply with a valid request by a government agency, a court order, or other legal or administrative reporting requirements;
4. If you consent by giving us your written permission;
5. To our employees, auditors, affiliates, service providers, or attorneys as needed;
6. In order to prevent, investigate or report possible illegal activity;
7. In order to issue authorizations for transactions on the Card;
8. As permitted by applicable law; or
9. Otherwise as necessary to fulfill our obligations under this Agreement and the terms applicable to the EFT service you are using.

Please see Robinhood's privacy policy, available at [about.robinkood.com/legal](https://www.robinkood.com/legal), and the applicable Bank's privacy policy, available at <https://www.suttonbank.com/kcms-doc/85/49033/WK-Privacy-Disclosure-1218.pdf>, for further details. (The Robinhood privacy policy and the applicable Bank's privacy policy are referred to collectively as the "Privacy Policies"). You hereby agree to Robinhood's and the Bank's collection, use and sharing of information about you and the Card as provided in the Privacy Policies, which are made a part of this Agreement. The Privacy Policies also tell you how you can (i) limit the ways in which Bank and Robinhood share information about you, or (ii) request corrections to the information that Bank or Robinhood maintain about you. You agree that information you provide in connection with your Card or other EFT services you use is being provided directly to both Robinhood as the holder of the Account associated with the service and the Bank as the Card issuer or provider of the EFT service, as applicable.

7. Documentation.

Terminal Transfers. You can get a receipt at the time you make any transfer to or from your Account using an ATM from the AllPoint or MoneyPass ATM networks or at the point of sale.

Preauthorized Credits. If you have arranged to have direct deposits made to your Account at least once every 60 days from the same person or company, the person or company making the deposit will tell you every time they send us the money. You can also check your Account online to see if a deposit has been received.

Periodic Statements. You will get a monthly Account statement, unless there are no transfers in a particular month. In any case you will get the statement at least quarterly. You may obtain information about the Available Funds in your Account and a history of your Cash Management transactions on the App.

8. Preauthorized Payments/Stop Payment Procedure and Notice of Varying Amounts.

You do not have the right to request that Robinhood in advance make regular payments out of your Account, although you may ask third parties to initiate regular payments out of your Account.

Right to stop payment: If you have automatic recurring payments taken out of your Account, you can stop any of these payments by contacting us at help@robinhood.com. You must contact us in time for us to receive your request at least three business days before the payment is scheduled to be made.

Notice of varying amounts: If these regular payments vary in amount, the party you are going to pay will tell you, 10 days before each payment, when the payment will be made and how much it will be. (The party you are going to pay may allow you to choose to get this notice only when the payment would differ by more than a certain amount from the previous payment, or when the amount would fall outside certain limits that you set.)

Liability for failure to stop payment of a preauthorized transfer: If you order us to stop a payment at least three business days before the transfer is scheduled and we do not do so, we will be liable for your losses or damages.

9. Our Liability.

If we do not complete a transaction to or from your Account on time or in the correct amount according to our Agreement with you, we will be liable for your losses or damages. However, there are some exceptions. We will not be liable, for instance:

1. If through no fault of Robinhood or the Bank, you do not have enough Available Funds in your Account to complete the transaction;
2. If a merchant refuses to accept your Card;
3. If an electronic terminal where you are making a transaction does not operate properly, and you knew about the problem when you initiated the transaction;
4. If access to your Card has been blocked after you reported your Card lost or stolen;
5. If there is a hold or your funds are subject to legal or administrative process or other encumbrance restricting their use;
6. If Robinhood or the Bank have reason to believe the requested transaction is unauthorized;
7. If circumstances beyond the control of Robinhood or the Bank (such as fire, flood, or computer or communication failure) prevent the completion of the transaction, despite reasonable precautions that Robinhood or the Bank have taken; or
8. For any other exception stated in this Agreement with you or by applicable law.

10. Errors or Questions About Electronic Transfers.

In case of errors or questions about your electronic transfers, including your Card transactions, or if you think your statement or receipt is wrong or if you need more information about a transaction listed on the statement or receipt, contact Robinhood by emailing help@robinhood.com. Robinhood must hear from you no later than sixty (60) days after you were sent the FIRST statement on which the problem or error appeared.

1. Tell Robinhood your name and account number.
2. Describe the error or the transfer you are unsure about, and explain as clearly as you can why you believe it is an error or why you need more information.
3. Tell Robinhood the dollar amount of the suspected error.

Robinhood will determine whether an error occurred within ten (10) business days after Robinhood hears from you and will correct any error promptly. If Robinhood needs more time, however, it may take up to forty-five (45) days to investigate your complaint or question. If Robinhood decides to do this, Robinhood will credit your Account within ten (10) business days for the amount you think is in error, so that you will have the use of the money during the time it takes Robinhood to complete our investigation.

For errors involving new accounts, point of sale, or foreign initiated transactions, Robinhood may take up to ninety (90) days to investigate your complaint or question. For new accounts, Robinhood may take up to twenty (20) business days to credit your Account for the amount you think is in error.

Robinhood will tell you the results of our investigation within three (3) business days after completing the investigation. If Robinhood decides that there was no error, Robinhood will send you a written explanation. You may ask for copies of the documents that Robinhood used in our investigation.

EXHIBIT B

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12 *Attorneys for Defendants Robinhood Financial LLC;
 Robinhood Securities, LLC; and Robinhood Markets, Inc.*

13 **UNITED STATES DISTRICT COURT**

14 **CENTRAL DISTRICT OF CALIFORNIA**

15 LEVI COBOS, an individual and
 16 those similarly situated,

17 Plaintiff(s),

18 v.

19 ROBINHOOD FINANCIAL LLC, a
 20 Delaware limited liability company;
 21 ROBINHOOD SECURITIES, LLC, a
 22 Delaware limited liability company;
 23 and ROBINHOOD MARKETS, INC.,
 a Delaware corporation,

24 Defendants.

Case No. 21-cv-00843-VAP-MRW

[Related Cases 2:21-cv-00835-VAP
 (MRWx); 2:21-cv-00837-VAP (MRWx)]

**ROBINHOOD FINANCIAL LLC,
 ROBINHOOD SECURITIES, LLC
 AND ROBINHOOD MARKETS,
 INC.'S MEMORANDUM OF LAW IN
 OPPOSITION TO PLAINTIFF'S EX
 PARTE APPLICATION FOR A
 TEMPORARY RESTRAINING
 ORDER AND ORDER SHOWING
 CAUSE FOR A PRELIMINARY
 INJUNCTION**

Judge: Hon. Virginia A. Phillips
 Courtroom: 8A
 Hearing Date: February 10, 2021
 Hearing Time: 10:00 A.M.

28 OPPOSITION TO PLAINTIFF'S EX PARTE
 APPLICATION FOR A TRO

CASE NO. 21-cv-00843-VAP-MRW

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5	<i>Martin v. Int'l Olympic Comm.</i> , 740 F.2d 670 (9th Cir. 1984).....	13
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9	<i>N. Cheyenne Tribe v. Norton</i> , 503 F.3d 836 (9th Cir. 2007).....	27
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11	<i>Onel v. Top Ships, Inc.</i> , 806 F. App'x 64 (2d Cir. 2020).....	15
12	<i>Park Vill. Apartment Tenants Ass'n v. Mortimer Howard Tr.</i> , 636 F.3d 1150 (9th Cir. 2011).....	13
13	<i>Peredia v. HR Mobile Servs., Inc.</i> , 25 Cal. App. 5th 680 (2018).....	24
14	<i>Pulte Homes, Inc. v. Laborers' Int'l Union of N. Am.</i> , 648 F.3d 295 (6th Cir. 2011).....	19
15	<i>Richardson v. Shearson/Am. Express Co.</i> , 573 F. Supp. 133 (S.D.N.Y. 1983).....	15
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28	OPPOSITION TO PLAINTIFF'S EX PARTE APPLICATION FOR A TRO	CASE NO. 21-cv-00843-VAP-MRW - 5 -

PRELIMINARY STATEMENT

Plaintiff Levi Cobos seeks an extraordinary temporary restraining order to force Defendants Robinhood Financial LLC (“RHF”), Robinhood Securities, LLC (“RHS”) and Robinhood Markets, Inc. (“RHM”) (collectively, “Robinhood”) to accept customer trades for *any* stock without *any* limitation. This demand flies in the face of the statement issued *after the events at issue* by the responsible government agency—the Securities and Exchange Commission (“SEC”)—confirming in no uncertain terms that “broker-dealers may reserve the ability to reject or limit customer transactions. This may be done for legal, compliance, or risk management reasons, and is typically discussed in the customer account agreement.”¹ In fact, Robinhood explicitly reserved that very right to reject or limit customer transactions in the agreement that Mr. Cobos accepted upon opening his account. Granting Plaintiff’s requested relief would strip RHS (the Robinhood clearing broker) of the ability to prudently manage risk and stay in compliance with applicable deposit requirements and regulations.

Robinhood—a broker-dealer that is democratizing finance for all—made the difficult decision to limit customer purchases for a select number of highly volatile securities from January 28 through February 4, 2021. It did not make the decision as part of a nefarious conspiracy to benefit hedge funds. To the contrary, it made that decision for entirely lawful reasons. RHS is obligated to pay deposits to centralized clearinghouses to cover Robinhood customers’ trades during a two-day settlement period in which the clearinghouse processes the transactions. The purpose of the deposits—which RHS covers with its own capital—is to cover potential risk to the firm. Clearinghouses require these deposits to protect the integrity and stability of the stock market as a whole.

¹ See Securities and Exchange Comm’n, “Thinking About Investing in the Latest Hot Stock?” (Jan. 30, 2021) (“SEC Statement”), <https://www.sec.gov/oiea/investor-alerts-and-bulletins/risks-short-term-trading-based-social-media-investor-alert>.

1 On the days at issue here, high trading volume and extreme volatility
 2 in certain stocks that had become “memes” on the internet resulted in an
 3 unprecedented deposit demand from a major clearinghouse. As a result, to manage
 4 its risk, Robinhood exercised the discretion that it reserved in its Customer
 5 Agreement and, consistent with the SEC’s guidance, decided to “limit customer
 6 transactions” in a small number of stocks. This temporary measure allowed
 7 Robinhood to continue to support customer trading in as many securities as
 8 possible for Robinhood’s entire customer base. This decision was made by
 9 Robinhood acting on its own, and not at the behest, or for the benefit, of any third
 10 party. As market conditions eased, Robinhood lifted *all* of the restrictions by
 11 February 5, 2021.

12 Plaintiff does not meet any of the four prongs of the *Winter* test
 13 necessary to obtain the requested injunction. *See Winter v. Nat. Res. Def. Council,*
 14 *Inc.*, 555 U.S. 7, 20 (2008). Robinhood’s temporary restrictions were authorized
 15 by its Customer Agreements, and did not violate the Securities Exchange Act, the
 16 Computer Fraud and Abuse Act or California’s Unfair Competition Law. As such,
 17 Plaintiff is highly unlikely to succeed on the merits. *See infra* Arg. Part I.

18 Plaintiff also cannot show that he has suffered or will suffer
 19 irreparable harm. Robinhood never prevented its customers from selling securities
 20 they already held; the temporary restrictions—which have now been lifted
 21 entirely—related only to the purchase of certain *additional* securities. It is entirely
 22 speculative whether Plaintiff would make or lose money on such purchases, and it
 23 is entirely speculative as to whether any restrictions will be implemented in the
 24 future and, if so, whether they will have any effect on Plaintiff. Moreover, there
 25 are other broker-dealers available from which Plaintiff could have purchased the
 26 securities that were temporarily restricted, or can purchase any other securities in
 27 the future. *See infra* Arg. Part II.

1 The balance of equities also clearly weighs in favor of Defendants
 2 (*see infra* Arg. Part III), and an injunction would not be in the public interest (*see*
 3 *infra* Arg. Part IV). The requested injunction would threaten to interfere with
 4 Robinhood's compliance with clearinghouse deposit requirements and SEC net
 5 capital regulations. Those requirements and regulations are designed to protect the
 6 stability of broker-dealers like Robinhood, safeguard its more than 13 million
 7 customers, and protect the stability of the stock market. An injunction overriding
 8 Robinhood's contractually permitted discretion to take steps required in its
 9 judgment to protect customers and meet regulatory requirements would risk
 10 irreparable harm to the Company, its customers and the investing public.

11 **FACTUAL BACKGROUND**

12 **I. Robinhood, the Customer Agreement and Trading Mechanics.**

13 Robinhood is an industry-changing financial services company
 14 founded on the ethos of putting financial power into the hands of everybody—not
 15 just the few and wealthy. Started in 2013 by Vladimir Tenev and Baiju Bhatt,
 16 Robinhood's securities business currently comprises three entities: RHM, which
 17 wholly owns RHF, the customer-facing introducing broker, and RHS, the clearing
 18 broker. Robinhood provides intuitive, easy access to the financial markets by
 19 offering zero commission trades and a logical trading platform available on a
 20 computer or mobile device.

21 Customers sign up for Robinhood by accessing Robinhood's website
 22 or downloading the app. Prospective customers are required to review and agree to
 23 certain terms and conditions. One of the required agreements, the Customer
 24 Agreement, provides that Robinhood "may, in its discretion, prohibit or restrict the
 25 trading of securities, or the substitution of securities" in "any" of the customer's
 26 accounts. (Declaration of Brianna Bain ("Bain Decl.") Ex. D ¶ 16; *see also* Bain
 27 Decl. ¶¶ 12-13; Bain Decl. Ex. D ¶ 5.F.) The Customer Agreement further

1 provides that “Robinhood may at any time, at its sole discretion and without prior
 2 notice to [the customer]: (i) prohibit or restrict [the customer’s] access to the use
 3 of the App or the Website or related services and [the customer’s] ability to trade,
 4 (ii) refuse to accept any of [the customer’s] transactions, (iii) refuse to execute any
 5 of [the customer’s] transactions, or (iv) terminate [the customer’s] Account”.
 6 (Bain Decl. Ex. D ¶ 16.)

7 Once an approved customer would like to place a trade, a number of
 8 steps occur behind the scenes. The basic mechanics works as follows: when a
 9 customer submits a “buy” or “sell” order for a security and RHF accepts the trade,
 10 RHF sends the order to RHS, which in turn sends the order to market makers to
 11 execute the trade. (Declaration of Jim Swartwout (“Swartwout Decl.”) ¶ 10.)
 12 Market makers send a record of the trade back to RHS, which works with a
 13 clearinghouse to process the trade. (*Id.* ¶ 6.) Clearinghouses are SEC-registered
 14 organizations that act as the central depository for securities. (*Id.* ¶¶ 5-7.) The
 15 main United States clearinghouse for equities is the National Securities Clearing
 16 Corporation (“NSCC”), part of a larger clearing organization called Depository
 17 Trust & Clearing Corporation (“DTCC”).² (*Id.* ¶ 6.) It takes two days for the
 18 clearinghouse to transfer the stock to the buyer and funds to the seller. (*Id.* ¶ 10.)
 19 This is known as the “settlement period” or the “T+2” settlement. (*Id.*)

20 The two-day period between execution and settlement leaves open a
 21 risk that a participant in the transaction will be unable to meet its obligations. A
 22 number of protections are in place to reduce this risk. First, clearinghouses require
 23 clearing brokers, like RHS, to pay a deposit to clearinghouses to facilitate and clear
 24 trades until the trades are settled. (*Id.* ¶ 11.) The deposit amount is based on risk,
 25 which the clearinghouses calculate by looking to, among other things, a firm’s
 26

27 ² Telis Demos, *Why Did Robinhood Ground GameStop? Look at Clearing*,
 28 Wall St. J. (Jan. 29, 2021, 7:33 PM), <https://www.wsj.com/articles/how-clearing-demands-grounded-the-wallstreetbets-stocks-for-a-dav-11611966092>.

customer holdings and using a volatility multiplier. (*Id.*) To clear and settle customer transactions, clearing brokers, like RHS, must satisfy those deposit requirements, which can change throughout the course of a single day. (*Id.* ¶ 12.)

Second, SEC regulations require broker-dealers like RHS and RHF to maintain a certain level of net capital to ensure the ability to promptly satisfy their liabilities at all times. (*Id.* ¶ 14.) Together, the clearinghouse deposits and the net capital requirements require Robinhood to carefully monitor liquidity. This can be particularly challenging for any broker-dealer during periods of volatility. But the purpose of these requirements is simple—to protect investors. (*Id.* ¶ 15.)

II. Robinhood's Response to Unprecedented Trading Volatility.

The week of January 25 to 29, 2021 presented unprecedented challenges to Robinhood's ability to satisfy its obligations to clearinghouses. That week, the financial markets experienced extreme levels of volatility and unprecedented volume, well outside the bounds expected in the ordinary course of business. For example, on January 27, 2021, the Chicago Board Options Exchange Volatility Index, or "VIX", spiked by 62%, a dramatic increase that the Wall Street Journal reported was the third-largest percentage daily gain since 1990.³

During this period, Robinhood observed that a number of specific securities were subject to particularly rapid price fluctuations, including GameStop Corp. ("GME"), whose stock opened on January 22, 2021 at \$42.59 per share, rose to \$76.79 by the end of January 25, 2021, and then spiked to \$347.51 per share at market close January 27, 2021, a 716% increase over four trading days. In response to these securities' price volatility, beginning on January 25, 2021, RHF (the Robinhood introducing broker) began proactively increasing the stocks' margin maintenance requirements to 100%—requiring purchasers to pay for their

³ Quentin Webb, *Volatility Index Soars*, Wall St. J. (Jan. 27, 2021, 10:43 PM), <https://www.wsj.com/livecoverage/amc-gamestop-stock-market/card/G0TKmyrTdokyPNjwtywje>.

1 shares in full—to begin to mitigate the risks that extreme market volatility posed to
 2 both the company and investors. (Declaration of Shiv Verma (“Verma Decl.”)
 3 ¶ 10.) RHF also limited the number of options contract for these stocks that could
 4 be acquired on Robinhood’s platform to ensure that RHF and RHS could
 5 sufficiently apply their capital to serve *all* of its customers. (*Id.*)

6 This surge in volatility and volume also led to a surge in
 7 clearinghouse-mandated deposit requirements. (*Id.* ¶¶ 11-12; Swartwout Decl.
 8 ¶¶ 25-26.) From January 25 to 27, 2021 alone, the NSCC increased RHS’s deposit
 9 requirements by several hundred million dollars, which RHS met. (Verma Decl.
 10 ¶ 11.) In response, Robinhood strengthened its cash position by drawing down on
 11 an existing line of credit from January 25 to 28, 2021. (*Id.* ¶ 18.)

12 Then, early in the morning on January 28, 2021, Robinhood’s
 13 operations team was notified that the NSCC had again responded to the immense
 14 volatility in the markets, this time increasing RHS’s deposit requirements by more
 15 than \$3 billion. (*Id.* ¶ 12; Swartwout Decl. ¶ 25.)

16 A substantial portion of the increased deposit requirement was due to
 17 NSCC’s value-at-risk (“VaR”) calculation for specific stocks, including GME and
 18 AMC Entertainment Holdings, Inc. (“AMC”). (Verma Decl. ¶ 13; Swartwout
 19 Decl. ¶ 26.) To mitigate this sudden increase, Robinhood proposed that, as a
 20 temporary measure, it would limit customer purchases for certain volatile stocks
 21 driving the increased deposit requirements. (Verma Decl. ¶ 13; Swartwout Decl.
 22 ¶ 26.) Robinhood left available the option for customers to sell their positions, a
 23 “position closing only” restriction. (Verma Decl. ¶ 14; Swartwout Decl. ¶ 27.)

24 The purchase restrictions were a necessary, but difficult step, which
 25 RHS instructed RHF to take to protect the company, its customers and the markets.
 26 Following this preventative measure, the NSCC lowered the deposit requirement
 27 for January 28. (Verma Decl. ¶¶ 15-16; Swartwout Decl. ¶ 28.) While the balance
 28

1 remained hundreds of millions of dollars above typical levels, Robinhood
 2 immediately paid all such requirements that morning. (Verma Decl. ¶ 13;
 3 Swartwout Decl. ¶ 26.) RHS was therefore able to meet its deposit requirements
 4 and serve its growing customer base. (Verma Decl. ¶ 14; Swartwout Decl. ¶ 27.)

5 Beginning after market close on January 28, 2021, Robinhood began
 6 taking steps to ease the restrictions that it had placed on the most volatile stocks.
 7 (Swartwout Decl. ¶¶ 30-32.) Rather than marking the relevant tickers “position
 8 closing only,” Robinhood set a maximum number of shares or options contract for
 9 each customer on a security-by-security basis, providing customers with an
 10 opportunity to buy the impacted securities, albeit with caps. (*Id.*) RHM also raised
 11 approximately \$3.4 billion in additional capital from private investors between
 12 January 28 and February 1, 2021, \$1 billion of which it contributed to RHS so
 13 RHS could further reduce trading restrictions. (Verma Decl. ¶¶ 17-21.)

14 Robinhood did not take any of the above steps at the behest, or for the
 15 benefit, of any third party. (Verma Decl. ¶¶ 22-24; Swartwout Decl. ¶¶ 33-34.)
 16 Nor did Robinhood take these steps to protect any positions it held on its own
 17 account in the relevant securities. Robinhood did not hold any short positions in
 18 any of the “meme” stocks during the relevant time period. (Verma Decl. ¶ 25;
 19 Swartwout Decl. ¶ 35; Bain Decl. ¶ 35.)

20 The measures described above were not unique to Robinhood’s
 21 platform during this period. (Swartwout Decl. ¶ 29.) The SEC released an
 22 investor alert and bulletin on January 30, 2021, titled *Thinking About Investing in*
 23 *the Latest Hot Stock? Understand the Significant Risks of Short-Term Trading*
 24 *Based on Social Media*, which not only warned retail investors of the risks of
 25 short-term investing in a volatile market, but also made clear that broker-dealers

26 may reserve the ability to reject or limit customer
 27 transactions. This may be done for legal, compliance or
 28 risk management reasons, and is typically discussed in the
 customer account agreement. In certain circumstances,
 broker-dealers may determine not to accept orders where

a transaction presents certain associated compliance or legal risks.

See SEC Statement. This guidance was consistent with the rationale behind Robinhood’s Customer Agreement trade restriction provisions, as discussed above. Indeed, the trading restrictions that Robinhood put in place were limited—just one week later, by February 5, 2021, Robinhood lifted *all* of the restrictions. (Swartwout Decl. ¶ 32.)

LEGAL STANDARD

A temporary restraining order (“TRO”) is “an extraordinary and drastic remedy, one that should not be granted unless the movant, *by a clear showing*, carries the burden of persuasion.” *Lopez v. Brewer*, 680 F.3d 1068, 1072 (9th Cir. 2012) (citation omitted) (emphasis in original). To obtain either a TRO or a preliminary injunction, a plaintiff must prove, by a clear showing, that: (i) he is likely to succeed on the merits; (ii) he is likely to suffer irreparable harm in the absence of preliminary relief; (iii) the balance of equities tips in his favor; and (iv) an injunction is in the public interest. *See Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008). Where a plaintiff shows only “serious questions going to the merits”, he must compensate by showing “a balance of hardships that tips sharply towards the plaintiff”, along with the irreparable harm and public interest prongs. *Brewer*, 680 F.3d at 1072 (citation omitted). Any injunctive relief awarded “must be tailored to remedy the specific harm alleged”. *Park Vill. Apartment Tenants Ass’n v. Mortimer Howard Tr.*, 636 F.3d 1150, 1160 (9th Cir. 2011) (emphasis omitted) (citation omitted).

The Ninth Circuit has also made clear that when “a party seeks mandatory preliminary relief that goes well beyond maintaining the status quo *pendente lite*”, the court “should be extremely cautious”. *Martin v. Int’l Olympic Comm.*, 740 F.2d 670, 675 (9th Cir. 1984). That heightened standard applies here. Plaintiff seeks an Order requiring Robinhood to accept all customer-requested

trades on its transaction platform absent a court or government order. (Pl.’s Br. at 7.) That is not the status quo. *See Marlyn Nutraceuticals, Inc. v. Mucos Pharma GmbH & Co.*, 571 F.3d 873, 879 (9th Cir. 2009) (ordering affirmative steps “did not operate simply to preserve the status quo”). As the SEC’s January 30, 2021 guidance confirms, Robinhood has always maintained the discretion to refuse to accept a transaction. (*See* Bain Decl. ¶¶ 12-13; Bain Decl. Exs. C, D ¶¶ 5.F, 16.)

ARGUMENT

I. PLAINTIFF IS UNLIKELY TO SUCCEED ON THE MERITS.

Plaintiff brings four legal claims. Each fails for a variety of legal and factual reasons. The first prong of the *Winter* test therefore favors denial.

A. Plaintiff’s Securities Exchange Act Claim Fails.

Plaintiff claims that Defendants violated Sections 9(a), 9(d) and 9(i) of the Securities Exchange Act. (Compl. ¶¶ 22, 43, 44.) None of these claims supports an injunction.

i. Plaintiff Does Not Have a Viable Private Right of Action.

A civil plaintiff can seek relief under the Exchange Act only with respect to those sections for which a private right of action was created. Section 9(f) of the Exchange Act creates potential civil liability for any person who “willfully participates” in the manipulation of securities on a national exchange” in violation of one of Sections 9(a), 9(b) or 9(c). *Ernst & Ernst v. Hochfelder*, 425 U.S. 185, 211 n.28 (1976) (provision was then codified as section 9(e)). This list notably excludes Sections 9(d) and 9(i), for which there is no private right of action. Plaintiff therefore has no claim under sections 9(d) or 9(i).

Plaintiff also has no claim under Section 9(a). While Section 9(f) provides a private right of action for violations of Section 9(a), it does so only for persons “*who shall purchase or sell any security* at a price which was affected by” the alleged violation of Section 9(a). 15 U.S.C. § 78i(f) (emphasis added). Here,

1 Plaintiff does not allege he bought or sold a security at an inflated or deflated price;
 2 rather, he alleges Robinhood *prevented him* from buying certain securities.
 3 (Compl. ¶¶ 25-26.) He therefore lacks standing under Section 9(f). *See*
 4 *Richardson v. Shearson/Am. Express Co.*, 573 F. Supp. 133, 136 (S.D.N.Y. 1983)
 5 (“[P]laintiffs do not claim that they purchased or sold [a security] at a price that
 6 was affected by [defendant’s] alleged violation of section 9. Rather, they assert
 7 that [defendant’s] conduct induced them not to sell the stock. For this reason
 8 alone, Count IV [alleging a violation of Section 9(f)] must be dismissed.”).⁴

9 ii. *Plaintiff Cannot Prove Section 9(a) Market Manipulation.*

10 Plaintiff’s Exchange Act claim also lacks merit because (i) he fails to
 11 allege any conduct that courts consider manipulative under Section 9(a)(2); and
 12 (ii) he fails to allege sufficiently that Robinhood acted with scienter.

13 (1) *Plaintiff Fails to Allege Manipulative Conduct.*

14 By Plaintiff’s own admission, actionable manipulation involves
 15 “deception of investors” (Pl.’s Br. at 6), and requires “a showing that the
 16 defendants took some action that was intended to mislead the investing public”.
 17 *Onel v. Top Ships, Inc.*, 806 F. App’x 64, 67 (2d Cir. 2020).

18 Plaintiff does not allege such “deception” here. Instead, Plaintiff
 19 concedes that Robinhood’s stock purchase restrictions were publicly announced,
 20 noting in the Complaint that Robinhood’s CEO discussed the restrictions publicly
 21 on television on the same day Plaintiff unsuccessfully attempted to buy BlackBerry
 22 stock. (Compl. ¶ 28.) Not mentioned in the Complaint are the facts that

24 ⁴ Plaintiff also alleges violations of Section 9(a)(6). (Compl. ¶ 43; Pl.’s Br.
 25 at 12.) A violation of Section 9(a)(6) requires “pegging, fixing, or stabilizing the
 26 price of such security in contravention of such rules or regulations as the
 27 Commission may prescribe”. 15 U.S.C. § 78i(a)(6). However, the SEC has
 28 repealed the rules (Rules 10b-6 to 10b-8) formerly issued under Section 9(a)(6)
 and replaced them with rules that apply only to underwriters and other offering
 participants. *See* 62 Fed. Reg. 520 (Jan. 3, 1997). Because there are no longer any
 SEC rules applicable to broker-dealers under Section 9(a)(6), Plaintiff has no claim
 under that section.

1 Robinhood publicly posted its restrictions on its website (Bain Decl. ¶ 29) and the
2 restrictions were one of the most covered news stories of the year.⁵

3 The cases Plaintiff cites in support of his argument that Robinhood
4 engaged in “manipulation” only underscore the extent to which Robinhood’s
5 conduct differs from the covert and deceptive conduct that courts have previously
6 found to be manipulative. For example, Plaintiff cites *SEC v. Resch-Cassin & Co.*,
7 362 F. Supp. 964, 978 (S.D.N.Y. 1973) and *SEC v. Malenfant*, 784 F. Supp. 141,
8 142 (S.D.N.Y. 1992), both of which involve pump-and-dump schemes in which
9 the defendants inflated the price of stock they owned through false and misleading
10 statements in order to sell the stock later at a higher price. Each of these cases
11 involved allegations that the defendant held a position in the relevant securities and
12 used deceptive conduct to profit on those positions by tricking other market
13 participants into engaging in their own purchases or sales. No such allegations
14 exist here. Indeed, Robinhood did not hold a short position in any of the relevant
15 stocks, and therefore did not stand to profit at all from a decrease in the relevant
16 stock prices. (Verma Decl. ¶ 25; Swartwout Decl. ¶ 35; Bain Decl. ¶ 35.)⁶

17 Plaintiff does allege a conspiracy theory that Robinhood implemented
18 trading restrictions beginning on January 28 at the behest, or for the benefit, of
19 third parties such as Citadel Securities, which he incorrectly alleges has an
20 ownership stake in Robinhood. (Compl. ¶ 12; Pl.’s Br. at 7.) This is nothing more
21 than rank speculation, completely unsupported by any factual allegations and
22 conclusively refuted by the sworn declarations submitted herewith. No third party
23

24 ⁵ See, e.g., Joe Wallace, Amrith Ramkumar, Gunjan Banerji, *GameStop Mania*
25 *Hits a Wall of Tighter Trading Terms*, Wall St. J. (Feb. 2, 2021, 6:06 PM),
26 <https://www.wsj.com/articles/silver-etf-at-center-of-reddit-fueled-surge-11612281290>.

27 ⁶ *Crane Co. v. Westinghouse Air Brake Co.*, 419 F.2d 787 (2d Cir. 1969), also
28 cited by Plaintiff, involved a defendant that sought to prevent a corporate takeover
by engaging in “extraordinary buying [of target company stock] . . . coupled with
[] large secret sales off the market”, *id.* at 793—a type of deception utterly absent
here.

1 directed, or requested, that Robinhood implement the trading restrictions. (Verma
 2 Decl. ¶¶ 22-24.) And, contrary to Plaintiff's allegations, Citadel does *not* hold any
 3 ownership stake directly, or to Robinhood's knowledge indirectly, in Robinhood.
 4 (Verma Decl. ¶ 23; Swartwout Decl. ¶ 34.) These conspiratorial allegations and
 5 claims of conflict of interest are "incomprehensible, conclusory statements about
 6 harm, and [are] devoid of any facts or authorities to support Plaintiff's claims".
 7 *McElroy v. Majchrzak*, No. EDCV 20-2228 (JGB) (PLAx), 2020 WL 7248373, at
 8 *1 (C.D. Cal. Oct. 27, 2020). "A preliminary injunction is an extraordinary and
 9 drastic remedy", *id.*, and one that requires more than such "mere allegations of
 10 wrongdoing". *Maxlite, Inc. v. ATG Elecs., Inc.*, 2020 WL 6260007, at *2 (C.D.
 11 Cal. July 13, 2020).

12 Finally, none of the claimed "deceptive" conduct is even alleged to
 13 have affected the price of securities. *See Jolley v. Welch*, 904 F.2d 988, 992 (5th
 14 Cir. 1990) ("[S]ection 9 does not govern manipulative practices that do not directly
 15 affect the market or purchase price of a security."); *Jewelcor Inc. v. Pearlman*, 397
 16 F. Supp. 221, 244 (S.D.N.Y. 1975) (same). While Plaintiff contends that
 17 Robinhood deceived its users "into believing that they were trading on a platform
 18 adequately capitalized" and that Robinhood did not disclose that Citadel Securities
 19 was a "major investor" in Robinhood (Pl.'s Br. at 7), Plaintiff does not even
 20 attempt to show that these alleged misrepresentations or omissions actually
 21 affected the price of any securities. Rather, to the extent Plaintiff alleges that
 22 Robinhood's conduct affected the securities market, it is only through the publicly
 23 disclosed purchase restrictions Robinhood implemented. (*See* Compl. ¶¶ 16-17.)

24 (2) *Plaintiff Cannot Prove Scienter.*

25 Plaintiff's claim fails for the separate and independent reason that
 26 Plaintiff cannot prove scienter, as required for a Section 9(a) claim. *See Connolly*
 27 *v. Havens*, 763 F. Supp. 6, 11-12 (S.D.N.Y. 1991). In fact, because the scienter
 28

1 element is subject to the heightened pleading requirements of Rule 9(b) and the
 2 Private Securities Litigation Reform Act of 1995, *see* Fed. R. Civ. P. 9(b); 15
 3 U.S.C. § 78u-4(b)(2)(A), this claim will not even survive a motion to dismiss.

4 Plaintiff contends that he can satisfy the scienter requirement by a
 5 showing of mere negligence. (Pl.'s Br. at 9-10.) The 50-year-old precedents
 6 Plaintiff cites for this contention have been overruled. Section 9 of the Exchange
 7 Act "contains a state-of-mind condition requiring something more than
 8 negligence"—specifically, it requires a showing of "willful[] participat[ion]" in the
 9 manipulation of securities. *Ernst & Ernst*, 425 U.S. at 211 n.28; *see also Dekalb*
 10 *Cty. Pension Fund v. Transocean Ltd.*, 817 F.3d 393, 403 (2d Cir. 2016) (same).

11 Robinhood implemented temporary purchase restrictions as a risk
 12 mitigant to reduce the amount of the clearinghouse deposit requirement and ensure
 13 the stability of its trading platform. (Verma Decl. ¶¶ 26-28; Swartwout Decl.
 14 ¶¶ 25-28.) It did not do so to benefit itself, and it did not do so at the behest, or for
 15 the benefit, of any third-party. (*See* Verma Decl. ¶¶ 22-25; Swartwout Decl. ¶¶ 33-
 16 35.) Contrasted against these sworn statements, Plaintiff offers nothing more than
 17 conclusory allegations. (*See, e.g.,* Compl. ¶ 18 ("Robinhood's actions were done
 18 purposefully and knowingly to manipulate, or with reason to know, that its
 19 customers would be harmed and without employing any reasonable protections for
 20 its retail investor customers affected . . .").) These are insufficient. *See In re Wet*
 21 *Seal, Inc. Sec. Litig.*, 518 F. Supp. 2d 1148, 1157 (C.D. Cal. 2007) ("[P]laintiffs
 22 cannot allege 'intent' in general terms or simply 'motive and opportunity' or
 23 'recklessness,' but instead must 'plead, at a minimum, particular facts giving rise
 24 to a strong inference of deliberate or conscious recklessness.'" (citation omitted)).

25 B. Plaintiff's Computer Fraud and Abuse Act Claim Fails.

26 Plaintiff asserts a claim under Section 1030(a)(5)(A) of the Computer
 27 Fraud and Abuse Act ("CFAA"). (Compl. ¶ 49.) To prevail, Plaintiff must prove
 28

1 that Robinhood (1) “knowingly” caused the “transmission of a program,
 2 information, code, or command” (2) to “intentionally” cause damage (3) “without
 3 authorization, to a protected computer”. See *Thurmond v. Compaq Comp. Corp.*,
 4 171 F. Supp. 2d 667, 675 (E.D. Tex. 2001); 18 U.S.C. § 1030(g) (private right of
 5 action for a violation of Section 1030). Plaintiff cannot do so.

6 First, Robinhood’s purchase restrictions did not involve an actionable
 7 “transmission”. Plaintiff’s misunderstanding of how Robinhood’s app works is
 8 apparent from his brief, where he asserts that “Robinhood transmitted a program,
 9 code, or command to Plaintiff’s computer and smartphone device (and to those
 10 similarly situated) that disabled the ‘buy’ feature/button on its app.” (Pl.’s Br.
 11 at 14.) As set forth in the Bain Declaration, that is simply untrue. When a
 12 customer uses the Robinhood app (or the web-based Robinhood interface) to make
 13 trades, the customer views information on Robinhood’s servers. (Bain Decl. ¶¶ 27-
 14 29.) In implementing the purchase restrictions, Robinhood did not “transmit” a
 15 program, code or command to customers’ smartphones or computers to alter the
 16 functionality of the app. To the contrary, it implemented the purchase restrictions
 17 in software and databases on its own servers. (*Id.* ¶ 31.)⁷

18 Second, Robinhood did not “damage” Plaintiff’s computer or
 19 smartphone. The customer device, and the Robinhood app installed on that device,
 20 work just as before. The only change is to the cloud-based functionality available
 21 on Robinhood’s own servers. (*Id.* ¶¶ 27-29.)

22 Third, any alleged “transmission” was not unauthorized within the
 23 meaning of the CFAA. *Pulte Homes, Inc. v. Laborers’ Int’l Union of N. Am.*, 648
 24 F.3d 295, 304 (6th Cir. 2011) (defining “without authorization” as used in CFAA

25
 26 ⁷ It is for this reason that Plaintiff’s citation to *United States v. Raisley* is
 27 unavailing. 466 F. App’x 125 (3d Cir. 2012). In that case, the defendant
 28 distributed a “malware” program, which installed itself (unbeknownst to their
 owners) on thousands of computers, which then launched a “Distributed Denial of
 Service” attack to render a webpage unavailable for its intended users. *Id.* at 127.
 There was no such unauthorized transmission (or damage) here.

1 as “without sanction or permission”). Plaintiff willingly downloaded the
 2 Robinhood application himself, opened an account and agreed to the Customer
 3 Agreement. The Customer Agreement grants Robinhood the authority, “at any
 4 time” and “without prior notice,” to “prohibit or restrict” Plaintiff’s “access to the
 5 use” of the app or website. (Bain Decl. Ex. D ¶ 16.) It further permits Robinhood
 6 to “prohibit or restrict” Plaintiff’s “ability to trade”, “refuse to accept any of”
 7 Plaintiff’s transactions, or “refuse to execute any of” Plaintiff’s transactions. (*Id.*);
 8 *see also LVRC Holdings LLC v. Brekka*, 581 F.3d 1127, 1135 (9th Cir. 2009)
 9 (affirming dismissal of CFAA claim because, where an employee had permission
 10 from his employer to use the computer, he did not access the computer “without
 11 authorization”).

12 C. Plaintiff’s Unfair Competition Law Claim Fails.

13 Plaintiff cannot show a likelihood of success on the merits of his
 14 claim under California’s Unfair Competition Law (“UCL”), Cal. Bus. & Prof.
 15 Code § 17200, *et seq.*, because (i) he lacks standing to bring such a claim, and
 16 (ii) even if he had standing, his claim is doomed to fail on the merits.

17 i. Plaintiff Lacks Standing to Pursue His UCL Claim.

18 “Standing under the UCL . . . is substantially narrower than standing
 19 under Article III of the Constitution.” *Wright v. Gen. Motors Acceptance Corp.*,
 20 545 F. App’x 686, 688 (9th Cir. 2013) (internal quotation marks omitted). To have
 21 standing to bring a UCL claim, “a plaintiff suing under the UCL must (1) establish
 22 . . . *economic injury*, and (2) show that the economic injury was the result of, i.e.,
 23 *caused by*, the unfair business practice . . . that is the gravamen of the claim.” *Id.*
 24 (alterations in original) (citations omitted) (internal quotation marks omitted).

25 Plaintiff has not alleged a cognizable injury. He alleges that he tried
 26 to purchase AMC shares using the Robinhood app on January 28, 2021, and that he
 27 tried to “access the ‘buy’ feature” for BlackBerry shares that same day. (Cobos

Decl. ¶ 7.) What he ignores is that he remained free to purchase these stocks from other broker-dealers. Robinhood did not prevent—and could not prevent—Plaintiff from buying these stocks; it simply did not provide a means for him to buy those stocks through Robinhood. Moreover, it is entirely speculative whether Plaintiff would have made or lost money if he had actually bought additional shares.⁸ See *Lanovaz v. Twinings N. Am., Inc.*, 726 F. App'x 590, 591 (9th Cir. 2018) (“A ‘some day’ intention[]—without any description of concrete plans . . . —does not support a finding of the ‘actual or imminent’ injury that Article III requires.”) (alteration in original) (quoting *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 564 (1992)).

Plaintiff’s allegations regarding his BlackBerry options contract fare no better. If he had exercised his call option on January 28 (as he could have done had he spoken to a live broker), he would have immediately *lost* money as the stock was trading well below the strike price of \$24.00. (See Cobos Decl. ¶ 5; Cobos Decl. Ex. 2.) That option remained out of the money when it expired the following day, and BlackBerry shares have not traded above \$24.00 through filing.

ii. *Plaintiff’s UCL Claim Cannot Succeed on the Merits.*

Plaintiff likewise cannot show a likelihood of success on the merits of his UCL claim. To state a claim under the UCL, a plaintiff must allege that the defendant engaged in an “unlawful, unfair or fraudulent business act or practice”. Cal. Bus. & Prof. Code § 17200. Plaintiff cannot show any unlawful conduct.

First, as discussed above in Sections I.A and I.B, Plaintiff’s claims under 15 U.S.C. § 78i(a) and 18 U.S.C. § 1030(a) are without merit, and thus cannot support a UCL claim. See *Bejou v. Bank of Am.*, No. CV F 13-0125 LJO

⁸ Plaintiff allegedly tried to purchase these stocks using the Robinhood app at a time on January 28 when they were trading at \$7.92 (AMC) and \$15.31 (BB). (Cobos Decl. ¶ 6; Cobos Decl. Exs. 1-2.) The Court can take judicial notice that these stocks closed on Monday, February 8, at \$6.18 (AMC) and \$13.76 (BB).

1 SMS, 2013 WL 1759126, at *5 (E.D. Cal. Apr. 24, 2013) (“Reliance on other
2 invalid claims fails to support a viable UCL claim.”).

3 *Second*, to the extent Plaintiff alleges separate liability under Section
4 9(d) or 9(i) of the Exchange Act, Plaintiff’s claim also fails. Section 9(d) prohibits
5 a person from manipulating a “short sale of any security”. 15 U.S.C. § 78i(d).
6 Plaintiff alleges that Robinhood’s stock restriction prevented him from buying
7 additional AMC stock, not shorting. (Compl. ¶ 25.) Customers cannot engage in
8 short sales on the Robinhood platform. (Swartwout Decl. ¶ 4.) Moreover, Plaintiff
9 does not allege that he suffered *any* loss as a result of a short sale by another
10 market participant, and therefore lacks standing to bring such a claim.

11 Section 9(i) prohibits any person from violating “*such rules or*
12 *regulations as the Commission may adopt*, consistent with the public interest, the
13 protection of investors, and the maintenance of fair and orderly markets”. 15
14 U.S.C. § 78i(i) (emphasis added). Plaintiff fails to cite any specific SEC “rules or
15 regulations” that Robinhood allegedly violated that would give rise to liability.
16 Instead, Plaintiff alleges generally that Robinhood’s “suspension of purchasing
17 was contrary to the rules and regulations requiring a fair and orderly market”.
18 (Pl.’s Br. at 13.) Such vague allegations are insufficient to survive a motion to
19 dismiss, much less serve as a basis for obtaining temporary injunctive relief.

20 *Third*, to the extent Plaintiff alleges separate liability under Rule 5310
21 of the Financial Industry Regulation Authority (“FINRA”), Plaintiff’s claim fails
22 again.⁹ Robinhood’s decision to decline or limit trades does not violate Rule 5310.
23 Rule 5310—the “Best Execution and Interpositioning” rule—applies to the level of
24 care with which a broker-dealer must exercise with an *accepted* trade order. *See In*
25 *the Matter of Scottrade, Inc.*, Exchange Act Release No. 58012, 93 S.E.C. Docket
26

27 ⁹ In addition to these grounds for why a UCL claim fails, it is well established
28 that there is no private right of action for a violation of FINRA Rules. *See Gurfein*
v. Ameritrade, Inc., 312 F. App’x 410, 414 (2d Cir. 2009).

1 1550, 2008 WL 2510611, at *5 (June 24, 2008) (“By *accepting* an order, a broker-
 2 dealer impliedly represents that the order will be executed in a manner consistent
 3 with the duty of best execution.” (emphasis added)). In other words, the Rule
 4 applies to *how* a trade is executed, not to a broker-dealer’s decision as to *whether*
 5 to execute a particular trade. As Plaintiff concedes, RHF temporarily did *not*
 6 accept any purchase orders for either AMC Entertainment or BlackBerry stock.

7 *Fourth*, Plaintiff cannot show any unfair or fraudulent conduct. As
 8 discussed above, Plaintiff’s speculative conflict of interest allegation concerning
 9 Citadel Securities is refuted by the record evidence. *See supra* Section II(A)(ii).

10 iii. *Robinhood’s Lawful Acts Cannot Violate the UCL.*

11 By definition, lawful acts cannot violate the UCL. *See Nivasive, Inc.*
 12 *v. Cadwell Indus., Inc.*, No. 12CV3065 JLS (JMA), 2013 WL 12096625, at *5
 13 (S.D. Cal. Nov. 4, 2013) (“[T]he UCL may not be used to impose liability for
 14 allegedly unfair practices that have been affirmatively declared to be lawful.”).
 15 Specifically, a UCL claim cannot succeed where the challenged conduct is an
 16 essential part of the company’s business operations and is consistent with industry
 17 practices. *See Byars v. SCME Mortg. Bankers, Inc.*, 109 Cal. App. 4th 1134, 1149
 18 (2003) (holding that a lender’s conduct did not violate the UCL because that
 19 conduct was “widespread and commonly used as a method to compensate
 20 mortgage brokers for services provided to borrowers and the lender”).

21 But that is all that is challenged here: lawful acts undertaken by
 22 Robinhood that are consistent with industry practice to ensure compliance with
 23 clearinghouse requirements and SEC regulations. (*See Swartwout Decl.* ¶¶ 25-29;
 24 *Verma Decl.* ¶¶ 12-16.) These acts were explicitly permitted by the Customer
 25 Agreement (Bain Decl. ¶¶ 8-21), and the SEC confirmed in its January 30, 2021
 26 Bulletin the right of broker-dealers to take such actions. *See SEC Statement.*
 27 Indeed, other broker-dealers also set purchase restrictions on the “meme” stocks.

1 D. Plaintiff's Negligence Claim Fails.

2 Plaintiff does not appear to rely on his negligence claim to support his
3 Application, nor could he. *See* Pl.'s Br. at 11-17 (arguing only the first three
4 causes of action). Plaintiff cannot show (1) the existence of a duty of care; (2) a
5 breach of that duty; (3) proximate cause; or (4) damages, as are all required to
6 prove a successful claim for negligence under California law. *Peredia v. HR*
7 *Mobile Servs., Inc.*, 25 Cal. App. 5th 680, 687 (2018).

8 Most fundamentally, Robinhood's duties to Plaintiff sound in
9 contract, not tort. *See Sheen v. Wells Fargo Bank, N.A.*, 38 Cal. App. 5th 346, 357
10 (2019) ("[T]he duties of care between parties who negotiate contracts are not
11 governed by the law of tort."). Here, the Customer Agreement permits Robinhood
12 to restrict the ability to purchase certain securities. (*See* Bain Decl. Ex. D ¶¶ 5.F,
13 16.) A tort claim for conduct expressly permitted by contract is barred. *See, e.g.*,
14 *Mackell v. Wells Fargo Home Mortg.*, No. 16-CV-04202-BLF, 2017 WL 373077,
15 at *8 (N.D. Cal. Jan. 26, 2017). Moreover, every customer agrees that "My
16 Account is self-directed" (Bain Decl. Ex. D ¶ 5.A), meaning that the customer is
17 fully responsible for his or her own investment decisions and is not relying on any
18 advice or recommendations from Robinhood. To the extent that a broker-dealer
19 owes any duty beyond its contractual relationship with its customer, it owes those
20 duties only for each individual transaction it accepts and processes for the
21 customer. *See de Kwiatkowski v. Bear, Stearns & Co.*, 306 F.3d 1293, 1302 (2d
22 Cir. 2002) ("On a transaction-by-transaction basis, the broker owes duties of
23 diligence and competence in executing the client's trade orders, and is obliged to
24 give honest and complete information when recommending a purchase or sale.
25 The client may enjoy the broker's advice and recommendations with respect to a
26 given trade, but has no legal claim on the broker's ongoing attention."). There is
27 no duty to accept all trades for all customers at all times.

1 FINRA Rule 5310 does not save Plaintiff's negligence claim. As
 2 noted above, the duty of best execution under FINRA Rule 5310 concerns only
 3 *how* an accepted trade is executed, not *whether* a broker will accept a trade. *See*
 4 *id.*; *see also In the Matter of Scottrade*, 2008 WL 2510611, at *5 ("By *accepting*
 5 an order, a broker-dealer impliedly represents that the order will be executed in a
 6 manner consistent with the duty of best execution.") (emphasis added). Robinhood
 7 did not accept any trades at issue. FINRA Rule 5310 is irrelevant.

8 **II. PLAINTIFF CANNOT CLEARLY SHOW IRREPARABLE HARM.**

9 Plaintiff must demonstrate by a clear showing that he will suffer
 10 irreparable injury, and that the injury is likely and imminent, not remote or
 11 speculative. *See Caribbean Marine Servs. Co. v. Baldrige*, 844 F.2d 668, 674 (9th
 12 Cir. 1988); *Brewer*, 680 F.3d at 1072. Plaintiff fails to make a clear showing that
 13 he will suffer irreparable harm. Indeed, he has failed to demonstrate any harm at
 14 all—past, present or future—and any alleged harm can be remedied by damages.

15 A. Plaintiff Has Not Demonstrated Past, Present or Imminent Harm.

16 Allegations of past harm cannot support an injunction; Plaintiff must
 17 instead articulate a threat of ongoing injury that is "likely" or "imminent". *See*
 18 *Baldrige*, 844 F.2d at 675. Prior to the market open on February 5, 2021,
 19 Robinhood lifted all of the temporary restrictions that it had previously put in place
 20 (Swartwout Decl. ¶ 32), mooted Plaintiff's assertion of imminent harm. At this
 21 point, whether—and to what extent—Robinhood may again decide it is necessary
 22 to implement restrictions on any securities is entirely speculative, as is the question
 23 of whether any such limitations would relate to any securities that have anything to
 24 do with Plaintiff.

25 Moreover, Plaintiff's theory of imminent harm appears to be that
 26 restrictions (if Robinhood reinstates them in the future) might lead to "depressed"
 27 prices in certain securities. (Pl.'s Br. at 12, 15, 17.) This could only conceivably
 28

1 harm Plaintiff with respect to securities he already held before the purchase
 2 restrictions went into effect. For the reasons discussed below, Plaintiff's
 3 speculative, conclusory assertions of harm that he *might* suffer in the future are
 4 insufficient to warrant a grant of injunctive relief. *See Herb Reed Enterprises, LLC*
 5 *v. Florida Ent. Mgmt., Inc.*, 736 F.3d 1239, 1250 (9th Cir. 2013) (a party seeking
 6 injunctive relief may not rely on "unsupported and conclusory statements
 7 regarding harm [the plaintiff] might suffer" in the future).

8 *First*, Plaintiff's theory is predicated on assuming that—if Robinhood
 9 had not placed temporary restrictions on AMC (now lifted)—he *would have*
 10 purchased AMC shares, those shares *would have* risen in value and then he *would*
 11 *have* sold those shares for a profit. Yet Plaintiff cannot show that he would have
 12 purchased AMC shares at a low price, held them for the right amount of time and
 13 then sold them at a higher price for a profit. Any attempt to do so would simply be
 14 with the benefit of hindsight. Plaintiff could have *lost* money buying additional
 15 AMC shares instead of *making* money. The same will be true for any future
 16 restrictions Robinhood may put in place. Pure speculation about lost profits on
 17 stock-market trading does not entitle Plaintiff to sweeping injunctive relief. *See id.*

18 *Second*, Plaintiff cannot show that he was foreclosed (or is now
 19 foreclosed) from carrying trades on the open market. Nothing obligated Plaintiff to
 20 trade on Robinhood's platform. Robinhood was not an exclusive broker for any of
 21 these stocks. Plaintiff admits that "[o]ther retail customers at other brokerage firms
 22 at the same time are and were permitted to purchase *or* sell the same stocks".
 23 (Pl.'s Br. at 11.) This alone defeats Plaintiff's Application.

24 *Third*, Plaintiff's theory of harm assumes that Robinhood's temporary
 25 purchase restrictions moved the market price of those securities. There is no
 26 evidence that RHF, a single broker-dealer in the market for securities, has the
 27 ability to move markets when investors could still purchase and sell shares through
 28

1 other broker-dealers. This thread of loosely-tied, speculative assertions is
 2 misguided, strains logic and certainly does not entitle Plaintiff to injunctive relief.
 3 *See In re Excel Innovations, Inc.*, 502 F.3d 1086, 1098-99 (9th Cir. 2007)
 4 (“[C]onclusory allegations are insufficient to establish irreparable harm.”).

5 B. Any Alleged Harm Can Be Remedied with Damages.

6 Even if Plaintiff had shown that he has suffered or will suffer harm—
 7 which he has not—the only appropriate remedy would be damages. “A plaintiff is
 8 not entitled to an injunction if money damages would fairly compensate him for
 9 any wrong he may have suffered.” *Youngstown Sheet & Tube Co. v. Sawyer*, 343
 10 U.S. 579, 595 (1952) (Frankfurter, J., concurring). Any injury that Plaintiff might
 11 suffer from the inability to trade securities on Robinhood’s platform is *monetary*
 12 injury, which “is not normally considered irreparable”. *See Los Angeles Mem’l*
 13 *Coliseum Comm’n v. Nat’l Football League*, 634 F.2d 1197, 1202 (9th Cir. 1980)
 14 (holding it is “well established” that injuries in the form of lost revenue are not
 15 normally irreparable); *BofI Fed. Bank v. Erhart*, 2016 WL 4680291, at *8 (S.D.
 16 Cal. Sept. 7, 2016) (“[E]ven if the Court considered a precipitous decline in stock
 17 price as irreparable harm, [Plaintiff] has not demonstrated a likelihood of suffering
 18 this harm again in the absence of a preliminary injunction.”); *Sierra Military*
 19 *Health Servs., Inc. v. United States*, 58 Fed. Cl. 573, 582 (2003) (same).

20 **III. THE BALANCE OF THE EQUITIES FAVORS DEFENDANTS.**

21 In considering whether to grant or deny injunctive relief, a district
 22 court “must balance the competing claims of injury and must consider the effect on
 23 each party of the granting or withholding of the requested relief.” *N. Cheyenne*
 24 *Tribe v. Norton*, 503 F.3d 836, 843-44 (9th Cir. 2007) (quoting *Amoco Prod. Co. v.*
 25 *Vill. of Gambell*, 480 U.S. 531, 542 (1987)).

26 The balance of equities tips decidedly in favor of denying the
 27 requested relief. Granting Plaintiff’s requested relief would risk serious harm to
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1 Robinhood's business, its customers, and the broader stock market. It would
 2 deprive RHF and RHS of the use of an important tool essential to the continued
 3 operation of any broker-dealer. RHS instructed RHF to impose certain temporary
 4 purchase restrictions to mitigate risk in connection with its clearinghouse deposit
 5 requirements. This ensured continuity of operations on the Robinhood platform,
 6 providing access to millions of customers to trading in thousands of securities.
 7 (Swartwout Decl. ¶ 28; Verma Decl. ¶ 26.) While the recent capital infusion and
 8 use of purchase restrictions has helped RHS manage its clearinghouse deposit
 9 requirements, enjoining Robinhood from exercising its discretion to limit trading in
 10 volatile securities would impose an unlimited capital requirement on the business.
 11 (Verma Decl. ¶ 27-28.) No broker-dealer could possibly have the capital to
 12 support limitless trades, especially in volatile securities. Enjoining Robinhood's
 13 ability to restrict trading in certain stocks that jeopardizes the continued operation
 14 of the entire platform would risk serious harm to Robinhood's business and loss of
 15 goodwill with its broker-dealers' customers—causing Robinhood irreparable harm.
 16 *See Stuhlberg Int'l Sales Co. v. John D. Brush & Co.*, 240 F.3d 832, 841 (9th Cir.
 17 2001) (holding "threatened loss of prospective customers or goodwill certainly
 18 supports a finding of the possibility of irreparable harm").

19 Indeed, granting the requested relief could force Robinhood into an
 20 impossible Catch-22 scenario. On the one hand, RHS could comply with this
 21 Court's order and become the only broker-dealer in the United States that is
 22 exposed to the risk of limitless collateral deposit requirements. On the other hand,
 23 RHS could act consistently with its Customer Agreement and SEC guidance by
 24 exercising discretion to limit trades to ensure that it can meet all collateral deposit
 25 requirements and net capital regulations (*e.g.*, Swartwout Decl. ¶¶ 26-29), but, in
 26 doing so, violate the Court's order.

1 Simply put, RHS's discretion to instruct RHF to apply trading
 2 restrictions is one tool that RHS uses to satisfy its obligations to the entire
 3 Robinhood customer base, its clearinghouses and the SEC. Removing that tool
 4 would directly, and irreparably, interfere with those efforts. *See John Labatt Ltd.*
 5 *v. Onex Corp.*, 890 F. Supp. 235, 249 (S.D.N.Y. 1995) (finding that the balance of
 6 hardships tipped in favor of defendants who were entitled to conduct their business
 7 pursuant to Canadian law and regulations, and noting that granting the relief sought
 8 "would superimpose another—potentially inconsistent—regulatory scheme on the
 9 transaction"). By contrast, denial of the injunction would impose little, if any,
 10 hardship on Plaintiff. The temporary restrictions have already been lifted, and
 11 even when they were in place Plaintiff was free to execute trades elsewhere.
 12 (Swartwout Decl. ¶ 32.)

13 **IV. A TEMPORARY RESTRAINING ORDER IS NOT IN THE PUBLIC**
 14 **INTEREST.**

15 The sweeping relief that Plaintiff seeks would do far more harm than
 16 good to the public, and the fourth *Winter* factor fails. *Winter*, 555 U.S. at 20.

17 As described above, preserving Robinhood's discretion to impose
 18 trading restrictions on volatile stocks benefits the public by ensuring stability for
 19 the millions of Robinhood customers and, by extension, the entire market. The
 20 requested injunction would tie RHF's and RHS's hands from complying with other
 21 broker-dealer requirements that help to protect the public interest, such as
 22 restricting transactions in situations involving suspected insider trading or money
 23 laundering. Should the Court order the requested relief, RHS could find itself in
 24 the position of having to choose between, on the one hand, violating clearinghouse
 25 obligations and undermining the regulatory regime designed to protect the public
 26 or, on the other, violating this Court's order. That is not in the public interest. *See*
 27 *Video Gaming Techs., Inc. v. Bureau of Gambling Control*, 356 F. App'x 89, 94

1 (9th Cir. 2009) (finding that a preliminary injunction conflicted with the public
2 interest where the injunction was inconsistent with gaming regulations).

3 The SEC and FINRA already inspect and regulate broker-dealers.
4 The SEC has stated—*following media attention on Robinhood's actions*—that
5 “broker-dealers may reserve the ability to reject or limit customer transactions.”
6 See SEC Statement. These agencies are best positioned to assess whether that
7 discretion should be narrowed in the future.

8 **V. PLAINTIFF WOULD HAVE TO POST A BOND SUFFICIENT TO**
9 **COVER ALL POTENTIAL HARM TO ROBINHOOD.**

10 Plaintiff argues that he should be required to post only a nominal bond
11 of \$1,000 given the supposed absence of any harm to Robinhood. (Pl.’s Br. at 19.)
12 Plaintiff is wrong on the facts and the law. Under Federal Rule of Civil Procedure
13 65(c), a “court may issue a preliminary injunction or a temporary restraining order
14 *only* if the movant gives security in an amount that the court considers proper to
15 pay the costs and damages sustained by any party found to have been wrongfully
16 enjoined or restrained.” Fed. R. Civ. P. 65(c) (emphasis added); see *MoroccanOil,*
17 *Inc. v. Zotos Int’l, Inc.*, 230 F. Supp. 3d 1161, 1179 (C.D. Cal. 2017) (requiring a
18 bond in the amount of \$250,000, taking into account the costs the defendant would
19 incur). Plaintiff would have to post a bond of *at least* \$3 billion, the incremental
20 amount originally required by the clearinghouse before the trading restrictions
21 were implemented. (Swartwout Decl. ¶ 25; Verma Decl. ¶ 12.) Plaintiff obviously
22 cannot bond such an amount. The magnitude of such a bond confirms why the
23 balance of hardships tilts so decidedly against an injunction.

24 **CONCLUSION**

25 For the foregoing reasons, Defendants respectfully submit that the
26 Application must be denied.

1 Dated: February 8, 2021

2
3
4 By: /s/ Naeun Rim

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 19 Robinhood Securities, LLC; and Robinhood Markets, Inc.*

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**UNITED STATES DISTRICT COURT
 CENTRAL DISTRICT OF CALIFORNIA**

LEVI COBOS, an individual on behalf
 of those similarly situated,

Plaintiff,

v.

ROBINHOOD FINANCIAL LLC, a
 Delaware Corporation; ROBINHOOD
 SECURITIES, LLC, a Delaware
 Corporation; and ROBINHOOD
 MARKETS, INC., a Delaware
 corporation; and DOES 1 through 1000,
 inclusive,
 Defendants.

Case No. 21-cv-00843-VAP-MRW

[Related Cases 2:21-cv-00835-VAP
 (MRWx); 2:21-cv-00837-VAP
 (MRWx)]

**DECLARATION OF BRIANNA
 BAIN**

Judge: Hon. Virginia A. Phillips
 Courtroom: 8A
 Hearing Date: February 10, 2021
 Hearing Time: 10:00 A.M.

1 I, Brianna Bain, declare as follows:

2 1. I am the Head of Market Operations at Robinhood Financial LLC
3 (“RHF”). I have been registered at RHF since 2016. In my position, I am
4 responsible for supervising RHF’s ability to accept customer orders as well as
5 margin and options operations and supervision. I have personal knowledge of the
6 facts stated in this declaration, except for those matters stated on information and
7 belief, and if called upon to do so, I could and would so testify.

8 2. I respectfully submit this Declaration in support of Robinhood’s
9 Opposition to Plaintiff’s Motion for a Temporary Restraining Order.

10 3. Robinhood Markets, Inc. (“RHM”) is a financial services company
11 headquartered in Menlo Park, California. RHM wholly owns RHF, which acts as
12 an introducing broker for its customers by taking their trade orders. RHF is
13 headquartered in Menlo Park, California. RHM also wholly owns Robinhood
14 Securities, LLC (“RHS”), which, as a member of SEC-registered clearinghouses,
15 serves as a clearing broker for RHF. In that capacity, RHS executes customer
16 orders received from RHF by routing them to market-makers and also clears and
17 settles trades for RHF. RHS’s headquarters is registered with FINRA and the SEC
18 in Lake Mary, Florida. Throughout this Declaration, I refer to these three entities
19 collectively as “Robinhood.”

20 4. In my capacity as Head of Market Operations at RHF, I supervise a
21 number of our customer-facing functions, including equity and options trading, and
22 margin. Among other responsibilities, I supervise aspects of the customer interface
23 on the RHF platform. I am familiar with how our customer-facing applications are
24 programmed, maintained and updated. I also am involved with reviewing and
25 approving new customer account applicants.

26 5. I understand that the plaintiff in this case is Levi Cobos. Mr. Cobos is
27 a Robinhood customer. In preparing this declaration, I reviewed Mr. Cobos’s
28

1 account and application history. I also confirmed that I approved Mr. Cobos's
2 account when he first applied.

3 **I. Robinhood's Customer Accounts and Agreements.**

4 6. Prospective customers can open a Robinhood account on the web or
5 by downloading the Robinhood app onto their mobile device. In both instances,
6 prospective customers provide certain personal information as part of submitting
7 an application.

8 7. As part of the application process, prospective customers are asked to
9 review and accept a number of agreements, and terms and conditions before their
10 account can be approved and they can begin investing using the Robinhood
11 platform.

12 8. On October 29, 2020, Mr. Cobos applied to be a Robinhood
13 customer. He provided his contact and employment information, verified his
14 identity and described his level of investment experience. Like other customers
15 who signed up for Robinhood, when he did so, he expressly assented to the
16 following provision:

17 I agree to this Robinhood Financial Brokerage Application
18 Agreement (this "Application Agreement"). I also agree
19 to the terms of the RHF-RHS Customer Agreement,
20 Robinhood Terms and Conditions, RHF Use and Risk
21 Disclosures, RHF PFO Disclosure, RHF Business
Continuity Plan Summary, and FINRA Public Disclosure
Program, which are incorporated by reference and
constitute part of this Application Agreement.

22 9. A true and correct screenshot where the above-quoted provision is
23 viewable to prospective customers is attached hereto as **Exhibit A**.

24 10. The Brokerage Application Agreement incorporated the terms of six
25 other, related agreements: (i) RHF-RHS Customer Agreement, (ii) Robinhood
26 Terms and Conditions, (iii) RHF Use and Risk Disclosures, (iv) RHF PFO
27 Disclosure, (v) RHF Business Continuity Plan Summary and (vi) FINRA Public
28 Disclosure Program. Mr. Cobos, like all other prospective customers, was

1 provided the hyperlinks to each of these agreements to review their terms before
2 joining the Robinhood platform and thereby agreed to the terms and conditions
3 contained in those documents. A true and correct copy of the Brokerage
4 Application Agreement in effect in October 2020 is attached hereto as **Exhibit B**.

5 11. Consistent with FINRA Rules, the RHF-RHS Customer Agreement
6 (the "Customer Agreement") includes terms that govern the RHF and RHS
7 contractual relationship with its customers, including the terms on which customer
8 accounts are maintained and trades effectuated, as well as the applicable dispute
9 resolution procedures. When Mr. Cobos agreed to the Brokerage Application
10 Agreement, he confirmed that he reviewed the Customer Agreement and assented
11 to its terms. A true and correct copy of the Customer Agreement in effect in
12 October 2020 is attached hereto as **Exhibit C**. A true and correct copy of the
13 current version of the Customer Agreement is attached hereto as **Exhibit D**.

14 12. Paragraph 5.F of the Customer Agreement that Mr. Cobos accepted
15 provides that Robinhood "may at any time, in its sole discretion and without prior
16 notice to [the customer], prohibit or restrict [the customer's] ability to trade
17 securities." (Ex. C, ¶ 5.F.)

18 13. Paragraph 16 of the Customer Agreement that Mr. Cobos accepted
19 provides that "Robinhood may at any time, at its sole discretion and without prior
20 notice to [the customer]: (i) prohibit or restrict [the customer's] access to the use
21 of the App or the Website or related services and [the customer's] ability to trade,
22 (ii) refuse to accept any of [the customer's] transactions, (iii) refuse to execute any
23 of [the customer's] transactions, or (iv) terminate [the customer's] Account."
24 (Ex. C, ¶ 16.)

25 14. In the Customer Agreement, Mr. Cobos also agreed that his securities
26 could be sold without notice. Specifically, the agreement provides that "whenever
27 it is necessary for Robinhood's protection or to satisfy a margin call . . . Robinhood
28 may (but is not required to) sell, assign, deliver all or any part of the securities in

1 [the customer's] Account, or close any or all transactions in [the customer's]
2 Account." Furthermore, the customer agrees that "Robinhood may, but is not
3 obligated to, attempt to contact [the customer] before taking any such action." The
4 customer also agrees that "Robinhood reserves the right to take any such action
5 without prior notice or demand for additional collateral, and free of any right of
6 redemption, and that any prior demand, call or notice will not be considered a
7 waiver of [Robinhood's] right to sell or buy without demand, call or notice."
8 Robinhood "may choose which securities to buy or sell, which transactions to
9 close, and the sequence and timing of liquidation, and may take such actions on
10 whatever exchange or market and in whatever manner (including public auction or
11 private sale) that Robinhood chooses in the exercise of its business judgment."
12 (Ex. C, ¶ 31.)

13 15. Paragraph 5.A of the Customer Agreement that Mr. Cobos accepted
14 provides that his account is "self-directed" and that "neither Robinhood nor any of
15 its employees, agents, principals, or representatives . . . provide investment advice
16 in connection with this Account." (Ex. C, ¶ 5.A.)

17 16. The Robinhood Terms and Conditions (the "Terms and Conditions")
18 govern customers' use of software, products, goods, services, content, tools, and
19 information provided by RHF and RHS. By submitting his application, Mr. Cobos
20 also agreed to the Terms and Conditions. A true and correct copy of the version of
21 the Terms and Conditions in effect when Mr. Cobos submitted his application in
22 October 2020 is attached hereto as **Exhibit E**.

23 17. The first page of the Terms and Conditions defines "[t]he Robinhood
24 website and mobile application" as "the Service." On the next page, the Terms and
25 Conditions provide, in bold capital letters, that RHF and RHS "will not be liable
26 for any direct, indirect, incidental, special, consequential or exemplary
27 damages . . . resulting from . . . the use of or the inability to use the . . . Service."
28 (Ex. E, at 1-2.)

1 18. When Mr. Cobos submitted his application and assented to the various
2 agreements described above, he was advised that those documents might be
3 modified from time to time. For example, the first page of the Customer
4 Agreement provides in bold capital letters that it may be amended from time to
5 time, with the most up-to-date agreement (if there are any revisions) posted on the
6 Robinhood website. Mr. Cobos agreed to check for updates to the Customer
7 Agreement, and that by continuing to maintain a brokerage account with
8 Robinhood, to be bound by the Customer Agreement as it might be amended from
9 time to time. (Ex. C, at 1, ¶ 37.G.)

10 19. Similarly, the final page of the Terms and Conditions includes a
11 provision titled “Revisions”: “Robinhood may at any time revise these Terms and
12 Conditions by updating this document. You agree to be bound by subsequent
13 revisions and agree to review these Terms and Conditions periodically for changes.
14 The most updated version of this document will be available for your review under
15 the ‘Robinhood Terms and Conditions’ link that appears on the Robinhood website
16 and mobile application.” (Ex. E, at 5.)

17 20. The current versions of the Customer Agreement and Terms and
18 Conditions are readily available on a dedicated page on Robinhood’s website,
19 called the Disclosure Library, so that customers are aware of the terms and
20 conditions under which they use Robinhood’s trading platform. A true and correct
21 copy of a screenshot of the relevant page of the Robinhood website is attached
22 hereto as **Exhibit F**.

23 21. The relevant provisions detailed above form the agreements in effect
24 at the time Mr. Cobos opened his account and have not changed in any of the
25 subsequent versions of those agreements, including the current versions publicly
26 available in Robinhood’s Disclosure Library. (See **Exhibits B, D and E** (true and
27 correct copies of the current versions of the Brokerage Application Agreement, the
28 Customer Agreement and the Terms and Conditions).)

1 **II. Mr. Cobos' Call Option Contract.**

2 22. I understand that Mr. Cobos claims to have purchased a call option for
3 BlackBerry, Ltd. ("BlackBerry" or "BB") stock with a strike price of \$24.00 and
4 an expiration date of January 29, 2021. (See Declaration of Cobos ¶ 5 (Dkt. No. 9-
5 0 ("Cobos Decl.")) I have reviewed his account and option contract and
6 confirmed both the strike price and expiration date.

7 23. I also understand that Mr. Cobos claims to have attempted to exercise
8 his BB call option on January 28, 2021, and was unable to do so. (Cobos Decl.
9 ¶ 7.)

10 24. My review of the options contract and publicly available stock prices
11 indicates that from January 28, 2021, through the January 29, 2021, expiration
12 date, Mr. Cobos' call option was never in the money. At all times on January 28
13 and January 29, 2021, BB traded below the \$24.00 strike price, and was therefore
14 out of the money ("OTM") at the January 29, 2021 expiration date. Had Mr.
15 Cobos exercised his call option as he claims he tried to do, he would have
16 immediately suffered a loss.

17 25. Robinhood had a practice (predating the purchase restrictions for
18 certain securities implemented on January 28, 2021) of not permitting the in-app or
19 online exercise of OTM options. This practice protects Robinhood customers from
20 a money-losing exercise of OTM options. As a result, Mr. Cobos was unable to
21 exercise his OTM BB call option on the Robinhood app or online on either January
22 28 or 29. He could have sold his options contract during this time.

23 26. If an option is in the money as it nears expiration, Robinhood takes
24 proactive steps to ensure that customers do not miss out on available profits. Thus,
25 Robinhood will typically exercise an ITM option so long as the customer's account
26 has the required buying power (*i.e.*, available cash on hand) to do so. If a customer
27 lacks the buying power to exercise the option, Robinhood will typically attempt to
28 sell the ITM option in the market shortly before expiration, if it has not received

1 contrary instructions from the customer. Robinhood followed this practice with
2 respect to open options contracts for BlackBerry stock that expired on January 29,
3 2021. As a result, any BlackBerry option contracts that were ITM and set to expire
4 were exercised or sold on behalf of the customer, and any BlackBerry option
5 contracts that were OTM and expired on that date were allowed to expire by their
6 own terms.

7 **III. Updates to the Robinhood Trading Platform.**

8 27. Many of Robinhood's customers access the Robinhood platform by
9 downloading the Robinhood mobile app to their smartphone or other mobile
10 device. In addition to the website, the app is available on the Google Android and
11 Apple iOS operating systems. Once a customer has downloaded the Robinhood
12 app and Robinhood has approved the account, he or she can use the mobile app to,
13 among other things, deposit funds, make trades and read investment news.

14 28. While the customer experiences the features of the Robinhood
15 platform through the app on his or her mobile device or via the web, much of the
16 functionality of the Robinhood platform is supported by Robinhood servers, which
17 customer devices access remotely. These servers house the software that runs
18 trading functions that the customer experiences through the app or the web-based
19 interface.

20 29. In the ordinary course of business, Robinhood makes changes from
21 time to time to the software and databases on its servers that run the Robinhood
22 platform. These changes are effectuated entirely on Robinhood's servers, and not
23 on the customer's mobile device or computer. These changes do not involve any
24 transmission of any program or code to the customer's mobile device or computer,
25 nor do they alter the customer's mobile device or computer. In other instances,
26 RHF may update the Robinhood app itself, and customers must download the
27 update.

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1 30. On Thursday, January 28, 2021, in response to unprecedented market
2 volatility and trading volume in certain stocks, Robinhood designated certain
3 volatile stocks “position closing only,” meaning that customers could not purchase
4 additional shares in those stocks, but were permitted to sell their positions or
5 exercise ITM options. Customers were advised of these limited designations
6 through Robinhood’s public website.

7 31. In enacting these temporary measures, Robinhood made changes
8 solely to the software and/or databases on its own servers. Robinhood did not
9 transmit any program or code to any customer’s mobile device or computer. The
10 changes were performed entirely on Robinhood’s servers. They did not involve
11 updates to the Robinhood app itself.

12 32. After market close on Thursday, January 28, 2021, Robinhood took
13 steps to ease the restrictions. Rather than marking the relevant tickers “position
14 closing only,” Robinhood set a maximum number of shares or options contracts for
15 each customer on a security-by-security basis, thereby permitting certain limited
16 buying in the impacted securities. In the following days, Robinhood modified the
17 restrictions a number of times as necessary to respond to developing market
18 conditions.

19 33. Once again, in enacting and revising these temporary measures,
20 Robinhood made changes solely to the software and/or databases on its own
21 servers. Robinhood did not transmit any program or code to any customer’s
22 mobile device or computer. The changes were performed entirely on Robinhood’s
23 servers.

24 34. As of February 5, 2021, Robinhood no longer has any maximum share
25 restrictions on a security-by-security basis.
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1 **IV. Robinhood Did Not Hold Any Short Positions in the Relevant Stocks**
2 **On Its Own Account.**

3 35. As of January 27, 2021 and through the present, RHF did not hold,
4 and has not held, short positions in GameStop Corp., AMC Entertainment
5 Holdings, Inc. or BlackBerry. Nor did Robinhood customers hold short positions
6 in any of those securities through Robinhood, as the Robinhood app and website
7 do not permit short selling.

8 I declare under penalty of perjury that the foregoing is true and correct.

9 Executed February 8, 2021, at Menlo Park, California.

10
11 *Brianna Bain*


12 _____
13 Brianna Bain
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EXHIBIT A

Submit Your Application | Robinhood

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[←](#) [→](#) [↺](#) [↻](#) [🏠](#) [robinhood.com/signup/submit](#)



Submit Your Application

Before we can create your account, please review the information below.

Brokerage Application Agreement

By tapping or clicking the "Submit Application" button, I agree to this Robinhood Financial Brokerage Application Agreement (this "Application Agreement"). I also agree to the terms of the [RHF-RHS Customer Agreement](#), [Robinhood Terms and Conditions](#), [RHF Use and Risk Disclosures](#), [RHF PFO Disclosure](#), [RHF Business Continuity Plan Summary](#), and [FINRA Public Disclosure Program](#), which are incorporated by reference and constitute part of this Application Agreement.

In addition, I may, in the future, receive from You supplemental disclosures, terms, and agreements that pertain to certain account types, features, or services. References to this Application Agreement include such supplemental disclosures, terms, and agreements. Capitalized, undefined terms in this Application Agreement have the meaning given in the Robinhood Financial Customer Agreement. I agree to read this Application Agreement and all incorporated disclosures, terms, and agreements carefully and retain copies for my records.

Submit Application

All investments involve risk and the past performance of a security, or financial product does not guarantee future results or returns. Keep in mind that while diversification may help spread risk it does not assure a profit, or protect against loss, in a down market. There is always the potential of losing money when you invest in securities, or other financial products. Investors should consider their investment objectives and risks carefully before investing.

All securities and investments are offered to self-directed customers by Robinhood Financial, LLC, member [FINRA](#) & [SIPC](#). Additional information about your broker can be found by clicking [here](#). Robinhood Financial, LLC is a wholly owned subsidiary of Robinhood Markets, Inc.

Check the background of Robinhood Financial LLC and Robinhood Securities, LLC on [FINRA's BrokerCheck](#).

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EXHIBIT A

[Robinhood Terms & Conditions](#) [Disclosure Library](#) [Contact Us](#) [FAQ](#)

EXHIBIT B

Robinhood Financial LLC

Form CRS Relationship Summary Effective June 30, 2020

1. Introduction

Robinhood Financial LLC ("Robinhood Financial", "we," "our," or "us") is registered with the Securities and Exchange Commission as a broker-dealer. Brokerage and investment advisory services and fees differ; and it is important that you understand these differences. Free and simple tools are available for you to research firms and financial professionals at [Investor.gov/CRS](https://investor.gov/CRS), which also provides educational materials about broker-dealers, investment advisers, and investing.

2. What investment services and advice can you provide me?

Robinhood Financial offers brokerage services to retail investors. Our services involve effecting securities transactions for investors exclusively online. We buy and sell securities only at your direction and we do not offer recommendations of securities, strategies involving securities or securities accounts to you. We do not monitor your account or individual investments, unless we state otherwise in writing. We do not have any account minimums. We offer access to investment tools and education to help you make investment decisions, but this information is for informational and educational purposes only. Robinhood Financial is an introducing broker dealer. Your funds and securities will be custodied by our affiliate, Robinhood Securities, LLC ("Robinhood Securities" and together with Robinhood Financial, "Robinhood"), which services your account by executing, clearing and settling your trades; preparing and distributing your account statements and trade confirmations; and extending credit to margin accounts. We offer NYSE and NASDAQ listed stocks, exchange traded funds ("ETFs"), options and American depositary receipts ("ADRs"), as well as certain stocks and ADRs traded in over-the-counter markets. We also offer fractional shares in many of the same stocks, ETFs, and ADRs. We do not offer proprietary products or limit our platform to products that pay us revenue sharing or other compensation.

For more information about our products and services, please visit our website at <https://robinhood.com/us/en/about/>.

Conversation starters: Given my financial situation, should I choose a brokerage service? Why or why not? How will you choose investments to recommend to me? What is your relevant experience, including your licenses, education and other qualifications? What do these qualifications mean? Responses to these questions can be found at: <https://rbnhd.co/crs-rs>.

3. What fees will I pay?

Robinhood does not charge fees or commissions for executing buy and sell orders. Other fees will apply. The primary fees you should expect to pay us include:

Robinhood Gold Fees: Robinhood charges a monthly fee for access to premium features such as bigger instant deposits, professional research from Morningstar, and Level II NASDAQ market data, as disclosed in the Robinhood Fee Schedule.

Margin Interest: Robinhood Securities charges a percentage on funds you borrow to purchase securities in a margin account.

You will pay fees and costs whether you make or lose money on your investments. Fees and costs will reduce any amount of money you make on your investments over time. Please make sure you understand what fees and costs you are paying.

For more information about fees and costs, please refer to the Robinhood Fee Schedule on the Robinhood mobile application ("App") and website. Fees may change without notice and any changes will be reflected in the Robinhood Fee Schedule.

Conversation starters: Help me understand how these fees and costs might affect my investments. If I give you \$10,000 to invest, how much will go to fees and costs, and how much will be invested for me? Responses to these questions can be found at: <https://rbnhd.co/crs-rs>.

What are your legal obligations to me when providing recommendations? How else does your firm make money and what conflicts of interest do you have?

We **do not** provide recommendations. The way we make money may create some conflicts with your interests. You should understand and ask us about these conflicts because they can affect the services we provide you. Here are some examples to help you understand what this means:

Cash Management - Cash Sweeps Each bank that participates in the Robinhood cash management program (called the "Sweep Service") that receives sweeps of your cash awaiting investment in securities into deposit accounts ("Program Bank") pays a fee to Robinhood equal to a certain percentage of the daily deposit balance of your cash deposited at the Program Bank. These fees may vary depending on the Program Bank. This creates an incentive for us to use Program Banks that pay greater compensation to us however, all Program Banks pay the same interest rates to all customers. The interest rates on your funds deposited at a Program Bank will be determined by the amount the Program Banks are willing to pay minus the fees paid to Robinhood. The interest rates paid by a Program Bank may be higher or lower than the interest rates available to depositors making deposits directly with a Program Bank or other depository institution in comparable accounts. Over time, the interest rates provided by Program Banks may be lower than the rate of return available through other investment options or deposit products that are not FDIC insured.

For more information about the Sweep Service, please refer to the Insured Network Deposit Sweep Program Disclosures available in the Robinhood Disclosure Library. Specific information about your deposit accounts may be found on the Robinhood website, App, or by e-mailing help@robinhood.com or visiting <https://robinhood.com/contact>.

Examples of other Revenue Robinhood Receives: • Interest on uninvested cash deposited in interest-bearing bank accounts outside the Sweep Service. • Stock loan income from lending the stocks you purchase on margin. • Interchange fees from purchases made by you with the Sweep Service debit card. • Rebates from market centers to which we route customer orders.

Conversation starters: How might your conflicts of interest affect me, and how will you address them? Our response to this question can be found at: <https://rbnhd.co/crs-rs>.

For more information about conflicts of interest, please visit the Robinhood Disclosure Library.

How do your financial professionals make money? Robinhood Financial professionals do not receive commissions or other compensation related to client assets or clients' investment activities. Robinhood Financial professionals receive salaries and bonuses that are based on their overall job responsibilities and performance.

4. Do you or your financial professionals have legal or disciplinary history?

Yes. Visit [Investor.gov/CRS](https://investor.gov/crs) for a free and simple search tool to research Robinhood and Robinhood financial professionals.

Conversation starters: As a financial professional, do you have any disciplinary history? For what type of conduct? Our responses to these questions are found on our website: <https://robinhood.co/crs-rs>.

5. For more information about our services or financial professionals or to request an up-to-date version of this Form and our Written Responses, please email help@robinhood.com or visit <https://robinhood.com/contact>.

Conversation starters: Who is my primary contact person? Is he or she a representative of an investment adviser or a broker-dealer? Who can I talk to if I have concerns about how this person is treating me? Our responses to these questions can be found at: <https://robinhood.co/crs-rs>.

Brokerage Application Agreement

By tapping or clicking the "Submit Application" button, I agree to this Robinhood Financial Brokerage Application Agreement (this "Application Agreement"). I also agree to the terms of the RHF-RHS Customer Agreement, Robinhood Terms and Conditions, RHF Use and Risk Disclosures, RHF PFO Disclosure, RHF Business Continuity Plan Summary, and FINRA Public Disclosure Program, which are incorporated by reference and constitute part of this Application Agreement.

In addition, I may, in the future, receive from You supplemental disclosures, terms, and agreements that pertain to certain account types, features, or services. References to this Application Agreement include such supplemental disclosures, terms, and agreements. Capitalized, undefined terms in this Application Agreement have the meaning given in the Robinhood Financial Customer Agreement. I agree to read this Application Agreement and all incorporated disclosures, terms, and agreements carefully and retain copies for My records.

MY WARRANTIES AND REPRESENTATIONS

I represent and warrant that:

1. This brokerage account is not maintained by a current or former Politically Exposed Person or Public Official (includes U.S. and Foreign Individuals).
2. This brokerage account is not maintained by a Foreign Financial Institution as defined by Title 30 of the Code of Federal Regulations.
3. This brokerage account is not a Foreign Bank organized under foreign law and located outside of the United States as defined by Title 31 of the Code of Federal Regulations.

4. I have carefully reviewed, understand and agree to the terms and provisions of the following: RHF-RHS Financial Customer Agreement, Robinhood Terms and Conditions, RHF Use and Risk Disclosures, RHF PFO Disclosure, RHF Business Continuity Plan Summary, and FINRA Public Disclosure Program.
5. I consent to receive all future brokerage account information electronically.
6. Tapping or clicking the "Submit Application" button is equivalent to My written signature, and I understand that I am entering into legal agreements.
7. I HAVE READ THE RHF-RHS CUSTOMER ACCOUNT AGREEMENT WHICH CONTAINS A PREDISPUTE ARBITRATION CLAUSE (SECTION 28 ON PAGES 20 AND 21) AND AGREE IN ADVANCE TO ARBITRATE ANY CONTROVERSIES WHICH MAY ARISE BETWEEN OR AMONG ME, YOU, AND/OR ROBINHOOD SECURITIES IN ACCORDANCE WITH SUCH SECTION 28.
8. ALL OF THE INFORMATION I HAVE PROVIDED IN THIS APPLICATION IS ACCURATE. You can rely on it and are authorized to verify this information.
9. I AGREE TO NOTIFY YOU PROMPTLY REGARDING ANY CHANGE IN THE INFORMATION PROVIDED ON THIS APPLICATION.

RULE 14b-1(c)

I acknowledge that Rule 14b-1(c) of the Securities Exchange Act, unless I object, requires You to disclose to an issuer, upon its request, the names, addresses, and securities positions of Your customers who are beneficial owners of the issuer's securities held by You in nominee name. The issuer would be permitted to use My name and other related information for corporation communication only. If I object, I will send an email to support@robinhood.com with "Rule 14b-1(c) objection" in the subject.

TAXES

Under penalties of perjury, I certify that: (1) the number provided with this application is My correct taxpayer identification number (or I am waiting for a number to be issued to Me), and (2) I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified Me that I am no longer subject to backup withholding, and (3) I am a U.S. citizen or other U.S. person (defined below).

If I have been notified by the IRS that I am currently subject to backup withholding because I have failed to report all interest and dividends on My tax return, I will send an email to support@robinhood.com with "Backup Withholding" in the title.

Definition of a U.S. person. For federal tax return purposes, I am considered a U.S. person if I am: An individual who is a U.S. citizen or U.S. resident alien, a partnership, corporation, company, or association created or organized in the United States or under the laws of the United States, an estate (other than a foreign estate), or a domestic trust (as defined in Regulations section 301.7701-7).

The Internal Revenue Service does not require My consent to any provisions of this document other than the certifications required to avoid backup withholding.

MY AUTHORIZATION AND MY AGREEMENT

I authorize You and/or RHS to obtain a consumer report at the time of application to verify My creditworthiness and to obtain a consumer report from time to time for updates, renewals, extensions, and collection activity on any approved brokerage account. Upon My written request, You and/or RHS will disclose to Me whether it obtained a report, and if so, the name and address of the consumer-reporting agency that provided it. In the event that My brokerage account is denied by RHS as a result of the consumer report verification, I authorize RHS to provide to You the reason(s) for such denial.

MARKET DATA

Robinhood Financial may choose to make certain market data available to you pursuant to the terms and conditions set forth in this Agreement. By executing this Agreement, I agree to comply with those terms and conditions.

Definitions

1. "Market Data" means (a) last sale information and quotation information relating to securities that are admitted to dealings on the New York Stock Exchange ("NYSE"), (b) such bond and other equity last sale and quotation information, and such index and other market information, as United States-registered national securities exchanges and national securities associations (each, an "Authorizing SRO") may make available and as the NYSE may from time to time designate as "Market Data"; and (c) all information that derives from any such information.
2. "Nonprofessional" means any natural person who receives market data solely for his/her personal, non-business use and who is not a "Professional." A "Professional" includes an individual who, if working in the United States, is: (i) registered or qualified with the Securities and Exchange Commission (the "SEC"), the Commodity Futures Trading Commission (the "CFTC"), any state securities agency, any securities exchange or association, or any commodities or futures contract market or association; (ii) engaged as an "investment advisor" as that term is defined in Section 202 (a) (11) of the Investment Advisers Act of 1940 (whether or not registered or qualified under that Act), or (iii) employed by a bank or other organization exempt from registration under federal and/or state securities laws to perform functions that would require him or her to be so registered or qualified if he or she were to perform such functions for an organization not so exempt. A person who works outside of the United States will be considered a "Professional" if he or she performs the same functions as someone who would be considered a "Professional" in the United States.

Provisions Applicable to All customers

1. *Proprietary Nature of Data.* I understand and acknowledge that each Authorizing SRO and Other Data Disseminator (as defined below) has a proprietary interest in the Market Data that originates on or derives from it or its market(s). I agree not to reproduce, distribute, sell or commercially exploit the Market Data in any manner.

2. *Enforcement.* I understand and acknowledge that (a) the Authorizing SROs are third-party beneficiaries under this Agreement and (b) the Authorizing SROs or their authorized representative(s) may enforce this Agreement, by legal proceedings or otherwise, against Me or any person that obtains Market Data that is made available pursuant to this Agreement other than as this Agreement contemplates.

3. *Data Not Guaranteed.* I understand that neither You nor any Authorizing SRO, other entity whose information is made available over the Authorizing SROs' facilities (an "Other Data Disseminator"), or information processor that assists any Authorizing SRO or Other Data Disseminator in making Market Data available (collectively, the "Disseminating Parties") guarantees the timeliness, sequence, accuracy, completeness, reliability, or content of Market Data or of other market information or messages disseminated to or by any Disseminating Party. I understand that neither Robinhood Financial nor any Disseminating Party guarantees the timeliness, sequence, accuracy, completeness, reliability or content of market information, or messages disseminated to or by any party. I understand that neither Robinhood Financial nor any Disseminating Party warrants that the service provided by any such entity will be uninterrupted or error-free. I further understand that Market Data by Xignite provides market data to Robinhood Financial customers. NEITHER ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, NOR ANY DISSEMINATING PARTY SHALL BE LIABLE IN ANY WAY FOR (A) ANY INACCURACY, ERROR OR DELAY IN, OR OMISSION OF, (I) ANY MARKET DATA, INFORMATION OR MESSAGE, OR (II) THE TRANSMISSION OR DELIVERY OF ANY SUCH DATA, INFORMATION OR MESSAGE; OR (B) ANY LOSS (AS DEFINED IN THIS AGREEMENT) OR DAMAGE ARISING FROM OR OCCASIONED BY (I) ANY SUCH INACCURACY, ERROR, DELAY OR OMISSION, (II) NON-PERFORMANCE OR (III) INTERRUPTION IN ANY SUCH MARKET DATA, INFORMATION, OR MESSAGE, WHETHER DUE TO ANY ACT OR OMISSION BY ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, OR ANY DISSEMINATING PARTY, OR TO ANY "FORCE MAJEURE" (E.G., FLOOD, EXTRAORDINARY WEATHER CONDITIONS, EARTHQUAKE OR OTHER ACT OF GOD, FIRE, WAR, INSURRECTION, RIOT, LABOR DISPUTE, ACCIDENT, ACTION OF GOVERNMENT, OR COMMUNICATIONS OR POWER FAILURE, EQUIPMENT OR SOFTWARE MALFUNCTION) OR ANY OTHER CAUSE BEYOND THE REASONABLE CONTROL OF ROBINHOOD FINANCIAL, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS AND EMPLOYEES, OR ANY DISSEMINATING PARTY.

4. *Permitted Use.* I shall not furnish Market Data to any other person or entity. If I receive Market Data other than as a Nonprofessional, I shall use Market Data only for My individual use.

5. *Dissemination, Discontinuance, or Modification.* I understand and acknowledge that, at any time, the Authorizing SROs may discontinue disseminating any category of Market Data, may change or eliminate any transmission method and may change transmission speeds or other signal characteristics. The Authorizing SROs shall not be liable for any resulting liability, loss or damages that may arise therefrom.

6. *Duration; Survival.* This Section of this Application Agreement remains in effect for so long as I have the ability to receive Market Data as contemplated by this Section. In addition, Sections

2(B)(1)-(3) and the first two sentences of Section 2(B)(7), survive any termination of this Application Agreement.

7. *Miscellaneous.* The laws of the State of New York shall govern this Section 2 and it shall be interpreted in accordance with those laws. This subsection is subject to the Securities Exchange Act of 1934, the rules promulgated under that act, and the joint-industry plans entered into pursuant to that act.

Provisions Applicable to Nonprofessionals

1. *Permitted Receipt.* I understand that I may not receive Market Data from You as a Nonprofessional, and You may not provide Market Data to Me as a Nonprofessional, unless You first properly determine that I qualify as a Nonprofessional as defined above and I in fact qualify as a Nonprofessional. I agree that, as a prerequisite to Robinhood Financial qualifying Me as a Nonprofessional, I will provide to You truthful and accurate information about Me, such as: my occupation, employer, employment position and functions; my use of Market Data; my registration status with any securities agency, exchange, association, or regulatory body, or any commodities or future contract market, association, or regulatory body, whether in the United States or elsewhere; and any compensation of any kind I may receive from any individual or entity for my trading activities, asset management, or investment advice. Except as otherwise declared to You in writing, by tapping or clicking the "Submit Application" button, I certify that I meet the definition of Nonprofessional as set forth in this Application Agreement.
2. *Permitted Use.* If I am a Nonprofessional, I agree to receive Market Data solely for my personal, non-business use.
3. *Notification.* I shall notify You promptly in writing of any change in my circumstances that may cause Me to cease to qualify as a Nonprofessional.

Extended Hours Trading Disclosure

You should consider the following points before engaging in extended hours trading. "Extended hours trading" means trading outside of "regular trading hours." "Regular trading hours" generally means the time between 9:30 a.m. and 4:00 p.m. Eastern Standard Time.

Risk of Lower Liquidity. Liquidity refers to the ability of market participants to buy and sell securities. Generally, the more orders that are available in a market, the greater the liquidity. Liquidity is important because with greater liquidity it is easier for investors to buy or sell securities, and as a result, investors are more likely to pay or receive a competitive price for securities purchased or sold. There may be lower liquidity in extended hours trading as compared to regular trading hours. As a result, Your order may only be partially executed, or not at all.

Risk of Higher Volatility. Volatility refers to the changes in price that securities undergo when trading. Generally, the higher the volatility of a security, the greater its price swings. There may be greater volatility in extended hours trading than in regular trading hours. As a result, Your order may only be partially executed, or not at all, or You may receive an inferior price when engaging in extended hours trading than You would during regular trading hours.

Risk of Changing Prices. The prices of securities traded in extended hours trading may not reflect the prices either at the end of regular trading hours, or upon the opening the next morning. As a result, You may receive an inferior price when engaging in extended hours trading than You would during regular trading hours.

Risk of Unlinked Markets. Depending on the extended hours trading system or the time of day, the prices displayed on a particular extended hours trading system may not reflect the prices in other concurrently operating extended hours trading systems dealing in the same securities. Accordingly, You may receive an inferior price in one extended hours trading system than You would in another extended hours trading system.

Risk of News Announcements. Normally, issuers make news announcements that may affect the price of their securities after regular trading hours. Similarly, important financial information is frequently announced outside of regular trading hours. In extended hours trading, these announcements may occur during trading, and if combined with lower liquidity and higher volatility, may cause an exaggerated and unsustainable effect on the price of a security.

Risk of Wider Spreads. The spread refers to the difference in price between for what price You can buy a security and at what price You can sell it. Lower liquidity and higher volatility in extended hours trading may result in wider than normal spreads for a particular security.

Extended Hours Trading Order Types and Expiration Settings. You may place only unconditional limit orders and typical Robinhood Financial Market Orders.

1. *Limit Orders.* GFD Limit Orders placed during the Day session will expire at the close of the afterHours session for that day, if not executed. "GFD" may also be substituted with an exact time for additional clarification, ex: "This order will automatically expire at 6pm ET if not executed or canceled by You.". GTC Limit Order placed during any session will stand through all sessions until executed or canceled. Any Limit order placed while all sessions are closed will be queued for the opening of the next session.
2. *Market Orders.* All Robinhood Financial Market Orders are technically limit orders with a 5% collar, although during the extended hours trading, these types of orders will be available for only a select list of securities as determined by Robinhood Financial and based on extended hours trading spreads. Orders in securities that do not fit into this category will be effected only as traditional Limit Orders, in which case You will not be shown an option to place a Market Order. Any Market Order placed while all sessions are closed will be queued for the opening of the next session.

BY TAPPING OR CLICKING ON THE "SUBMIT APPLICATION" BUTTON, I: (1) ACKNOWLEDGE THAT I HAVE RECEIVED THE FORM CRS RELATIONSHIP SUMMARY, AND (2) AGREE TO THIS APPLICATION AGREEMENT.

Robinhood Instant Agreement

This Robinhood Instant Agreement (the "Instant Agreement") sets forth the terms and conditions for a Robinhood Financial LLC ("Robinhood Financial") customer ("I"), to open the type of margin account described herein as "Robinhood Instant."

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Robinhood Instant is a service offering margin accounts that allow customers to trade using unsettled funds up to the amount in their Robinhood Instant account. Robinhood Instant requires a minimum deposit of \$2,000 or 100 percent of the purchase price—whichever is less—in the account before purchasing a security.

By tapping or clicking the "SUBMIT APPLICATION" button below, I: (1) acknowledge that I have carefully read and agree to this Instant Agreement and all incorporated disclosures, terms, and agreements, and retained copies for my records; (2) authorize Robinhood Financial to accept instructions to allow for trading no more than the amount held in my Robinhood Instant account; (3) agree to open, or convert my Robinhood Financial account into, a Robinhood Instant account under all of the aforementioned terms and conditions; and (4) also agree to the terms of the RHF Margin Agreement.

I understand that I have the option to borrow funds in my Robinhood Instant account, provided I meet the necessary requirements and receive the approval of Robinhood Financial. I acknowledge that I have read and that it is important that I fully understand the risks involved in trading securities on margin as described in the Margin Disclosure Statement.

Robinhood Financial will monitor trading activities in Robinhood Instant accounts and alert those customers at risk of qualifying as "pattern day traders." A pattern day trader, as defined under FINRA Rule 4210(f)(8)(B), is any customer who executes four or more day trades within five business days, provided the number of day trades is more than six percent of the total trades in the account during that period. All Robinhood Instant accounts designated as a pattern day trading accounts will be required to maintain \$25,000 equity at all times in order to continue day trading. I acknowledge it is important that I fully understand the risks involved in day trading securities, as described in the Day Trading Risk Disclosure.

I understand that this Instant Agreement is not a recommendation to make a specific investment or use any specific investment strategy. Robinhood Financial provides no investment, legal or tax advice. Robinhood Instant is not necessarily suitable for everyone. I agree to examine my investment objectives, financial resources and risk tolerance to determine whether Robinhood Instant meets my investment needs.

By using a Robinhood Instant account, I acknowledge that I remain subject to all other terms and conditions provided in the RHF-RHS Customer Account Agreement, RHS Customer Margin and Short Account Agreement, Margin Disclosure Statement, and Day Trading Risk Disclosure, which are incorporated by reference and constitute part of this Instant Agreement. In addition, I acknowledge that, in the future, I may receive supplemental disclosures, terms, and agreements that pertain to certain account types, features, or services.

BY TAPPING OR CLICKING ON THE "SUBMIT APPLICATION" OR "ACCEPT" BUTTON BELOW, I: (1) ACKNOWLEDGE THAT I HAVE READ THIS INSTANT AGREEMENT AND ALL INCORPORATED DISCLOSURES, TERMS, AND AGREEMENTS CAREFULLY, AND RETAINED COPIES FOR MY RECORDS; (2) AUTHORIZE ROBINHOOD FINANCIAL TO ACCEPT INSTRUCTIONS TO ALLOW FOR TRADING NO MORE THAN THE AMOUNT HELD IN MY ROBINHOOD INSTANT ACCOUNT; AND (3) AGREE TO OPEN, OR CONVERT MY ROBINHOOD FINANCIAL ACCOUNT INTO, A ROBINHOOD INSTANT ACCOUNT UNDER ALL OF THE AFOREMENTIONED TERMS AND CONDITIONS.

EXHIBIT C

Revised June 22, 2020

Robinhood Financial LLC & Robinhood Securities, LLC Customer Agreement

In consideration of Robinhood Financial LLC, Robinhood Securities, LLC, and their agents and assigns (collectively, "Robinhood") opening one or more accounts on my behalf ("My Account(s)" or the "Account(s)") for the purchase, sale or carrying of securities or contracts relating thereto and/or the borrowing of funds, which transactions are cleared through Robinhood Securities, I represent and agree with respect to all Accounts, whether margin or cash, to the terms set forth below (the "Agreement"). When used in this Agreement, the words "I", "Me", "My", "We", or "Us" mean the owner(s) of the Account. For purposes of this Agreement, Business Days are Monday through Friday, excluding federal holidays. Any references to "days" found in this Agreement are calendar days unless indicated otherwise.

I UNDERSTAND THAT THE TERMS AND CONDITIONS OF THIS AGREEMENT GOVERN ALL ASPECTS OF MY RELATIONSHIP WITH ROBINHOOD REGARDING MY ACCOUNTS. I WILL CAREFULLY READ, UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT BEFORE I CLICK "SUBMIT APPLICATION" OR OTHER SIMILARLY WORDED BUTTON. IF I HAVE ANY QUESTIONS ABOUT ANY OF THE PROVISIONS IN THIS AGREEMENT, I WILL EMAIL HELP@ROBINHOOD.COM. I UNDERSTAND THAT CLICKING "SUBMIT APPLICATION" IS THE LEGAL EQUIVALENT OF MY MANUALLY SIGNING THIS AGREEMENT AND I WILL BE LEGALLY BOUND BY ITS TERMS AND CONDITIONS. BY ENTERING INTO THIS AGREEMENT, I ACKNOWLEDGE RECEIPT OF THE ROBINHOOD PRIVACY POLICY AND PRIVACY AND SECURITY STATEMENT. I UNDERSTAND THAT THIS AGREEMENT MAY BE AMENDED FROM TIME TO TIME BY ROBINHOOD, WITH REVISED TERMS POSTED ON THE ROBINHOOD WEBSITE. I AGREE TO CHECK FOR UPDATES TO THIS AGREEMENT. I UNDERSTAND THAT BY CONTINUING TO MAINTAIN MY SECURITIES BROKERAGE ACCOUNT WITHOUT OBJECTING TO ANY REVISED TERMS OF THIS AGREEMENT, I AM ACCEPTING THE TERMS OF THE REVISED AGREEMENT AND I WILL BE LEGALLY BOUND BY ITS TERMS AND CONDITIONS. IF I REQUEST OTHER SERVICES PROVIDED BY ROBINHOOD THAT REQUIRE ME TO AGREE TO SPECIFIC TERMS AND CONDITIONS ELECTRONICALLY (THROUGH CLICKS OR OTHER ACTIONS) OR OTHERWISE, SUCH TERMS AND CONDITIONS WILL BE DEEMED AN AMENDMENT AND WILL BE INCORPORATED INTO AND MADE PART OF THIS AGREEMENT. I ALSO UNDERSTAND THAT BY CLICKING "SUBMIT APPLICATION" I HAVE ACKNOWLEDGED THAT THIS AGREEMENT CONTAINS A PREDISPUTE ARBITRATION CLAUSE IN SECTION 38 HEREIN.

1. Capacity and Status.

If an individual, I am of legal age under the laws of the state where I reside and authorized to enter into this Agreement. If an entity, I am duly formed, validly existing and in good standing in My state of organization, have full power and authority to enter and perform this Agreement, and the persons signing the account application are fully authorized to act on My behalf. No person, except Myself, has any interest in the Account opened pursuant to this Agreement. I acknowledge that unless Robinhood receives written objection from Me, Robinhood may provide My name, address, and securities positions to requesting companies in which I hold securities. Except as otherwise disclosed to Robinhood in writing, neither I nor any member of My immediate family is an employee of any exchange, any corporation of which any exchange owns a majority of the capital stock, a member of any exchange or self-regulatory organization, a member of any firm or member corporation registered on any exchange, a bank, trust company, insurance company or any corporation, firm or individual engaged in the business of dealing either as a broker-dealer or as principal in securities. I understand and agree that I am obligated to promptly notify Robinhood in writing if I or a member of My immediate family becomes registered or employed in any of the above-described capacities. Except as otherwise disclosed to Robinhood in writing, I am not a Professional (as defined below). I further agree to promptly notify Robinhood in writing if I am now or if I become a Professional or an officer, director or 10% stockholder of any publicly traded company.

2. Market Data.

Robinhood may choose to make certain market data available to Me pursuant to the terms and conditions set forth in this Agreement. By executing this Agreement, I agree to comply with those terms and conditions.

A. Definitions.

1. "Market Data" means (a) last sale information and quotation information relating to securities that are admitted to dealings on the New York Stock Exchange ("NYSE"), (b) such bond and other equity last sale and quotation information, and such index and other market information, as United States-registered national securities exchanges and national securities associations (each, an "Authorizing SRO") may make available and as the NYSE may from time to time designate as "Market Data"; and (c) all information that derives from any such information.
2. "Nonprofessional" means any natural person who receives market data solely for his/her personal, non-business use and who is not a "Professional." A "Professional" includes an individual who, if working in the United States, is: (i) registered or qualified with the Securities and Exchange Commission (the "SEC"), the Commodity Futures Trading Commission (the "CFTC"), any state securities agency, any securities exchange or association, or any commodities or futures contract market or association; (ii) engaged as an "investment advisor" as that term is defined in Section 202 (a) (11) of the Investment Advisers Act of 1940 (whether or not registered or qualified under that Act); or (iii) employed by a bank or other organization exempt from registration under federal and/or state securities laws to perform functions that would require him or her to be so registered or qualified if he or she were to perform such functions for an organization not so exempt. A person who works outside of the United States will be considered a "Professional" if he or she performs the same functions as someone who would be considered a "Professional" in the United States.

B. Provisions Applicable to All Users.

1. Proprietary Nature of Data. I understand and acknowledge that each Authorizing SRO and Other Data Disseminator (as defined below) has a proprietary interest in the Market Data that originates on or derives from it or its market(s). I agree not to reproduce, distribute, sell or commercially exploit the Market Data in any manner.
2. Enforcement. I understand and acknowledge that (a) the Authorizing SROs are third-party beneficiaries under this Agreement and (b) the Authorizing SROs or their authorized representative(s) may enforce this Agreement, by legal proceedings or otherwise, against Me or any person that obtains Market Data that is made available pursuant to this Agreement other than as this Agreement contemplates.
3. Data Not Guaranteed. I understand that neither Robinhood nor any Authorizing SRO, other entity whose information is made available over the Authorizing SROs' facilities (an "Other Data Disseminator"), or information processor that assists any Authorizing SRO or Other Data Disseminator in making Market Data available (collectively, the "Disseminating Parties") guarantees the timeliness, sequence, accuracy, completeness, reliability, or content of Market Data or of other market information or messages disseminated to or by any Disseminating Party. I understand that neither Robinhood Financial nor any Disseminating Party guarantees the timeliness, sequence, accuracy, completeness, reliability or content of market information, or messages disseminated to or by any party. I understand that neither Robinhood Financial nor any Disseminating Party warrants that the service provided by any such entity will be uninterrupted or error-free. I further understand that Market Data by Xignite provides market data to Robinhood Financial customers. NEITHER ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, NOR ANY DISSEMINATING PARTY SHALL BE LIABLE IN ANY WAY FOR (A) ANY INACCURACY, ERROR OR DELAY IN, OR OMISSION OF (I) ANY MARKET DATA, INFORMATION OR MESSAGE, OR (II) THE TRANSMISSION OR DELIVERY OF ANY SUCH DATA, INFORMATION OR MESSAGE; OR (B) ANY LOSS (AS DEFINED IN THIS AGREEMENT) OR DAMAGE ARISING FROM OR OCCASIONED BY (I) ANY SUCH INACCURACY, ERROR, DELAY OR OMISSION, (II) NON-PERFORMANCE OR (III) INTERRUPTION IN ANY SUCH MARKET DATA, INFORMATION, OR MESSAGE, WHETHER DUE TO ANY ACT OR OMISSION BY ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, OR ANY DISSEMINATING PARTY, OR TO ANY "FORCE MAJEURE" (E.G., FLOOD, EXTRAORDINARY WEATHER CONDITIONS, EARTHQUAKE OR OTHER ACT OF GOD, FIRE, WAR, INSURRECTION, RIOT, LABOR DISPUTE, ACCIDENT, ACTION OF GOVERNMENT, OR COMMUNICATIONS OR POWER FAILURE, EQUIPMENT OR SOFTWARE MALFUNCTION) OR ANY OTHER

CAUSE BEYOND THE REASONABLE CONTROL OF ROBINHOOD FINANCIAL, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS AND EMPLOYEES, OR ANY DISSEMINATING PARTY.

4. Permitted Use. I shall not furnish Market Data to any other person or entity. If I receive Market Data other than as a Nonprofessional, I shall use Market Data only for My individual use.
5. Dissemination, Discontinuance, or Modification. I understand and acknowledge that, at any time, the Authorizing SROs may discontinue disseminating any category of Market Data, may change or eliminate any transmission method and may change transmission speeds or other signal characteristics. The Authorizing SROs shall not be liable for any resulting liability, loss or damages that may arise therefrom.
6. Duration; Survival. This Section 2 of this Agreement remains in effect for so long as I have the ability to receive Market Data as contemplated by this Section 2. In addition, Sections 2(B)(1)-(3) and the first two sentences of Section 2(B)(7), survive any termination of this Agreement.
7. Miscellaneous. The laws of the State of New York shall govern this Section 2 and it shall be interpreted in accordance with those laws. This Subsection is subject to the Securities Exchange Act of 1934, the rules promulgated under that act, and the joint-industry plans entered into pursuant to that act.

C. Provisions Applicable to Nonprofessionals.

1. Permitted Receipt. I understand that I may not receive Market Data from Robinhood as a Nonprofessional, and Robinhood may not provide Market Data to Me as a Nonprofessional, unless Robinhood first properly determines that I qualify as a Nonprofessional as defined above and I in fact qualify as a Nonprofessional. I agree that, as a prerequisite to Robinhood Financial qualifying Me as a Nonprofessional, I will provide to Robinhood truthful and accurate information about Me, such as: my occupation, employer, employment position and functions; my use of Market Data; my registration status with any securities agency, exchange, association, or regulatory body, or any commodities or future contract market, association, or regulatory body, whether in the United States or elsewhere; and any compensation of any kind I may receive from any individual or entity for my trading activities, asset management, or investment advice. Except as otherwise declared to Robinhood in writing, by executing this Agreement, I certify that I meet the definition of Nonprofessional as set forth in this Agreement.
2. Permitted Use. If I am a Nonprofessional, I agree to receive Market Data solely for my personal, non-business use.
3. Notification. I shall notify Robinhood promptly in writing of any change in my circumstances that may cause Me to cease to qualify as a Nonprofessional.

3. NASDAQ OMX Information.

A. Definitions.

1. "Information" means certain market data and other data disseminated that has been collected, validated, processed, and recorded by any system NASDAQ OMX has developed for the creation or dissemination of Information or other sources made available for transmission to and receipt from either a distributor such as RHF or from NASDAQ OMX relating to: a) eligible securities or other financial instruments, markets, products, vehicles, indicators, or devices; b) activities of a NASDAQ OMX company; c) other information and data from a NASDAQ OMX company. "Information" also includes any element of Information as used or processed in such a way that the Information can be identified, recalculated or re-engineered from the processed Information or that the processed Information can be used as a substitute for Information.
2. "NASDAQ OMX" means The NASDAQ OMX Group, Inc., a Delaware limited liability company and its subsidiaries and Affiliates (collectively, "NASDAQ OMX").

B. Use of Data.

I understand that I may use the Information only for personal use and not for any business purpose. I may not sell, lease, furnish or otherwise permit or provide access to the Information to any other natural person or entity ("Person") or to any other office or place. I will not engage in the operation of any illegal business use or permit anyone else to use the Information, or any part thereof, for any illegal purpose or violate any NASDAQ OMX or SEC Rule or any FSA rule or other applicable law, rule or regulation. I may not present the Information rendered in any unfair, misleading or discriminatory format. I shall take reasonable security precautions to prevent any Person other than Myself from gaining access to the Information.

C. Proprietary Data.

I acknowledge and agree that NASDAQ OMX has proprietary rights to the Information that originates on or derives from markets regulated or operated by NASDAQ OMX, and compilation or other rights to Information gathered from other sources. I further acknowledge and agree that NASDAQ OMX's third-party information providers have exclusive proprietary rights to their respective Information. In the event of any misappropriation or misuse by Me or anyone who accesses the Information through Me, NASDAQ OMX or its third-party information providers shall have the right to obtain injunctive relief for its respective materials.

D. System.

I acknowledge that NASDAQ OMX, in its sole discretion, may from time-to-time make modifications to its system or the Information. Such modifications may require corresponding changes to be made in Robinhood Financial's service. Changes or the failure to make timely changes by Me may sever or affect My access to or use of the Information. I understand that neither NASDAQ OMX nor Robinhood shall be responsible for such effects.

E. NASDAQ OMX Limitation of Liability.

Except as may otherwise be set forth herein, NASDAQ OMX shall not be liable to Me for indirect, special, punitive, consequential or incidental loss or damage (including, but not limited to, trading losses, lost profits, or other indirect loss or damage) of any nature arising from any cause whatsoever, even if NASDAQ OMX has been advised of the possibility of such damages. NASDAQ OMX shall not be liable to Me for any unavailability, interruption, delay, incompleteness or inaccuracy of the Information. This Section shall not relieve NASDAQ OMX or Me from liability for damages that result from their own gross negligence or willful tortious misconduct or from personal injury or wrongful death claims. I agree that the terms of this Section reflect a reasonable allocation of risk and limitation of liability.

F. Disclaimers of Warranties.

NASDAQ OMX and its third-party information providers make no warranties of any kind with respect to the Information—express, implied or statutory (including without limitation, timeliness, truthfulness, sequence, completeness, accuracy, freedom from interruption), any implied warranties arising from trade usage, course of dealing, course of performance or the implied warranties of merchantability or fitness for a particular use or purpose or noninfringement.

G. Termination by NASDAQ OMX.

I acknowledge that NASDAQ OMX, when required to do so in fulfillment of statutory obligations, may by notice to Robinhood unilaterally limit or terminate the right of any or all Persons to receive or use the

Information and that Robinhood will comply with any such notice and will terminate or limit the furnishing of the Information.

4. Authorization.

I understand that My Account is self-directed. Accordingly, I appoint Robinhood Financial as My agent for the purpose of carrying out My directions to Robinhood Financial in accordance with the terms and conditions of this Agreement and any attendant risks with respect to the purchase or sale of securities. Robinhood Financial is authorized to open or close My Account(s), place and withdraw orders and take such other steps as are reasonable to carry out My directions. All transactions will be effected only on My order or the order of My authorized delegate, except as described in Section 10. I understand Robinhood Financial provides trading and brokerage services through the Robinhood website (the "Website") and the Robinhood mobile application (the "App"). I agree to receive and transmit financial information through such electronic means. My use or My grant of access to My Account to any third party to access information or place transactions in My Account is solely at My risk.

5. Customer Representations and Responsibilities.

A. Self-directed Account.

I understand that My Account is self-directed, and so that I am solely responsible for any and all orders placed in My Account and that all orders entered by Me or on My behalf are unsolicited and based on My own investment decisions or the investment decision of My duly authorized representative or agent. Accordingly, I agree that neither Robinhood nor any of its employees, agents, principals, or representatives:

1. provide investment advice in connection with this Account;
2. recommend any security, transaction or order;
3. solicit orders;
4. act as a market maker in any security;
5. make discretionary trades; and
6. produce or provide first-party research providing a specific investment strategies such as buy, sell or hold recommendations, first-party ratings and/or price targets. To the extent research materials or similar information are available through the App or the Website or the websites of any entity controlled by, controlling, or under common control with Robinhood (such entity, an "Affiliate"), I understand that these materials are intended for informational and educational purposes only and they do not constitute a recommendation to enter into any securities transactions or to engage in any investment strategies.

B. Information Accuracy.

I: (i) certify that the information contained in this Agreement, the account application, and any other document that I furnish to Robinhood Financial in connection with My Account(s) is complete, true and correct, and acknowledge that knowingly giving false information for the purpose of inducing Robinhood Financial to extend credit is a federal crime; (ii) authorize Robinhood Financial to contact any individual or firm noted herein or on the documents referred to in subsection (i) of this Section and any other normal sources of debit or credit information; (iii) authorize anyone so contacted to furnish such information to Robinhood Financial as Robinhood may request; and (iv) agree that this Agreement, the account application and any other document I furnish in connection with My Account is Robinhood's property, as the case may be. I shall promptly advise Robinhood Financial of any changes to the information in such agreements and documents in writing within ten (10) calendar days. I authorize Robinhood Financial to obtain reports and provide information to others concerning My creditworthiness and business conduct. Upon My request, Robinhood agrees to provide Me a copy of any report so obtained. Robinhood may

retain this Agreement, the Account application, and all other such documents and their respective records at its sole discretion, whether or not credit is extended.

C. Risks.

I understand that all investments involve risk, that losses may exceed the principal invested, and that the past performance of a security, industry, sector, market, or financial product does not guarantee future results or returns.

D. Account Defaults.

I understand that My Account comes with many defaulted service instruction features and preferences. I further understand that I am not required to use these defaulted options or preferences and that once My Account is approved and opened I have the sole discretion to control and adjust such defaulted service preferences that relate to My account.

E. Knowledge of Account.

I understand that I am solely responsible for knowing the rights and terms for all securities purchased, sold and maintained in My Account including mergers, reorganizations, stock splits, name changes or symbol changes, dividends, option symbols, and option deliverables. I further understand that certain securities may grant Me valuable rights that may expire unless I take specific action. These securities include bonds, convertible securities, warrants, stock rights and securities subject to exchange offers or tenders. I am responsible for knowing all expiration dates, redemption dates, and the circumstances under which rights associated with My securities may be called, cancelled, or modified. Robinhood may, but are not obligated to, notify Me of any upcoming expiration or redemption dates, or take any action on My behalf without My specific instructions except as required by law and the rules of regulatory authorities. I acknowledge that Robinhood may adjust My Account to correct any error. If My Account has an option position on the last trading day prior to expiration, which is one cent or more in the money, Robinhood Financial will generally exercise the option, on My behalf. However, Robinhood Financial reserves the right at its discretion to close any option position prior to expiration date or any position resulting from the exercising/assignment after option expiration. I will be charged a commission for any such transaction. Robinhood Financial is not obligated to take any of these actions and Robinhood Financial is not liable for Losses should it not take them.

F. Purchases.

All orders for the purchase of securities given for My Account will be authorized by Me and executed in reliance on My promise that an actual purchase is intended. It is My obligation to pay for purchases immediately or on Robinhood's demand. I understand Robinhood may at any time, in its sole discretion and without prior notice to Me, prohibit or restrict My ability to trade securities. I further agree not to allow any person to trade for My Account unless a trading authorization for that person has been received and approved by Robinhood. Robinhood reserve the right to require full payment in cleared funds prior to the acceptance of any order. In the event that I fail to provide sufficient funds, Robinhood may, at its option and without notice to Me, i) charge a reasonable rate of interest, ii) liquidate the Property subject of the buy order, or iii) sell other Property owned by Me and held in any of My Accounts. Robinhood may also charge any consequential Loss to My Account. For purposes of this Agreement, "Property" shall mean all monies, contracts, investments and options, whether for present or future delivery, and all related distributions, proceeds, products and accessions.

G. Sales/Short Sales.

I promise to deliver all securities sold in My Account and to provide collateral of a type and amount acceptable to Robinhood Financial for all short sales in My Account. Robinhood Financial requires that a security be held in My Account prior to the acceptance of a sell order with respect to such security unless the order is specifically designated as a "short sale." If a security is not held in My Account and a sell order is processed, I must promptly deliver such security to Robinhood Financial for receipt in good deliverable form on or before the settlement date. Any order accepted without negotiable certificates or positions in My Account will be subject, at Robinhood Financial's sole discretion, to cancellation or buy-in. To ensure this will not occur, I agree to only place sell orders for securities owned by Me and held in My Account at the time My order is placed.

Proceeds of a sale will not be paid to Me or released into My Account until Robinhood Financial has received the security in good deliverable form, whether from a transfer agent or from Me and the settlement of the security is complete. If the security is not received on or before settlement date, or as market conditions warrant, Robinhood Financial may in its sole discretion purchase the security on the open market for My Account and may liquidate and close out any and all securities in My Account in order to pay for such purchase. In the event a security is bought in, I will be responsible for all resulting losses incurred by Robinhood Financial.

I understand that I may execute short sales only in a margin Account and that such execution must comply with applicable short sales rules.

H. Assistance by Robinhood.

I understand that when I request assistance from Robinhood or its employees in using the investment tools available on the Website or the App, it will be limited to an explanation of the tool's functionality and, if requested by Me, to the entry by Robinhood or its employees of variables provided by Me, and that such assistance does not constitute investment advice, an opinion with respect to the suitability of any transaction, or solicitation of any orders.

I. No Tax or Legal Advice.

I understand that Robinhood does not provide tax or legal advice.

J. Discontinuation of Services.

I understand that Robinhood may discontinue My Account and any services related to My Account immediately by providing written notice to Me.

K. Electronic Access.

1. I am solely responsible for keeping My Account numbers and PINs confidential and will not share them with third parties. "PINs" shall mean My username and password.
2. I agree and accept full responsibility for monitoring and safeguarding My Accounts and access to My Accounts.
3. I agree to immediately notify Robinhood in writing, delivered via e-mail and a recognized international delivery service, if I become aware of: (i) any loss, theft, or unauthorized use of My PINs or Account numbers; (ii) any failure by Me to receive any communication from Robinhood indicating that an order was received, executed or cancelled, as applicable; (iii) any failure by Me to receive an accurate written confirmation of an order, execution, or cancellation; (iv) any receipt by Me of confirmation of an order, execution or cancellation, which I did not place; (v) any

inaccurate information in or relating to My orders, trades, margin status, Account balances, deposits, withdrawals, securities positions or transaction history, or (vi) any other unauthorized use or access of My Account.

4. Each of the events described in subsections (K)(3)(i)-(vi) shall be deemed a "Potential Fraudulent Event". The use and storage of any information including My Account numbers, PINs, portfolio information, transaction activity, account balances and any other information or orders available on My wireless, web-enabled cellular telephone or similar wireless communications device (collectively, "Mobile Device") or My personal computer is at My own risk and is My sole responsibility. I represent that I am solely responsible for and have authorized any orders or instructions appearing in, originating from, or associated with My Account, My Account number, My username and password, or PINs. I agree to notify Robinhood immediately after I discover any Potential Fraudulent Event, but in no event more than twenty-four (24) hours following discovery. Upon request by Robinhood, I agree to report any Potential Fraudulent Event promptly to legal authorities and provide Robinhood a copy of any report prepared by such legal authorities. I agree to cooperate fully with the legal authorities and Robinhood in any investigation of any Potential Fraudulent Event and I will complete any required affidavits promptly, accurately and thoroughly. I also agree to allow Robinhood access to My Mobile Device, My computer, and My network in connection with Robinhood's investigation of any Potential Fraudulent Event. I understand that if I fail to do any of these things I may encounter delays in regaining access to the funds in My Account. I agree to indemnify and hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers, directors, and employees harmless from and against any Losses arising out of or relating to any Potential Fraudulent Event. I acknowledge that Robinhood does not know when a person entering orders with My username and password is Me.
5. Trusted Contact Person. I understand that, pursuant to FINRA regulations, Robinhood is authorized to contact the Trusted Contact Person (as defined by FINRA Rule 4512) designated for My Account and to disclose information about My account to address possible financial exploitation, to confirm the specifics of My current contact information, health status, or the identity of any legal guardian, executor, trustee or holder of a power of attorney, or as otherwise permitted by Rule 2165.

6. Clearance of Trades.

I understand that Robinhood Financial has entered into a clearing agreement with Robinhood Securities whereby Robinhood Financial will introduce My Account to Robinhood Securities, and Robinhood Securities will clear all transactions, on a fully-disclosed basis. I understand that Robinhood Securities carries My Account(s) and is responsible for the clearing and bookkeeping of transactions, but is not otherwise responsible for the conduct of Robinhood Financial.

Until receipt from Me of written notice to the contrary, Robinhood Securities may accept from Robinhood Financial, without inquiry or investigation, (i) orders for the purchase or sale of securities and other property on margin, if I have elected to have a margin account, or otherwise, and (ii) any other instructions concerning my Accounts. Robinhood Securities shall look solely to Robinhood Financial unless otherwise directed by Robinhood Financial, and not to Me, with respect to any such orders or instructions; except that I understand that Robinhood Securities will deliver confirmations, statements, and all written or other notices with respect to My Account directly to Me with copies to Robinhood Financial, and that Robinhood Securities will look directly to Me or Robinhood Financial for delivery of margin, payment, or securities. I agree to hold Robinhood Securities harmless from and against any Losses arising in connection with the delivery or receipt of any such communication(s), provided Robinhood Securities has acted in accordance with the above. The foregoing shall be effective as to My Account(s) until written notice to the contrary is received from Me by Robinhood Securities or Robinhood Financial.

7. Review of Confirmations and Statements.

I agree that it is My responsibility to review order execution confirmations and statements of My Account(s) promptly upon receipt. I agree to receive all confirmations and account statements, as well as all tax related documents, in electronic format. I understand that account statements will evidence all activity in My Account for the stated period, including securities transactions, cash balances, credits to My Account and all fees paid from My Account. Notwithstanding Section 36.B, confirmations will be considered binding on Me unless I notify Robinhood of any objections within two (2) calendar days from the date confirmations are sent. Account statements will be considered binding on Me unless I notify you

of any objections within ten (10) calendar days after My Account statements are posted online. Such objection may be oral or in writing, but any oral objection must be immediately confirmed in writing. In all cases, Robinhood reserves the right to determine the validity of My objection. If I object to a transaction for any reason, I understand and agree that I am obligated to take action to limit any losses that may result from such transaction or I will bear sole responsibility for any losses relating to the transaction, even if My objection to the transaction is ultimately determined to be valid. Nothing in this Section 7 shall limit My responsibilities as described in Section 5 of this Agreement.

8. Important Information Needed to Open a New Account.

To help the government better detect the funding of terrorism and money laundering activities, federal law requires all financial institutions to obtain, verify, and record information that identifies each person who opens an account. Therefore, I understand that when I open My Account Robinhood will ask for My name, address, date of birth and other identifying information. Robinhood may also ask copies of My driver's license, passport or other identifying documents. I understand that Robinhood may take steps to verify the accuracy of the information I provide to Robinhood in My Account application or otherwise, and that Robinhood may restrict My access to My Account pending such verification. I will provide prompt notification to Robinhood of any changes in the information including My name, address, e-mail address and telephone number.

I further understand that if I attempt to access My Account from a jurisdiction subject to certain U.S. sanctions or I am ordinarily resident in such a jurisdiction, or if you reasonably believe that I am attempting such access or have become a resident in such a jurisdiction, you may restrict My Account, and any pending orders may be cancelled. If this happens, I understand that I should contact help@robinhood.com, and that I may be asked to provide supplemental information as part of this process. I further understand that I must close My Account before establishing residency in any jurisdiction subject to U.S. sanctions.

9. Telephone Conversations and Electronic Communications.

I understand and agree that Robinhood may record and monitor any telephone or electronic communications with Me. Unless otherwise agreed in writing in advance, Robinhood does not consent to the recording of telephone conversations by any third party or Me. I acknowledge and understand that not all telephone or electronic communications are recorded by Robinhood, and Robinhood does not guarantee that recordings of any particular telephone or electronic communications will be retained or capable of being retrieved.

10. Oral Authorization.

I agree that Robinhood shall be entitled to act upon any oral instructions given by Me so long as Robinhood reasonably believes such instruction was actually given by Me or My authorized agent.

11. Applicable Laws and Regulations.

All transactions in My Account will be subject to federal securities laws and regulations, the applicable laws and regulations of any state or jurisdiction in which Robinhood Financial is registered, the rules of any applicable self-regulatory organization of which Robinhood Financial is a member and the rules, regulations, customs and usages of the exchange or market, and its clearing house, if any, where the transactions are executed. In no event will Robinhood Financial be obligated to effect any transaction it believes would violate any federal or state law, rule or regulation or the rules or regulations of any regulatory or self-regulatory organization.

12. Erroneous Distributions.

I agree to promptly return to Robinhood any assets erroneously distributed to Me. In the event that I sell a security prior to its ex-dividend/distribution date, and I receive the related cash/stock dividend or distribution in error, I direct Robinhood on My behalf to pay such dividend/distribution to the entitled purchaser of the securities I sold, and I guarantee to promptly reimburse Robinhood for, or deliver to Robinhood, said dividend or distribution.

13. Market Volatility; Market Orders; Limit Orders; and Queued Orders.

I understand that, whether I place a market or limit order, I will receive the price at which My order is executed in the marketplace, subject to any clarification stated below. Particularly during periods of high volume, illiquidity, fast movement or volatility in the marketplace, the execution price received may differ from the quote provided on entry of an order, and I may receive partial executions of an order at different prices. I understand that Robinhood Financial is not liable for any price fluctuations. I also understand that price quotes generally are for only a small number of shares as specified by the marketplace, and larger orders are relatively more likely to receive executions at prices that vary from the quotes or in multiple lots at different prices.

I understand that Robinhood Financial does not currently support sending traditional market buy orders and that Robinhood Financial collars all market buy orders (other than dollar-based buy orders executed during market hours) by using limit orders priced up to 5% above the last trade price. This is not the case for market sell orders. I further understand that when I send a market buy order through Robinhood Financial's trading system, the trading system generates a limit order up to 5% above the last trade price, and then Robinhood Financial sends the order to an executing broker. I understand that Robinhood Financial's implementation of market buy orders may vary depending on prices of instruments, market conditions, and other factors. I further understand that Robinhood Financial uses the following rounding mechanics with respect to buy orders: the last trade price is (i) multiplied by 1.05; (ii) rounded down to two decimal places if the last trade price is over \$1.00; otherwise, rounded down to four decimal places; and (iii) for securities included in the SEC's Tick Size Pilot Program, rounded down to the nearest \$.05 increment. I understand that securities may open for trading at prices substantially higher or lower than the previous closing price or the anticipated price. If I place a market order (whether during normal market hours or when the market is closed), I agree to pay or receive the prevailing market price at the time My market order is executed, subject to the specific clarification above relating to buy orders. I understand that the price I pay may be significantly higher or lower than anticipated at the time I placed the order. To avoid buying a security at a higher price and possibly exceeding My purchasing power, I understand My option to enter a limit order. I also understand that limit orders may not be executed at any particular time, or at all, if there is not sufficient trading at or better than the limit price I specify, and are only good until the end of the trading day in which they are entered. The Website contains further information regarding order types and limitations, which I agree to read and understand before placing such orders.

As a customer of Robinhood Financial, I understand that after the market has closed for the day, I have the ability to place in a queue order requests to be executed the following day upon the opening of the market ("Queued Order"). I understand that My Queued Order request is prioritized based on the order in which it is received by Robinhood Financial, and that the Queued Order requests are sent out for execution shortly after the market opens on the next day of trading. I further understand that each Queued Order request is sent out per customer and per security as Robinhood Financial market orders (described above), and that they are not aggregated.

A limit order may be "good till cancelled" which means the order remains valid until (A) it is executed; (B) I cancel the order; (C) approximately 90 days from when the order is placed; or (D) the contract to which it relates is closed. I understand that Robinhood will cancel a "good till cancelled" order at the end of every trading day (on the exchange on which the instrument to which the contract relates is traded) and place such order again at the start of the following trading day. This process will be repeated every day for as long as the "good till cancelled" order remains valid. I further agree that any "good till cancelled" orders I place should be treated as "do not reduce" orders.

14. Bulletin Board/Pink Sheet Stocks.

Bulletin board, pink sheet and other thinly-traded securities (collectively "bulletin board stocks") present particular trading risks, in part because they are relatively less liquid and more volatile than actively traded securities listed on a major exchange. I understand that bulletin board stocks may be subject to different trading rules and systems than other securities and that I may encounter significant delays in executions, reports of executions, and updating of quotations in trading bulletin board stocks. Robinhood Financial in its sole discretion may require limit orders on certain bulletin board stock transactions.

15. Research and Internet Links.

News, research, links to outside websites, and other information accessible through the App or Website ("Content") may be prepared by independent external providers not affiliated with Robinhood Financial,

including Morningstar, Inc. (all such providers, the "Providers"). I agree not to distribute, reproduce, sell, or otherwise commercially use the Content in any manner. I understand that Robinhood may terminate My access to the Content. I understand that none of the Content is a recommendation by Robinhood to buy or sell any securities or to engage in any investment strategy.

16. Restrictions on Trading.

I understand that Robinhood may, in its discretion, prohibit or restrict the trading of securities, or the substitution of securities, in any of My Accounts. I understand that Robinhood may execute all orders by Me on any exchange or market, unless I specifically instruct Robinhood to the contrary. In the event of a breach or default by Me under this Agreement, Robinhood shall have all rights and remedies available to a secured creditor under all applicable laws and in addition to the rights and remedies provided herein. I understand that Robinhood may at any time, at its sole discretion and without prior notice to Me: (i) prohibit or restrict My access to the use of the App or the Website or related services and My ability to trade, (ii) refuse to accept any of My transactions, (iii) refuse to execute any of My transactions, or (iv) terminate My Account. The closing of My Account will not affect the rights or obligations of either party incurred prior to the date My Account is closed.

Further, Robinhood will not tolerate any foul or abusive language, physical violence, threatening behavior, or other inappropriate conduct directed toward Robinhood, its Affiliates' officers, employees, contractors or customers. If I engage in any such behavior, as determined by Robinhood in its sole discretion, I agree that Robinhood is authorized to: (i) liquidate any securities, instruments or other property in My Account, (ii) send Me the proceeds, and (iii) close My account. Robinhood will not be responsible for any Losses caused by the liquidation of securities, instruments or other property pursuant to this paragraph, including any tax liabilities.

17. Waiver; Limitation of Liability; Indemnification.

I agree that My use of the App or the Website or any other service provided by Robinhood Financial or its Affiliates is at My sole risk. The Robinhood Financial service (including the App, the Website, the provision of Market Data, Information, Content, or any other information provided by Robinhood Financial, any of its Affiliates, or any third-party content provider or market data provider) is provided on an "as is," "as available" basis without warranties of any kind, either express or implied, statutory (including without limitation, timeliness, truthfulness, sequence, completeness, accuracy, freedom from interruption), implied warranties arising from trade usage, course of dealing, course of performance, or the implied warranties of merchantability or fitness for a particular purpose or application, other than those warranties which are implied by and incapable of exclusion, restriction or modification under the laws applicable to this Agreement.

Although considerable effort is expended to make the Website, App and other operational and communications channels available around the clock, Robinhood does not warrant that these channels will be available and error free every minute of the day. I agree that Robinhood will not be responsible for temporary interruptions in service due to maintenance, Website or App changes, or failures, nor shall Robinhood be liable for extended interruptions due to failures beyond our control, including but not limited to the failure of interconnecting and operating systems, computer viruses, forces of nature, labor disputes and armed conflicts.

EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, I UNDERSTAND AND AGREE THAT ROBINHOOD, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS, AND THE PROVIDERS (COLLECTIVELY THE "ROBINHOOD PARTIES") WILL NOT BE LIABLE TO ME OR TO THIRD PARTIES UNDER ANY CIRCUMSTANCES, OR HAVE ANY RESPONSIBILITY WHATSOEVER, FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES (INCLUDING TRADING LOSSES, DAMAGES, LOSS OF PROFITS, REVENUE, OR GOODWILL) THAT I MAY INCUR IN CONNECTION WITH MY USE OF THE SERVICE PROVIDED BY ROBINHOOD OR ANY OF ITS AFFILIATES UNDER THIS AGREEMENT (INCLUDING MY USE OF THE APP, THE WEBSITE, THE MARKET DATA, THE INFORMATION, OR THE CONTENT), BREACH OF THIS AGREEMENT, OR ANY TERMINATION OF THIS AGREEMENT, WHETHER SUCH LIABILITY IS ASSERTED ON THE BASIS OF CONTRACT, TORT (INCLUDING NEGLIGENCE), OR OTHERWISE, AND WHETHER OR NOT FORESEEABLE, EVEN IF ANY ROBINHOOD PARTY HAS BEEN ADVISED OR WAS AWARE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. THE ROBINHOOD PARTIES SHALL NOT BE LIABLE BY REASON OF DELAYS OR INTERRUPTIONS OF THE SERVICE OR TRANSMISSIONS, OR FAILURES OF PERFORMANCE OF THEIR RESPECTIVE SYSTEMS,

REGARDLESS OF CAUSE, INCLUDING THOSE CAUSED BY GOVERNMENTAL OR REGULATORY ACTION, THE ACTION OF ANY EXCHANGE OR OTHER SELF REGULATORY ORGANIZATION, OR THOSE CAUSED BY SOFTWARE OR HARDWARE MALFUNCTIONS.

Except as otherwise provided by law, Robinhood or any of its affiliates or respective partners, officers, directors, employees or agents (collectively, "Indemnified Parties") shall not be liable for any expenses, losses, costs, damages, liabilities, demands, debts, obligations, penalties, charges, claims, causes of action, penalties, fines and taxes of any kind or nature (including legal expenses and attorneys' fees) (whether known or unknown, absolute or contingent, liquidated or unliquidated, direct or indirect, due or to become due, accrued or not accrued, asserted or unasserted, related or not related to a third party claim, or otherwise) (collectively, "Losses") by or with respect to any matters pertaining to My Account, except to the extent that such Losses are actual Losses and are determined by a court of competent jurisdiction or an arbitration panel in a final non-appealable judgment or order to have resulted solely from Robinhood's or any of its affiliates' gross negligence or intentional misconduct. In addition, I agree that the Indemnified Parties shall have no liability for, and I agree to indemnify, defend and hold harmless the Indemnified Parties from all Losses that result from: (i) any noncompliance by Me with any of the terms and conditions of this Agreement; (ii) any third-party actions related to My receipt and use of any Information, Market Data, Content, market analysis, other third-party content, or other such information obtained on the App or Website, whether authorized or unauthorized under this Agreement; (iii) any third-party actions related to My use of the App or the Website; (iv) My or My agent's misrepresentation or alleged misrepresentation, or act or omission; (v) Indemnified Parties following My or My agent's directions or instructions, or failing to follow My or My agent's unlawful or unreasonable directions or instructions; (vi) any activities or services of the Indemnified Parties in connection with My Account (including any technology services, reporting, trading, research or capital introduction services); or (vii) the failure by any person not controlled by the Indemnified Parties and their affiliates to perform any obligations to Me. Further, if I authorize or allow third parties to gain access to Robinhood's services, including My Accounts, I will indemnify, defend and hold harmless the Indemnified Parties against any Losses arising out of claims or suits by such third parties based upon or relating to such access and use. Robinhood does not warrant against loss of use or any direct, indirect or consequential damages or Losses to Me caused by My assent, expressed or implied, to a third party accessing My Account or information, including access provided through any other third party systems or sites.

I consent to the use of automated systems or service bureaus by Robinhood and its respective affiliates in conjunction with My Account, including automated order entry and execution, record keeping, reporting and account reconciliation and risk management systems (collectively "Automated Systems"). I understand that the use of Automated Systems entails risks, such as interruption or delays of service, errors or omissions in the information provided, system failure and errors in the design or functioning of such Automated Systems (collectively, a "System Failure") that could cause substantial damage, expense, or liability to Me. I understand and agree that Indemnified Parties will have no liability whatsoever for any of my Losses arising out of or relating to a System Failure.

I also agree that Indemnified Parties will have no responsibility or liability to Me in connection with the performance or non-performance by any exchange, clearing organization, market data provider, or other third party (including other broker-dealers and clearing firms, and banks) or any of their respective agents or affiliates, of its or their obligations relative to any securities. I agree that Indemnified Parties will have no liability, to Me or to third parties, or responsibility whatsoever for: (i) any Losses resulting from a cause over which Indemnified Parties do not have direct control, including the failure of mechanical equipment, unauthorized access, theft, operator errors, government restrictions, force majeure (as defined in this Agreement), market data availability or quality, exchange rulings or suspension of trading; and (ii) any special, indirect, incidental, consequential, punitive or exemplary damages (including lost profits, trading losses and damages) that I may incur in connection with My use of the App, the Website, Robinhood's brokerage, and other services provided by Indemnified Parties under this Agreement.

18. Mutual Fund Transactions.

In the event that I purchase or hold a mutual fund, I agree to read and understand the terms of its prospectus. I understand that certain mutual funds reserve the right to change their purchasing, switching or redemption procedures or suspend or postpone redemptions under certain market conditions. I further understand that any mutual fund order entered with Robinhood is placed by Robinhood on a best efforts basis as prescribed and recognized by the individual fund, and that Robinhood is not responsible for unexecuted orders due to the failure of any communication system. I agree to be fully responsible for the information contained within the mutual fund prospectus and to hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers and employees harmless

for any deficiencies contained therein. I authorize Robinhood to act as My agent in the purchase and redemption of fund shares.

19. Exchange Traded Funds.

I understand that I should consider the investment objectives and unique risk profile of Exchange Traded Funds ("ETFs") carefully before investing, and that ETFs are subject to risks similar to those of other diversified portfolios. I further understand that leveraged and inverse ETFs may not be suitable for all investors and may increase exposure to volatility through the use of leverage, short sales of securities, derivatives, and other complex investment strategies, and that although ETFs are designed to provide investment results that generally correspond to the performance of their respective underlying indices, they may not be able to exactly replicate the performance of the indices because of expenses and other factors. I further understand that ETFs are required to distribute portfolio gains to shareholders at year end, which may be generated by portfolio rebalancing or the need to meet diversification requirements, and that ETF trading will also generate tax consequences. I understand that I can obtain prospectuses from issuers or their third party agents who distribute and make prospectuses available for review. Additional regulatory guidance on ETFs can be found [here](#).

20. Effect of Attachment or Sequestration of Accounts.

Robinhood shall not be liable for refusing to obey any orders given by or for Me with respect to any of My Accounts that has or have been subject to an attachment or sequestration in any legal proceeding against Me, and Robinhood shall be under no obligation to contest the validity of any such attachment or sequestration.

21. Event of Death.

It is agreed that in the event of My death, the representative of My estate or the survivor or survivors shall immediately give Robinhood written notice thereof, and Robinhood may, before or after receiving such notice, take such proceedings, require such papers and inheritance or estate tax waivers, retain such portion of, or restrict transactions in the Account as Robinhood may deem advisable to protect Robinhood against any tax, liability, penalty or loss under any present or future laws or otherwise. Notwithstanding the above, in the event of My death, all open orders shall be canceled, but Robinhood shall not be responsible for any action taken on such orders prior to the actual receipt of notice of death. Further, Robinhood may in its discretion close out any or all of the Accounts without awaiting the appointment of a personal representative for My estate and without demand upon or notice to any such personal representative. The estate of any of the Account holders who have died shall be liable and each survivor shall continue to be liable, jointly and severally, to Robinhood for any net debit balance or loss in said account in any way resulting from the completion of transactions initiated prior to the receipt by Robinhood of the written notice of the death of the decedent or incurred in the liquidation of the Account or the adjustment of the interests of the respective parties, and for all other obligations pursuant to this Agreement. Such notice shall not affect Robinhood's rights under this Agreement to take any action that Robinhood could have taken if I had not died.

22. Tax Reporting; Tax Withholding.

The proceeds of sale transactions and dividends paid will be reported to the Internal Revenue Service ("IRS") in accordance with applicable law.

A. U.S. Persons.

This subsection is applicable if I am a U.S. person. Under penalties of perjury, I certify that the taxpayer identification number that I have provided or will provide to Robinhood (including any taxpayer identification number on any Form W-9 that I have provided or will provide to Robinhood) is My correct taxpayer identification number. I certify that I am not subject to backup withholding and I am a United States Person (including a U.S. resident alien) as such term is defined in section 7701(a)(30) of the Internal Revenue Code of 1986, as amended ("U.S. Person"). If a correct Taxpayer Identification Number is not provided Robinhood Financial, I understand I may be subject to backup withholding tax at the appropriate rate on all dividends, interest and gross proceeds paid to me. Backup withholding taxes

are sent to the IRS and cannot be refunded by Robinhood Financial. I further understand that if I waive tax withholding and fail to pay sufficient estimated taxes to the IRS, I may be subject to tax penalties.

B. Non-U.S. Persons.

This subsection is applicable if I am not a U.S. Person. I certify that I fully understand all the information on any Form W-8BEN that I have submitted or will submit to Robinhood. Under penalties of perjury, I declare that (i) I have examined all the information (including all the information in the English language) on any Form W-8BEN that I have submitted or will submit to Robinhood and (ii) to the best of My knowledge and belief all such information is true, correct, and complete. I authorize Robinhood to provide any such Form W-8BEN to Robinhood Securities or any withholding agent that has control, receipt, or custody of the income of which I am the beneficial owner or any withholding agent that can disburse or make payments of the income of which I am the beneficial owner. I agree that I will submit a new Form W-8BEN to Robinhood within 30 calendar days if any certification made on any previously submitted Form W-8BEN becomes incorrect. I understand that the IRS does not require My consent to any provisions of such Form W-8BEN other than the certifications required to establish My status as a non-U.S. Person and, if applicable, obtain a reduced rate of withholding.

23. Equity Orders and Payment For Order Flow.

SEC rules require all registered broker-dealers to disclose their policies regarding any "payment for order flow" arrangement in connection with the routing of customer orders. "Payment for order flow" includes, among other things, any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker-dealer from any broker-dealer in return for directing orders. I understand that Robinhood transmits customer orders for execution to various exchanges or market centers based on a number of factors. These include: size of order, trading characteristics of the security, favorable execution prices (including the opportunity for price improvement), access to reliable market data, availability of efficient automated transaction processing and reduced execution costs through price concessions from the market centers. I further understand that certain of the exchanges or market centers may execute orders at prices superior to the publicly quoted market in accordance with their rules or practices and that while a customer may specify that an order be directed to a particular market center for execution, the order-routing policies, taking into consideration all of the factors listed above, are designed to result in favorable transaction processing for customers. The nature and source of any payments or credits received by Robinhood in connection with any specific transactions will be furnished upon written request.

24. Free Credit Balances and Sweep Service.

If I enroll in Robinhood Financial Cash Management ("Cash Management"), I understand that I am electing to participate in the Insured Network Deposit ("IND") sweep service (the "Sweep Service"). Under the Sweep Service, free credit balances in My Account will be deposited into interest-bearing accounts at one or more banks ("Participating Depository Institutions"), in accordance with the Insured Network Deposit Sweep Program Disclosures ("IND Disclosures") available on the Website and in the App. By enrolling in Cash Management, I represent and warrant that I have reviewed the IND Disclosures and agree to the terms set forth in the IND Disclosures. If I am not enrolled in Cash Management, free credit balances in My Account will remain in My Account, will not earn interest and will not be eligible for FDIC insurance, but will be eligible for SIPC protection as described in the IND Disclosures.

25. Fees and Charges.

I understand that Robinhood does not charge fees or commissions for executing buy and sell orders. However, I understand that other fees may apply. The current fees are included in the fee schedule available in the App and on the Website. I agree to pay any such fees at the then-prevailing rate. I acknowledge that the prevailing fees may change and that change may occur without notice. I agree to be bound by such changes once they are posted in the fee schedule available in the App and on the Website. I also agree to pay all applicable federal, state, local, and foreign taxes. I authorize Robinhood Financial to automatically debit My Account for any such fees and taxes. I also agree to pay such expenses incurred by Robinhood in connection with collection of any unpaid balance due on My Accounts including attorney's fees allowed by law.

26. ACH Transactions.**A. Debit Transactions.**

Robinhood will initiate an ACH debit at My request to debit funds from an account that I own at another financial institution ("External Account") for deposit into My Account. I understand that in order for Robinhood to initiate an ACH debit, the financial institution holding my External Account must participate in the ACH system. I understand that for the ACH transfers to be established, at least one common name must match exactly between My Account and My External Account. I authorize Robinhood to take such steps as it deems appropriate to verify my ownership of External Account, including by telling the bank at which such External Account is held that I have authorized and consented to such bank disclosing to Robinhood any information that Robinhood may request about Me or My External Account. I also agree to cooperate with Robinhood's verification of my ownership of such External Account by promptly providing any identification and/or other documentation that Robinhood may request regarding such External Account. I represent and warrant that there are sufficient funds in My External Account to cover the amount of the deposit to My Account. Robinhood will initiate the ACH debit to My External Account on the Business Day or next Business Day after I request the transfer. A transfer request will be deemed to have been made on a Business Day if it is received by Robinhood by 7:00 p.m. (Eastern Time) on such Business Day; if received after that time, the transfer request will be deemed to have been made on the next Business Day.

Within 60 days of the date of My ACH deposit, My funds may only be withdrawn to the External Account from which such funds were debited.

I understand that an ACH debit transfer may be reversed or rejected if: (A) there are insufficient funds in My External Account; (B) there is a duplicate transaction; (C) the transaction is denied by the bank holding My External Account; or (D) My External Account does not support ACH transfers. I acknowledge that in the event of an ACH reversal, I will incur a fee. Before initiating making an ACH debit transfer, I agree to check Robinhood Financial's most recent [Commissions and Fees Schedule](#). I agree that I am solely liable and responsible for any ACH reversal fees that I incur.

B. Credit Transactions.

Robinhood will initiate an ACH credit at My request to transfer funds from My Account to a recipient that I designate. I agree that I will have sufficient Available Funds in My Account to cover the amount of any ACH credit that I ask Robinhood to initiate. Robinhood will debit the amount of such request from My Account on the Business Day or next Business Day after I request the transfer. A transfer request will be deemed to have been made on a Business Day if it is received by Robinhood on such Business Day; if received after that time, the transfer request will be deemed to have been made on the next Business Day.

I agree that Robinhood may use any means which Robinhood, in its sole discretion, considers suitable to execute my ACH credit transfers.

27. Fractional Shares.

I acknowledge and understand that Robinhood rounds all holdings of fractional shares to the sixth decimal place, the value of fractional shares to the nearest cent, and any dividends paid on fractional shares to the nearest cent. I further understand that Robinhood will not accept dollar-based purchases or sales of less than \$1.00 and that I will receive proceeds from the sale of any whole or fractional shares rounded to the nearest cent.

I understand that if I enter repeated fractional orders with individual notional values of less than \$0.01, my account may be restricted.

I understand that a vendor employed by Robinhood will aggregate any proxy votes for fractional shares of Robinhood's customers with all votes reported to the issuer or issuer's designated vote tabulator and that, while Robinhood's vendor will report such proxy votes on fractional shares, the issuer or tabulator may not fully count such votes.

I understand that Robinhood will execute all orders that include fractional shares ("Fractional Orders") on a principal basis. To the extent that Robinhood must purchase or sell shares in the market to fulfill any part of my Fractional Order, the fractional component of that order will be fulfilled at the execution price Robinhood received for the corresponding whole shares. To the extent that Robinhood fulfills my Fractional Order for national exchange-listed securities ("NMS Securities") entirely out of its inventory and without purchasing or selling shares in the market ("Inventory Fulfillment"), Robinhood will endeavor to price such shares or fractional shares at a price between the National Best Bid and Offer ("NBBO") at the time of the order for orders made during market hours, or, for such orders made during extended hours trading (9:00-9:30 a.m. and 4:00-6:00 p.m. Eastern), Robinhood will endeavor to price such orders between the best bid and offer at the time of the order, as reported by an external vendor ("Vendor BBO"). For Inventory Fulfillment of Fractional Orders for securities not listed on a national exchange ("Non-NMS Securities") made during market hours as well as extended hours trading, Robinhood will endeavor to price such orders between Vendor BBO.

All non-market orders placed outside market hours and extended hours trading are queued and fulfilled either at or near the beginning of extended hours trading (9:00 a.m. Eastern) or at or near market open (9:30 a.m. Eastern), according to my instructions. All market orders placed outside market hours and extended hours trading are queued and fulfilled at or near market open. To the extent that I trade outside of market hours, these trades are subject to Robinhood's [Extended Hours Trading Disclosure](#).

I understand Robinhood only accepts market orders for fractional shares at this time and does not permit limit orders for fractional shares. I understand that fractional shares within My Account (i) are unrecognized, unmarketable, and illiquid outside the Robinhood platform, (ii) are not transferable in-kind, and (iii) may only be liquidated and the proceeds transferred out via a wire transfer. I acknowledge that, subject to applicable requirements, Robinhood may report holdings and transactions in My Account in terms of either U.S. Dollars, shares, or both.

28. Phone Calls.

You agree that, by providing information Robinhood requests, Robinhood and its third party services providers may contact you via mail, phone or email.

Specifically, if you provide us with a phone number: (a) you represent and warrant that the number you provide is your phone number, and you will promptly notify us if that changes, and (b) you consent to receive calls (including text messages) made to that phone number that may be prerecorded and/or completed with an automatic telephone dialing system (automated calls) for purposes including but not limited to providing account-related communications (including security alerts), investigating or preventing fraud, and/or collecting amounts owed to Robinhood. We may share your number with third parties that provide services to us in connection with any of the foregoing purposes, including but not limited to debt collectors. You understand that message, telephone minute and data rates may apply for calls made to a mobile phone number. You may opt out at any time from receiving these types of calls orally or in writing to limitsharing@robinhood.com. Please note, even if you opt out, we may still make other calls as permitted by law.

You consent to our recording of phone calls, including calls we make to you or that we receive from you.

29. Dividend Reinvestment Program.

Except as expressly stated otherwise, the provisions of this Section 29 will only apply if I am enrolled in Robinhood's Dividend Reinvestment Program ("DRIP"). My enrollment in the DRIP will be activated within three business days after I notify Robinhood of my intention to enroll an eligible security through the App. "Eligible security" means all shares available for fractional investing through Robinhood. I understand that in order to be eligible for dividend reinvestment, the securities must be held in My Account.

I may specify individual securities or have all Eligible securities in My Account enrolled for dividend reinvestment. If I choose to reinvest dividends from all Eligible securities, I understand that individual securities could subsequently no longer be Eligible securities at Robinhood's discretion or under applicable law. In those cases, only those securities will be discontinued from the DRIP. If I specify individual securities, I may add additional Eligible securities to the DRIP at any time if I hold a position in those securities. Enrollment with respect to these additional Eligible securities will be effective within three business days after Robinhood receives notification from me through the App. If I maintain open orders for securities I do not already hold, I may not enroll those securities for dividend reinvestment.

until my open orders are executed. If my entire Account is set up for dividend reinvestment, any eligible securities I purchase in the future will automatically participate in the DRIP.

All eligible cash distributions will be reinvested on all securities I have selected in the DRIP, provided that I owned the securities on the record date for determining shareholders eligible to receive dividends, and continue to hold the securities through payable date. "Eligible cash distributions" means most cash distributions, including regular and optional dividends, cash-in-lieu payments, and capital gains distributions. Special dividends, late ex-date, liquidation, and miscellaneous payments may not be eligible distributions. Optional dividends will be processed in accordance with dividend reinvestment instructions. If I have a margin account, Robinhood is permitted to borrow a dividend paying stock in the normal course of business and, as a result, in such situations instead of a dividend payment I may receive a cash in lieu payment. If I receive a cash in lieu payment, I authorize Robinhood to treat such payment as if it was not "in lieu" and reinvest it accordingly.

Robinhood will credit My Account upon completion of the dividend reinvestment. Robinhood will reinvest dividends on the business day following receipt of funds. In the rare instance in which Robinhood is unable to reinvest all dividends on the business day following receipt, it will reinvest the remaining funds as soon as reasonably possible thereafter, which may take up to five business days. I will not have use of the funds prior to reinvestment.

I understand that my participation in the DRIP is voluntary and that Robinhood has not made any recommendation that I should participate. I further understand that Robinhood is not recommending or offering any advice regarding the purchase of any security included as an Eligible security in the DRIP. I further understand that dividend reinvestment does not assure profits on my investments, nor does it protect against losses in declining markets.

I may terminate my participation in the DRIP, or the enrollment of individual securities in the DRIP, at any time by giving notice through the App. Termination will take effect prior to the next Eligible cash distribution provided my notice to terminate was received at least three business days prior to the record date of that distribution. I understand that my notice to terminate my participation in the DRIP will not affect any obligations that may result from transactions initiated prior to Robinhood's receipt and processing of my notice.

If I participate in the DRIP, I understand Robinhood will reinvest the dividends of a particular stock at or near the opening price on the trading day following receipt of the dividend. Robinhood will combine Eligible cash distributions from My Account with those from other Robinhood clients requesting dividend reinvestment in the same security and use these combined funds to purchase securities on my behalf and on behalf of these other clients. If the combined reinvested funds do not total the purchase price of at least one share, the distribution will be invested in fractional shares. On that same day, Robinhood will credit My Account with that number of shares, including fractional shares, equal to my Eligible cash distribution divided by the purchase price per share. Robinhood does not intend to charge a fee for transactions executed pursuant to the DRIP.

Dividend reinvestment may result in my owning interests in fractional shares of a security. I will be entitled to receive future dividend payments on my fractional shares, although other corporate actions may result in allocation of only whole shares and cash in lieu of fractions as determined by the issuer. In mandatory corporate reorganizations, my partial interest will be handled according to the specific terms of the reorganization. In voluntary corporate reorganizations, Robinhood will act on my instructions with respect only to my whole shares.

Because fractional share positions cannot be transferred, reorganized, or issued in certificate form, my partial interest will be liquidated, without commission charges to me, at prevailing market prices in the event My Account is transferred or closed, the stock is reorganized, or stock certificates are ordered out of My Account. The timing of such liquidations will be at the discretion of Robinhood.

Reinvestment of dividends may result in my owning a fractional share position in securities that are callable in part. In the event of a call, fractional shares to be called will be determined through a random selection process. The probability of my fractional share holdings being called will be proportional to the holdings of all Robinhood clients who own a fractional share position in that security. Prior to the publication date of such a call, I have the right to withdraw from My Account cash in lieu of my uncalled, fully paid partial holdings. Once a call is announced, however, all shares, whether registered or held in street name, participate in the random selection process. If my fractional shares are selected and I no longer hold the shares that I held on the publication date of the call, I will be responsible for covering those shares.

30. Cash Management Services.

Except as expressly stated otherwise, the provisions of this Section 30 will only apply if I am enrolled in Cash Management.

A. General.

I understand and agree that by enrolling in Cash Management, I may apply for a Robinhood-branded debit card issued by the bank identified in My Robinhood Debit Card Agreement ("Card"). I further understand and agree that by using My Card, exercising My electronic fund transfer ("EFT") privileges offered in connection with My Account, and/or by successfully completing a request using Pay by Check, I authorize Robinhood to debit My Account immediately whenever an electronic draft or Card transaction is presented for payment on My behalf, when an EFT transaction is effected, when a Pay by Check request is successfully completed on My Account and/or when any fee or charge is due (collectively "Payment" or "Payments"). I further understand and agree that when I request a Payment or withdrawal or instruct Robinhood to make a purchase of securities from My Account, Robinhood is authorized to place a block on the amount of the transaction ("Blocked Amounts") prior to the settlement date of the Payment, withdrawal or trade, and that the Blocked Amounts will not be available for use for additional Payments or the purchase of securities. I agree to maintain Available Funds sufficient to pay for Payments made by Me or any Authorized Card User (as defined below) and to pay for any securities trades and for interest on any margin loans and other transaction fees. For this purpose, "Available Funds" in My Account will fluctuate daily and means the sum of (i) free credit balances, (ii) deposits to Participating Depository Institutions through the Sweep Service, and (iii) available margin loan value if My Account has margin privileges, minus (x) uncleared funds, (y) Blocked Amounts, and (z) deposits subject to a hold. The loan value of eligible securities for the purpose of margin is subject to regulatory requirements and Robinhood credit policies then in effect.

B. Payments and Withdrawals.

I agree that any Payments that I make from My Account will be lawful. I agree that Payments will be deducted from the Available Funds in My Account in the following order: first, from free credit balances; second, by withdrawal of funds deposited to Participating Depository Institutions as part of the Sweep Service; and third, if My Account has margin privileges, from margin loans on the eligible securities in My margin Account. Robinhood will debit My Account only up to an amount equal to the Available Funds. I understand and agree that (i) if there are insufficient Available Funds in My Account to cover Payments when they become due, Robinhood has no obligation to make such Payments, and (ii) Robinhood has no obligation to make partial Payments. Robinhood will not charge a fee with respect to any declined Payment for which there were insufficient Available Funds. I acknowledge and agree, however, that Robinhood will not be responsible for any costs or losses that I may incur (including fees, costs, charges, attorneys' fees, investment losses, claims, demands, or liability resulting from any litigation or other actions) as a result of Robinhood's decision to decline any Payment or withdrawal or other transaction because My Account has insufficient Available Funds.

I understand that if a Payment is funded by a margin loan, I will incur interest until the margin loan is repaid.

I agree that if my Available Funds at any time falls below zero, Robinhood may suspend my ability to make Payments and terminate My Card. If this occurs, I agree to immediately pay all amounts owed to Robinhood, including any purchases on My Card which will be immediately charged to My Account.

I acknowledge and agree that Robinhood reserves the right to decline any Payments at any time for any reason with or without notice to Me. If Robinhood decides to take such action, I understand and agree that I am responsible for any pending debits, which will be processed and deducted from My Account.

I understand that transactions will post to My Account in any order determined by Robinhood and that Robinhood may change that order without prior notice to Me. Robinhood will comply with requirements of applicable law regarding the order of posting transactions.

C. Limitation of Liability.

I agree that, subject to any limitations imposed by applicable law, and except as otherwise set forth in this Agreement or in the disclosures contained in the Robinhood Debit Card Agreement, which has been provided to Me or made available to me in connection with the opening of My Account, Robinhood, Robinhood's agents, any processing bank, and the Card issuer will not be liable for any loss I incur in connection with My Account and any Payments or other features of My Account unless Robinhood is grossly negligent in fulfilling this Agreement. In no event will Robinhood, Robinhood's agents, any processing bank, and the Card issuer shall not be liable for consequential, special or indirect damages or losses unless applicable law requires otherwise. I also agree that liability regarding online services or use of the App is further limited by the Robinhood Terms and Conditions, available at <https://about.robinhood.com/legal/>. To the extent I utilize online services or the App I acknowledge that I am bound by such Robinhood Terms and Conditions.

D. Debit Cards.

I understand and agree that My use of the Card is subject to the terms, conditions and disclosures set forth in the Robinhood Debit Card Agreement, which has been provided to Me in connection with the opening of My Account and which I may access on the Website.

I understand and agree that I cannot request a Card for another person to use. I agree, however, that if I permit another person to have access to use My Card or Card number (an "Authorized Card User"), I am authorizing all Card transactions by such person and I agree that there are no limits to my authorization. I accept all liability with respect to the Card transactions effected by Me and any Authorized Card Users. I further agree that I may terminate the authority of an Authorized Card User only by contacting help@robinhood.com, to cancel my Card. I agree that the cancellation of My Card is effective only after Robinhood has a reasonable period to act on My notice.

If My Card is cancelled, I agree to destroy, or if requested by Robinhood, return the Card to Robinhood. I acknowledge that I will be responsible for any Card transactions that are processed because of My failure to destroy or return the Card following cancellation.

If My Account includes margin privileges, I agree that transactions that exceed My free credit balances and deposits in the Sweep Service may result in margin credit being extended to My Account, for which I will be charged interest. I agree to review the Margin Disclosure Statement, which is available at <https://about.robinhood.com/legal/>.

E. Deposits.

The provisions in this Section 30.E shall apply to My Account whether or not I am enrolled in Cash Management.

General; Holds. I acknowledge and agree that funds that I deposit to My Account may be subject to one or more hold periods, which are described in the RHF Funds Availability schedule available at <https://about.robinhood.com/legal/>. I understand and agree that Robinhood reserves the right to modify the RHF Funds Availability schedule at any time by posting an updated schedule at <https://about.robinhood.com/legal/>, or otherwise providing notice to me. During the applicable hold period, My funds will not be available for Payments, withdrawal, or the settling of securities transactions, in each case as described in the RHF Funds Availability schedule. I further understand and agree that Robinhood reserves the right to further delay making deposited funds available for periods longer than the hold periods specified in the RHF Funds Availability schedule to the extent Robinhood determines that additional time is needed to verify information about the item deposited or the sender or if Robinhood otherwise believes there is a risk of fraud or other unlawful activity with respect to My Account.

Mistaken Deposits. If funds are deposited or transferred into My Account by mistake or otherwise, I agree that Robinhood may correct the situation and deduct any interest paid by Participating Depository Institutions, if applicable, without prior notice to Me.

Returned Funds. I acknowledge and agree that I am responsible for returned transactions. If I have funds transferred into My Account and that transfer is returned for any reason, Robinhood may charge the transfer and interest paid by Participating Depository Institutions, if applicable, against My Account, without prior notice to Me.

F. Electronic Fund Transfers.

The provisions in this Section 30.F relating to EFTs other than Card transactions shall apply to My Account whether or not I am enrolled in Cash Management.

I understand that My Account may be eligible for a variety of EFTs, which may be subject to separate agreements, terms and conditions. These services may include use of the Card, and the "Move Money" functionality of the App. I understand that I may be required to agree to separate terms and conditions governing the particular service I use to initiate EFTs. In addition, I understand and agree that my use of EFT services are subject to the disclosures set forth in Appendix A (Electronic Fund Transfer Disclosures), and acknowledge that I have received and reviewed such disclosures.

G. Security.

I agree to protect My Card, and My PINs, from access by anyone not authorized by Me to use them. I acknowledge that I will be liable for all Card and online transactions conducted by anyone to whom I have given access or who has obtained access even if not authorized by Me, up to applicable legal limits. I understand that I am responsible for reviewing My Account statement promptly to discover and report unauthorized activity, including use of My Card, Card number or PIN. I agree to notify Robinhood as provided in Appendix A (Electronic Fund Transfer Disclosures) if I believe or have reason to believe that there has been unauthorized activity in My Account or that My Card, Card number or PIN has been lost, stolen or may be used by an unauthorized person. Unless limited by law or as otherwise set forth in this Agreement or in the disclosures contained in Robinhood Debit Card Agreement, which is provided to Me as part of the Account opening process and is available on the Website, I agree that I will be responsible for losses that arise from My failure to (i) safeguard My Card and PINs, (ii) review My monthly statement for possible unauthorized activity and (iii) report any unauthorized activity to Robinhood as provided herein or in the Robinhood Debit Card Agreement.

H. No Illegal Purpose.

I agree and understand that I may not use my debit card or any Payments on My Account for any illegal purpose. I agree and understand that Robinhood may, in its discretion, deny any transactions that appear to be made for an illegal purpose.

I. Pay by Check.

I agree and understand that if I try to stop payment on a check after it has been mailed to the payee, Robinhood will attempt to but cannot guarantee that payment on the check will be stopped. I understand that a stop payment order on a check is valid for six months. I understand that if I wish to renew a stop payment on a check after the six month period, I must contact Robinhood to request another stop payment. I agree and understand that I may still be liable to the holder of the check even if I have requested a stop payment for the amount of the check. I agree and understand that Robinhood may deduct My Account for the amount on the check if the stop payment request is unsuccessful.

J. Disclosure of Information.

I agree and understand that all disclosures of My non-public personal information shall be made in accordance with the terms of this Agreement or the Robinhood Privacy Policy (available on the

Website at <https://about.robinhood.com/legal/>, as applicable. I agree that My consent to sharing non-public personal information will remain in effect until I revoke such consent by updating My settings and visibility, which I may do at any time through the App.

In addition, I understand and agree that Robinhood may disclose information about My Account and My related activities to third parties under the following circumstances: - As necessary to complete My Payment transactions; - To investigate any complaint, disputed transaction, transaction inquiry or request I make or as necessary to investigate potential fraud or misuse related to My Account; - To respond to requests from credit bureaus, creditors or other third parties for account-related information, to the extent such inquiries are necessary for processing My transactions or are usual and customary in the course of servicing similar products or accounts; - As necessary to comply with any applicable law, government or court order or subpoena; or - In accordance with My written permission or as otherwise permitted under the Robinhood Privacy Policy.

I. Termination.

I understand that Robinhood may terminate my participation in Cash Management or in specific features of Cash Management for any reason, upon notice to me.

31. Consent to Redeem Shares.

I understand and agree that whenever it is necessary for Robinhood's protection or to satisfy a margin call, deficiency, debit or other obligation owed to Robinhood, Robinhood may (but is not required to) sell, assign and deliver all or any part of the securities in My Account, or close any or all transactions in My Account. I understand that Robinhood may, but is not obligated to, attempt to contact Me before taking any such action. I understand and agree that Robinhood reserves the right to take any such action without prior notice or demand for additional collateral, and free of any right of redemption, and that any prior demand, call or notice will not be considered a waiver of our right to sell or buy without demand, call or notice.

I further understand that Robinhood may choose which securities to buy or sell, which transactions to close, and the sequence and timing of liquidation, and may take such actions on whatever exchange or market and in whatever manner (including public auction or private sale) that Robinhood chooses in the exercise of its business judgment. I agree not to hold Robinhood liable for the choice of which securities to buy or sell or of which transactions to close or for the timing or manner of the liquidation. I also agree not to hold Robinhood liable for taking such action.

I understand and agree that Robinhood is entitled to exercise the rights described in this section in its sole discretion, including, but not limited to, whenever any of the following occurs:

- The equity level in My Account falls below required minimums;
- Sufficient funds or securities are not deposited to pay for transactions in My Account;
- I reverse any ACH debit transfer to My Account;
- A petition of bankruptcy or for the appointment of a receiver is filed by or against Me;
- An attachment is levied against My Account;
- I die or become incapacitated or incompetent; or
- My Account is closed.

32. Electronic Delivery of Trade and Account Information; Notice.

All communications, notices, legal disclosures, and other materials related to My Account or this Agreement, including account statements, trade confirmations, margin calls, notices, disclosures, regulatory communications and other information, documents, data and records regarding My Account (the "Communications"), or an alert that any such Communication has been posted to the secure section of the Website or the App, and is available for viewing, may be sent to Me at the mailing address for My Account or the e-mail address that I have given to Robinhood in My account application or at such other address as I may hereafter give Robinhood in writing or by e-mail at least ten (10) calendar days prior to delivery, and all communications so sent, whether in writing or otherwise, shall be deemed given to Me personally, whether actually received or not.

33. API.**A. Overview; Definitions.**

Robinhood may, in Robinhood's sole discretion, provide third parties with an application programming interface and other materials in accordance with any accompanying documentation (collectively, the "API Package") (such third parties, "API Licensees"), to make available certain features and functionality of Robinhood's mobile applications, websites, or technology platform via the API Licensees' products (such products, the "Licensee Products"). The API Package and the Licensee Products are collectively referred to as the "API Products". "Personal Information" means My personally identifiable information (including username, login password, financial information, trade data, and other financial information) and all data exchanged between Robinhood and the API Products.

B. Access to My Personal Information.

Through My use of any API Products, I may be providing API Licensees with access to My Account and Personal Information. By using any API Products, I acknowledge that such API Products may employ security, policies, procedures and systems of API Licensees which may or may not be less stringent and secure than Robinhood's policies, procedures and systems. I agree that My use of any API Products shall be subject to the terms and conditions of this Agreement, in addition to any other agreements which I executed with respect to any such API Products. I understand and agree that any end user agreement that I executed with any API Licensee is concluded between Me and such API Licensee only, and not with Robinhood; and such API Licensee, not Robinhood, is solely responsible for such Licensee Product and the content thereof. I understand and agree that the API Products may deliver Personal Information to Robinhood, and that Robinhood is authorized to receive and store such Personal Information consistent with Robinhood's then-in-effect policies and procedures. Further, I agree that the API Products may request Personal Information stored by Robinhood, and I consent to Robinhood's disclosure of such Personal Information to the API Products.

C. No Recommendations.

To the extent the Licensee Products or API Licensees express opinions or make recommendations, I understand that such opinions and recommendations are expressed solely by API Licensees and are not the opinions or recommendations of Robinhood. The existence of the API Products and Robinhood's consent to any connectivity between any Licensee Products and Robinhood's technology, the App, the Website, or trading platform(s) does not constitute (i) any recommendation by Robinhood to invest in any security or utilize any investment strategy; or (ii) any representation, warranty, or other guarantee by Robinhood as to the present or future value or suitability of any sale, trade, or other transaction involving any particular security or any other investments. The existence of any and all information, tools and services provided by API Licensees or by the Licensee Products shall not constitute Robinhood's endorsement of API Licensees or the Licensee Products.

D. Data Provided by Robinhood to API.

From time to time, and subject to then-in-effect agreements between Robinhood and API Licensees, Robinhood may, in its own discretion, make market data feeds received from third parties available via the API Products. Robinhood does not make any guarantees in regard to such market data feeds. Furthermore, API Licensees or Licensee Products may make available to Me market data feeds independent of Robinhood. I am aware that from time to time that there may be discrepancy between the market data presented on the App or Website and information provided by any API Products due to a variety of reasons, including the time to update and transmit such data to a mobile application or website and latency caused by such API Product's or My local environment (such as computer set up, connection speed, etc.). Robinhood is not responsible for the accuracy of any market data displayed on any API Products or otherwise made available by API Licensees.

E. Risks; No Liability.

I acknowledge that there may be latency between the time an order (or other Personal Information) is submitted from the API Products and the time such order or Personal Information is received by Robinhood. Latency may also affect order modification and order cancellation requests. The time an order or a request is actually received by Robinhood (including for execution) will be the official time, including for the purposes of routing the order to the market for execution. In addition, all orders submitted to Robinhood are subject to order vetting by Robinhood. Orders created and submitted through any API Products are not vetted until they are received by Robinhood. It is possible that Robinhood may reject an order placed through any API Products. Robinhood cannot guarantee that any order will be accepted when such order is routed to the market for execution, and Robinhood cannot guarantee that notifications and Personal Information provided to Me by Robinhood will be successfully delivered to or displayed by any API Products.

Without limiting the generality of any other terms in this Agreement, I agree that:

1. Robinhood or its Affiliates shall not be liable for any Losses as a result of any issues addressed in this Section 33 of this Agreement, nor shall Robinhood or its Affiliates be liable for any Losses realized for technical issues involving any API Products or API Licensee technology or product offerings (including system outages or downtime).
2. Robinhood or its Affiliates shall not be responsible for any investment research provided by any API Licensee or any Licensee Products.
3. Robinhood or its Affiliates makes no representations, warranties or other guarantees as to the accuracy, timeliness or efficacy of any market data, information, or other functionality made available by any API Licensee or any API Products.

F. Intellectual Property.

My use of any API Products will not confer to Me any title, ownership interest or intellectual property rights that otherwise belongs to Robinhood or any of its affiliates. The API Package, including content, is protected under U.S. patent, copyright laws, international treaties or conventions, and other laws and will remain Robinhood's exclusive property, as applicable. Names, logos, and all related product and service names, design marks, and slogans displayed by or relating to Robinhood or any of its Affiliates or API Licensees in the context of the API Products shall remain the property of the respective owner, and use of such property by Robinhood or any API Licensee in marketing or provision of any API Products does not grant ownership of or entitle Me to use any such name or mark in any manner.

G. User's Representations and Warranties.

I represent and warrant that:

1. By virtue of utilizing any API Products, I consent to and accept any risk associated with Robinhood's sharing of Personal Information with any API Licensee and shall not hold Robinhood, its Affiliates, or their respective officers, directors, or employees responsible for any Losses resulting from the sharing of such Personal Information.
2. I agree that My use of any API Products or API Licensee's content, information, technology, or functionality is at My own risk.
3. I agree that Robinhood may revoke any API Licensee or API Products' authorization at any time, for any reason, with or without cause and without prior notice to Me.

34. Electronic Signatures; Modifications to the Agreement.

I agree to transact business with Robinhood electronically. By electronically signing an application for an Account, I acknowledge and agree that such electronic signature is valid evidence of My consent to be

legally bound by this Agreement and such subsequent terms as may govern the use of Robinhood's services. The use of an electronic version of any document fully satisfies any requirement that the document be provided to Me in writing. I accept notice by electronic means as reasonable and proper notice, for the purpose of any and all laws, rules and regulations. I acknowledge and agree that Robinhood Financial may modify this Agreement from time to time and I agree to consult the Website from time to time for the most up-to-date Agreement. The electronically stored copy of this Agreement is considered to be the true, complete, valid, authentic and enforceable record of the Agreement, admissible in judicial or administrative proceedings to the same extent as if the documents and records were originally generated and maintained in printed form. I agree to not contest the admissibility or enforceability of Robinhood Financial's electronically stored copy of the Agreement.

35. Margin Accounts.

A. Election.

This numbered section applies to my account to the extent I elect and am approved for a Robinhood Gold margin account.

B. Margin Trading.

I understand that margin trading involves interest charges and risks, including the potential to lose more than deposited or the need to deposit additional collateral in a falling market. Before using margin, customers must determine whether this type of trading strategy is right for them given their specific investment objectives, experience, risk tolerance, and financial situation. If I have elected to have a margin Account, I represent that I have read the [Margin Disclosure Statement](#), [Day Trading Risk Disclosure](#), and [FINRA Investor Information](#). These disclosures contain information on Robinhood's lending policies, interest charges, and the risks associated with margin accounts.

C. Hypothecation.

Within the limitations imposed by applicable laws, rules and regulations, all securities now or hereafter held by Robinhood, or carried by Robinhood in any account for Me (either individually or jointly with others), or deposited to secure same, may from time to time, without any notice, be carried in your general loans and may be pledged, repledged, hypothecated or re-hypothecated, separately or in common with other securities for the sum due to you thereon or for a greater sum and without retaining in your possession or control for delivery a like amount of similar securities. The IRS requires Broker Dealers to treat dividend payments on loaned securities positions as payments received in lieu of dividends for 1099 tax reporting purposes. Taxation of substitute dividend payments may be greater than ordinary on qualified dividends. It is understood, however, that you agree to deliver to Me upon My demand and upon payment of the full amount due thereon, all securities in such accounts, but without obligation to deliver the same certificates or securities deposited by Me originally. Any securities in My margin or short account may be borrowed by you, or lent to others.

D. Interest.

Debit balances in My Accounts shall be charged with interest in accordance with your established custom, as disclosed to Me in the Customer Information Brochure pursuant to the provisions of the Securities Exchange Act.

E. Margin.

I agree to maintain in all accounts with Robinhood such positions and margins as required by all applicable statutes, rules, regulations, procedures and custom, or as you deem necessary or advisable. I agree to promptly satisfy all margin and maintenance calls.

F. Sales.

I agree to specifically designate any order to sell a security, which I do not own as a short sale, and understands that Robinhood will mark such order as a short sale. I agree that any order which is not specifically designated as a short sale is a sale of securities owned by me, and that I will deliver the securities on or before settlement date, if not already in the account. If I should fail to make such delivery in the time required, Robinhood is authorized to borrow such securities as necessary to make delivery for the sale, and I agree to be responsible for any loss you may thereby sustain, or which you may sustain as a result of your inability to borrow such securities.

36. Consent to Electronic Delivery of Documents.**A. Consent.**

By agreeing to electronic delivery, I am giving My informed consent to electronic delivery of all Account Documents, as defined below, other than those I have specifically requested to be delivered in paper form. "Account Documents" include notices, disclosures, current and future account statements, regulatory communications (such as prospectuses, proxy solicitations, and privacy notices), trade confirmations, tax-related documents, and any other information, documents, data, and records regarding My Account, this Agreement (including amendments to this Agreement), and the agreements and disclosures governing the services delivered or provided to Me by Robinhood Financial, the issuers of the securities or other property in which I invest, and any other parties. I agree that I can access, view, download, save, and print any Account Documents I receive via electronic delivery for My records.

B. Electronic Delivery System.

I acknowledge that Robinhood's primary methods of communication with Me include (A) posting information on the Website, (B) providing information via the App, (C) sending email(s) to My email address of record, and, to the extent required by law, (D) providing Me with notice(s) that will direct Me to the App or the Website where I can read and print such information. Unless otherwise required by law, Robinhood reserves the right to post Account Documents on the Website without providing notice to Me. Further, Robinhood reserves the right to send Account Documents to My postal or email address of record, or via the App or Website. I agree that all Account Documents provided to Me in any of the foregoing manner is considered delivered to Me personally when sent or posted by Robinhood, whether I receive it or not.

All e-mail notifications regarding Account Documents will be sent to My e-mail address of record. I agree to maintain the e-mail address that I have provided Robinhood until I provide Robinhood with a new one. I understand that e-mail messages may fail to transmit promptly or properly, including being delivered to SPAM folders. I further understand that it is My sole responsibility to ensure that any emails from Robinhood or its Affiliates are not marked as SPAM. Regardless of whether or not I receive an e-mail notification, I agree to check the Website regularly to avoid missing any information, including time-sensitive or otherwise important communication. If I authorize someone else to access the e-mail account I have provided Robinhood, I agree to tell them to share the Account Documents with Me promptly, and I accept the risk that they will see My sensitive information. I understand that if I use a work e-mail address or computing or communications device, My employer or other employees may have access to the Account Documents.

Additionally, I acknowledge that the Internet is not a secure network and agree that I will not send any confidential information, including Account numbers or passwords, in any unencrypted e-mails. I also

understand that communications transmitted over the Internet may be accessed by unauthorized or unintended third parties and agree to hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers and employees harmless for any such access regardless of the cause.

I agree to promptly and carefully review all Account Documents when they are delivered and notify Robinhood Financial in writing within five (5) calendar days of delivery if I object to the information provided (or other such time specified herein). If I fail to object in writing within such time, Robinhood Financial is entitled to treat such information as accurate and conclusive. I will contact Robinhood to report any problems with accessing the Account Documents.

C. Costs.

Potential costs associated with electronic delivery of Account Documents may include charges from Internet access providers and telephone companies, and I agree to bear these costs. Robinhood Financial will not charge Me additional online access fees for receiving electronic delivery of Account Documents.

D. Archival.

Upon My request, I may obtain copies of up to six (6) prior years of account statements, and three (3) prior years of trade confirmations.

E. Revocation of Consent.

Subject to the terms of this Agreement, I may revoke or restrict My consent to electronic delivery of Account Documents at any time by notifying Robinhood Financial in writing of My intention to do so. I also understand that I have the right to request paper delivery of any Account Document that the law requires Robinhood Financial to provide Me in paper form. Robinhood Financial will not treat My request for paper copies as a withdrawal of My consent to electronic delivery of Account Documents. I understand that if I revoke or restrict My consent to electronic delivery of Account Documents or request paper delivery of same, Robinhood Financial, in its sole discretion, may charge Me a reasonable service fee for the delivery of any Account Document that would otherwise be delivered to Me electronically, restrict or close My account, or terminate My access to Robinhood Financial's services. I understand that neither My revocation or restriction of consent, My request for paper delivery, nor Robinhood Financial's delivery of paper copies of Account Documents will affect the legal effectiveness or validity of any electronic communication provided while My consent was in effect.

F. Duration of Consent.

My consent to receive electronic delivery of Account Documents will be effective immediately and will remain in effect unless and until either I or Robinhood Financial revokes it. I understand that it may take up to three (3) Business Days to process a revocation of consent to electronic delivery, and that I may receive electronic notifications until such consent is processed.

G. Hardware and Software Requirements.

I understand that in order to receive electronic deliveries, I must have access to a computer or Mobile Device with Internet access, a valid e-mail address, and the ability to download such applications as Robinhood Financial may specify and to which I have access. I also understand that if I wish to download, print, or save any information I wish to retain, I must have access to a printer or other device in order to do so.

H. Consent and Representations.

I hereby agree that I have carefully read the above information regarding informed consent to electronic delivery and fully understand the implications thereof. Additionally, I hereby agree to all conditions outlined above with respect to electronic delivery of any Account Document. I will maintain a valid e-mail address and continue to have access to the Internet. If My e-mail address changes, I agree to immediately notify Robinhood Financial of My new e-mail address in writing.

37. Miscellaneous Provisions.

The following provisions shall also govern this Agreement:

A. Contact Information.

Robinhood Customer Service may be contacted by visiting support.robinhood.com or by email at help@robinhood.com.

B. Interpretation.

The heading of each provision hereof is for descriptive purposes only and shall not be (1) deemed to modify or qualify any of the rights or obligations set forth herein or (2) used to construe or interpret any of the provisions hereunder. When a reference is made in this Agreement to a Section, such reference shall be to a Section of this Agreement unless otherwise indicated. Whenever the words "include," "includes" or "including" are used in this Agreement, they shall be deemed to be followed by the words "without limitation." The word "or," when used in this Agreement, has the inclusive meaning represented by the phrase "and/or." Unless the context of this Agreement otherwise requires: (i) words using the singular or plural number also include the plural or singular number, respectively; and (ii) the terms "hereof," "herein," "hereunder" and derivative or similar words refer to this entire Agreement. References to any law shall be deemed to refer to such law as amended from time to time and to any rules or regulations promulgated thereunder.

C. Binding Effect; Assignment.

This Agreement shall bind My heirs, assigns, executors, successors, conservators and administrators. I may not assign this Agreement or any rights or obligations under this Agreement without first obtaining Robinhood's prior written consent. Robinhood may assign, sell, or transfer My Account and this Agreement, or any portion thereof, at any time, without My prior consent.

D. Severability.

If any provisions or conditions of this Agreement are or become inconsistent with any present or future law, rule, or regulation of any applicable government, regulatory or self-regulatory agency or body, or are deemed invalid or unenforceable by any court of competent jurisdiction, such provisions shall be deemed rescinded or modified, to the extent permitted by applicable law, to make this Agreement in compliance with such law, rule or regulation, or to be valid and enforceable, but in all other respects, this Agreement shall continue in full force and effect.

E. Website Postings.

I agree and understand that Robinhood Financial may post other specific agreements, disclosures, policies, procedures, terms, and conditions that apply to My use of the App, the Website, or My Account

on the Website ("Website Postings"). I understand that it is My continuing obligation to understand the terms of the Website Postings, and I agree to be bound by the Web Postings as are in effect at the time of My use.

F. Entirety of Agreement.

This Agreement, any attachments hereto, other agreements and policies referred to in this Agreement (including the Website Postings), and the terms and conditions contained in My Account statements and confirmations, contain the entire agreement between Robinhood and Me and supersede all prior or contemporaneous communications and proposals, whether electronic, oral, or written, between Robinhood and Me, provided, however, that any and all other agreements between Robinhood and Me, not inconsistent with this Agreement, will remain in full force and effect.

G. Amendment.

Robinhood may at any time amend this Agreement without prior notice to Me. The current version of the Agreement will be posted on the Website and My continued Account activity after such amendment constitutes My agreement to be bound by all then-in-effect amendments to the Agreement, regardless of whether I have actually reviewed them. Continued use of the App, the Website or any other Robinhood Financial services after such posting will constitute My acknowledgment and acceptance of such amendment. I agree to regularly consult the Website for up-to-date information about Robinhood Financial services and any modifications to this Agreement. Robinhood is not bound by any verbal statements that seek to amend the Agreement.

H. Termination.

Robinhood may terminate this Agreement, or close, deactivate, or block access to My Account at any time in its sole discretion. I will remain liable to Robinhood for all obligations incurred in My Account, pursuant to this Agreement, or otherwise, whether arising before or after termination. I may terminate this Agreement after paying any obligations owed upon written notice. This Agreement survives termination of My Account.

I. No Waiver; Cumulative Nature of Rights and Remedies.

I understand that Robinhood's failure to insist at any time upon strict compliance with any term contained in this Agreement, or any delay or failure on Robinhood's part to exercise any power or right given to Robinhood in this Agreement, or a continued course of such conduct on Robinhood's part, shall at no time operate as a waiver of such power or right, nor shall any single or partial exercise preclude any other further exercise. All rights and remedies given to Robinhood in this Agreement are cumulative and not exclusive of any other rights or remedies to which Robinhood is entitled.

J. International Customers.

The products and services described on the Website are offered only in jurisdictions where they may be legally offered. Neither the Website nor the App shall be considered a solicitation for or offering of any investment product or service to any person in any jurisdiction where such solicitation or offering would be illegal. I understand that Robinhood, in its sole discretion, may accept unsolicited accounts from non-U.S. residents, depending on the country of residence and other factors. I understand that Robinhood is based in the United States and that Robinhood accepts only U.S. currency in Robinhood's customer accounts.

K. Governing Law.

This Agreement and all transactions made in My Account shall be governed by the laws of the State of California (regardless of the choice of law rules thereof), except to the extent governed by the federal securities laws, FINRA Rules, and the regulations, customs and usage of the exchanges or market (and its clearing house) on which transactions are executed.

38. Arbitration.

A. This Agreement contains a pre-dispute arbitration clause. By signing an arbitration agreement, the parties agree as follows: (1) All parties to this Agreement are giving up the right to sue each other in court, including the right to a trial by jury, except as provided by the rules of the arbitration forum in which a claim is filed. (2) Arbitration awards are generally final and binding; a party's ability to have a court reverse or modify an arbitration award is very limited. (3) The ability of the parties to obtain documents, witness statements and other discovery is generally more limited in arbitration than in court proceedings. (4) The arbitrators do not have to explain the reason(s) for their award unless, in an eligible case, a joint request for an explained decision has been submitted by all parties to the panel at least 20 days prior to the first scheduled hearing date. (5) The panel of arbitrators will typically include a minority of arbitrators who were or are affiliated with the securities industry. (6) The rules of some arbitration forums may impose time limits for bringing a claim in arbitration. In some cases, a claim that is ineligible for arbitration may be brought in court. (7) The rules of the arbitration forum in which the claim is filed, and any amendments thereto, shall be incorporated into this Agreement. B. Any controversy or claim arising out of or relating to this Agreement, any other agreement between me and Robinhood, any Account(s) established hereunder, any transaction therein, shall be settled by arbitration in accordance with the rules of FINRA Dispute Resolution, Inc. ("FINRA DR"). I agree to arbitrate any controversy or claim before FINRA DR in the State of California. C. This agreement to arbitrate constitutes a waiver of the right to seek a judicial forum unless such a waiver would be void under the federal securities laws. If I am a foreign national, non-resident alien, or if I do not reside in the United States, I agree to waive My right to file an action against Robinhood in any foreign venue. D. No person shall bring a putative or certified class action to arbitration, nor seek to enforce any pre-dispute arbitration agreement against any person who has initiated in court a putative class action; or who is a member of a putative class who has not opted out of the class with respect to any claims encompassed by the putative class action until: (1) the class certification is denied; or (2) the class is decertified; or (3) the customer is excluded from the class by the court. Such forbearance to enforce an agreement to arbitrate shall not constitute a waiver of any rights under this Agreement except to the extent stated herein.

ACCEPTED AND AGREED: I acknowledge that I have read the preceding terms and conditions of this Agreement, that I understand them and that I hereby manifest my assent to, and my agreement to comply with, those terms and conditions by accepting this agreement. I ALSO UNDERSTAND THAT BY ACCEPTING THIS AGREEMENT I HAVE ACKNOWLEDGED THAT THIS AGREEMENT CONTAINS A PREDISPUTE ARBITRATION CLAUSE IN SECTION 38 HEREIN. I ALSO AGREE (1) THAT ANY OF MY MARGIN ACCOUNT SECURITIES MAY BE BORROWED BY ROBINHOOD OR LOANED TO OTHERS; (2) I HAVE RECEIVED OF A COPY OF THIS AGREEMENT AND (3) I HAVE REVIEWED A COPY OF THE MARGIN DISCLOSURE STATEMENT.

Appendix A**Electronic Fund Transfer Services Disclosures**

The following disclosures apply to the use of any EFT services offered by Robinhood, including the Card, ACH transactions and the Move Money functionality of the App.

Solely for purposes of these disclosures: (i) references to the Bank shall include any financial institution that issues the Card or provides services in connection with ACH, Move Money or other EFT transactions; (ii) "you" and "your" mean the owner of the Account; and (iii) "we" and "us" means Robinhood and the Bank collectively.

1. Your Liability.

Contact Robinhood Customer Service AT ONCE if you believe your Card or PIN has been lost or stolen or if you believe that an electronic fund transfer has been made without your permission. Telephoning is the best way of keeping your losses down. You could lose all the Available Funds in your Account (plus your maximum overdraft line of credit). If you tell Robinhood within 2 business days after you learn of the loss or theft of your Card or PIN, you can lose no more than \$50 if someone used your Card or PIN without your permission.

If you do NOT tell Robinhood within 2 business days after you learn of the loss or theft of your Card or PIN, and Robinhood can prove that it could have stopped someone from using your Card or PIN without your permission if you had told Robinhood, you could lose as much as \$500.

Also, if your statement shows transfers that you did not make, including those made by Card or using your PIN, tell Robinhood at once. If you do not tell Robinhood within sixty (60) days after the statement was mailed to you, or otherwise made available to you, you may not get back any money you lost after the sixty (60) days if Robinhood can prove that Robinhood could have stopped someone from taking the money if you had told Robinhood in time. If a good reason (such as a long trip or a hospital stay) kept you from telling Robinhood, Robinhood will extend the time periods.

2. Contact in event of unauthorized transfer.

If you believe your Card or PIN has been lost or stolen, contact Robinhood by emailing help@robinhood.com.

3. Business Days.

Business Days are Monday through Friday, excluding federal holidays.

4. Transfer Types and Limitations.

You may use your Card to make purchases at any merchant that accepts Mastercard debit cards or debit cards of other networks in which the Bank participates, and to make ATM withdrawals, in each case subject to the Available Funds in your Account, the transaction limits described below, and the other terms and conditions of this Agreement. You acknowledge and agree that the value available to you for use with the Card is limited to the Available Funds in your Account. So long as you do not exceed the Available Funds in your Account, you may use the Card to purchase goods or services wherever the Card is honored, and to obtain cash by initiating cash withdrawal transactions through the Card from any financial institution or ATM that accepts the Card. Each time you use the Card, you authorize Robinhood to reduce the Available Funds in your Account by the amount of the purchase or withdrawal and any applicable fees, costs, or holdings. Nevertheless, if you exceed the Available Funds in your Account you shall remain fully liable to Robinhood for the amount of the transactions and any applicable fees and charges.

You may also make ACH withdrawals from your Account, either originated through Robinhood or originated by a third party (a "non-originated" withdrawal), subject to the Available Funds in your Account, the transaction limits described below, and the other terms and conditions of this Agreement. You also may make ACH deposits to your Account, either originated through Robinhood or originated by a third party (a "non-originated" deposit), subject to the transaction limits described below.

There are limits on the dollar amount of transactions you can make with your Card each day and each month, and limits on the amount of ACH withdrawals and deposits you can make each day. The following lists the limits for each type of transaction:

Originated ACH Withdrawals* Daily Limit: \$50,000.00
Weekly Limit: N/A Monthly Limit: N/A

Originated ACH Deposits* Daily Limit: \$50,000.00
Weekly Limit: N/A Monthly Limit: N/A

Non-Originated ACH Withdrawals* Daily Limit: \$250,000.00
Weekly Limit: N/A Monthly Limit: N/A

Non-Originated ACH Deposits* Daily Limit: \$250,000.00
Weekly Limit: N/A Monthly Limit: N/A

Point of Sale Purchases with the Card* Daily Limit: \$5,000.00 Weekly Limit: N/A Monthly Limit: \$15,000.00

ATM Withdrawals* Daily Limit: \$510.00 Weekly Limit: N/A Monthly Limit: \$5,000.00

Originated ACH* Daily Limit: N/A, subject to the Weekly Limit Weekly Limit: \$2,999 Monthly Limit: N/A

5. Fees.

We will not charge you any fees for use of ATMs that are part of the AllPoint or MoneyPass ATM networks, or for point of sale transactions using the Card, or for initiating other EFTs on your behalf. If you withdraw funds from ATMs outside of the AllPoint or MoneyPass ATM networks, you may be separately assessed fees by those ATM owners or operators.

6. Confidentiality.

We may disclose information to third parties about you, your Card, or the transactions you make using any of the EFT services we provide:

1. Where it is necessary or helpful for completing or correcting transactions and resolving claims regarding transactions;
2. In order to verify the existence and condition of your Card or your Account for a third party, such as a merchant;
3. In order to comply with a valid request by a government agency, a court order, or other legal or administrative reporting requirements;
4. If you consent by giving us your written permission;
5. To our employees, auditors, affiliates, service providers, or attorneys as needed;
6. In order to prevent, investigate or report possible illegal activity;
7. In order to issue authorizations for transactions on the Card;
8. As permitted by applicable law; or
9. Otherwise as necessary to fulfill our obligations under this Agreement and the terms applicable to the EFT service you are using.

Please see Robinhood's privacy policy, available at [about.robinkood.com/legal](https://www.robinkood.com/legal), and the applicable Bank's privacy policy, available at <https://www.suttonbank.com/kcms-doc/85/49033/WK-Privacy-Disclosure-1218.pdf>, for further details. (The Robinhood privacy policy and the applicable Bank's privacy policy are referred to collectively as the "Privacy Policies"). You hereby agree to Robinhood's and the Bank's collection, use and sharing of information about you and the Card as provided in the Privacy Policies, which are made a part of this Agreement. The Privacy Policies also tell you how you can (i) limit the ways in which Bank and Robinhood share information about you, or (ii) request corrections to the information that Bank or Robinhood maintain about you. You agree that information you provide in connection with your Card or other EFT services you use is being provided directly to both Robinhood as the holder of the Account associated with the service and the Bank as the Card issuer or provider of the EFT service, as applicable.

7. Documentation.

Terminal Transfers. You can get a receipt at the time you make any transfer to or from your Account using an ATM from the AllPoint or MoneyPass ATM networks or at the point of sale.

Preauthorized Credits. If you have arranged to have direct deposits made to your Account at least once every 60 days from the same person or company, the person or company making the deposit will tell you every time they send us the money. You can also check your Account online to see if a deposit has been received.

Periodic Statements. You will get a monthly Account statement, unless there are no transfers in a particular month. In any case you will get the statement at least quarterly. You may obtain information about the Available Funds in your Account and a history of your Cash Management transactions on the App.

8. Preauthorized Payments/Stop Payment Procedure and Notice of Varying Amounts.

You do not have the right to request that Robinhood in advance make regular payments out of your Account, although you may ask third parties to initiate regular payments out of your Account.

Right to stop payment: If you have automatic recurring payments taken out of your Account, you can stop any of these payments by contacting us at help@robinhood.com. You must contact us in time for us to receive your request at least three business days before the payment is scheduled to be made.

Notice of varying amounts: If these regular payments vary in amount, the party you are going to pay will tell you, 10 days before each payment, when the payment will be made and how much it will be. (The party you are going to pay may allow you to choose to get this notice only when the payment would differ by more than a certain amount from the previous payment, or when the amount would fall outside certain limits that you set.)

Liability for failure to stop payment of a preauthorized transfer: If you order us to stop a payment at least three business days before the transfer is scheduled and we do not do so, we will be liable for your losses or damages.

9. Our Liability.

If we do not complete a transaction to or from your Account on time or in the correct amount according to our Agreement with you, we will be liable for your losses or damages. However, there are some exceptions. We will not be liable, for instance:

1. If through no fault of Robinhood or the Bank, you do not have enough Available Funds in your Account to complete the transaction;
2. If a merchant refuses to accept your Card;
3. If an electronic terminal where you are making a transaction does not operate properly, and you knew about the problem when you initiated the transaction;
4. If access to your Card has been blocked after you reported your Card lost or stolen;
5. If there is a hold or your funds are subject to legal or administrative process or other encumbrance restricting their use;
6. If Robinhood or the Bank have reason to believe the requested transaction is unauthorized;
7. If circumstances beyond the control of Robinhood or the Bank (such as fire, flood, or computer or communication failure) prevent the completion of the transaction, despite reasonable precautions that Robinhood or the Bank have taken; or
8. For any other exception stated in this Agreement with you or by applicable law.

10. Errors or Questions About Electronic Transfers.

In case of errors or questions about your electronic transfers, including your Card transactions, or if you think your statement or receipt is wrong or if you need more information about a transaction listed on the statement or receipt, contact Robinhood by emailing help@robinhood.com. Robinhood must hear from you no later than sixty (60) days after you were sent the FIRST statement on which the problem or error appeared.

1. Tell Robinhood your name and account number.
2. Describe the error or the transfer you are unsure about, and explain as clearly as you can why you believe it is an error or why you need more information.
3. Tell Robinhood the dollar amount of the suspected error.

Robinhood will determine whether an error occurred within ten (10) business days after Robinhood hears from you and will correct any error promptly. If Robinhood needs more time, however, it may take up to forty-five (45) days to investigate your complaint or question. If Robinhood decides to do this, Robinhood will credit your Account within ten (10) business days for the amount you think is in error, so that you will have the use of the money during the time it takes Robinhood to complete our investigation.

For errors involving new accounts, point of sale, or foreign initiated transactions, Robinhood may take up to ninety (90) days to investigate your complaint or question. For new accounts, Robinhood may take up to twenty (20) business days to credit your Account for the amount you think is in error.

Robinhood will tell you the results of our investigation within three (3) business days after completing the investigation. If Robinhood decides that there was no error, Robinhood will send you a written explanation. You may ask for copies of the documents that Robinhood used in our investigation.

EXHIBIT D

Revised December 30, 2020

Robinhood Financial LLC & Robinhood Securities, LLC Customer Agreement

In consideration of Robinhood Financial LLC, Robinhood Securities, LLC, and their agents and assigns (collectively, "Robinhood") opening one or more accounts on my behalf ("My Account(s)" or the "Account(s)") for the purchase, sale or carrying of securities or contracts relating thereto and/or the borrowing of funds, which transactions are cleared through Robinhood Securities, I represent and agree with respect to all Accounts, whether margin or cash, to the terms set forth below (the "Agreement"). When used in this Agreement, the words "I", "Me", "My", "We", or "Us" mean the owner(s) of the Account. For purposes of this Agreement, Business Days are Monday through Friday, excluding federal holidays. Any references to "days" found in this Agreement are calendar days unless indicated otherwise.

I UNDERSTAND THAT THE TERMS AND CONDITIONS OF THIS AGREEMENT GOVERN ALL ASPECTS OF MY RELATIONSHIP WITH ROBINHOOD REGARDING MY ACCOUNTS. I WILL CAREFULLY READ, UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT BEFORE I CLICK "SUBMIT APPLICATION" OR OTHER SIMILARLY WORDED BUTTON. IF I HAVE ANY QUESTIONS ABOUT ANY OF THE PROVISIONS IN THIS AGREEMENT, I WILL EMAIL HELP@ROBINHOOD.COM. I UNDERSTAND THAT CLICKING "SUBMIT APPLICATION" IS THE LEGAL EQUIVALENT OF MY MANUALLY SIGNING THIS AGREEMENT AND I WILL BE LEGALLY BOUND BY ITS TERMS AND CONDITIONS. BY ENTERING INTO THIS AGREEMENT, I ACKNOWLEDGE RECEIPT OF THE ROBINHOOD PRIVACY POLICY AND PRIVACY AND SECURITY STATEMENT. I UNDERSTAND THAT THIS AGREEMENT MAY BE AMENDED FROM TIME TO TIME BY ROBINHOOD, WITH REVISED TERMS POSTED ON THE ROBINHOOD WEBSITE. I AGREE TO CHECK FOR UPDATES TO THIS AGREEMENT. I UNDERSTAND THAT BY CONTINUING TO MAINTAIN MY SECURITIES BROKERAGE ACCOUNT WITHOUT OBJECTING TO ANY REVISED TERMS OF THIS AGREEMENT, I AM ACCEPTING THE TERMS OF THE REVISED AGREEMENT AND I WILL BE LEGALLY BOUND BY ITS TERMS AND CONDITIONS. IF I REQUEST OTHER SERVICES PROVIDED BY ROBINHOOD THAT REQUIRE ME TO AGREE TO SPECIFIC TERMS AND CONDITIONS ELECTRONICALLY (THROUGH CLICKS OR OTHER ACTIONS) OR OTHERWISE, SUCH TERMS AND CONDITIONS WILL BE DEEMED AN AMENDMENT AND WILL BE INCORPORATED INTO AND MADE PART OF THIS AGREEMENT. I ALSO UNDERSTAND THAT BY CLICKING "SUBMIT APPLICATION" I HAVE ACKNOWLEDGED THAT THIS AGREEMENT CONTAINS A PREDISPUTE ARBITRATION CLAUSE IN SECTION 38 HEREIN.

1. Capacity and Status.

If an individual, I am of legal age under the laws of the state where I reside and authorized to enter into this Agreement. If an entity, I am duly formed, validly existing and in good standing in My state of organization, have full power and authority to enter and perform this Agreement, and the persons signing the account application are fully authorized to act on My behalf. No person, except Myself, has any interest in the Account opened pursuant to this Agreement. I acknowledge that unless Robinhood receives written objection from Me, Robinhood may provide My name, address, and securities positions to requesting companies in which I hold securities. Except as otherwise disclosed to Robinhood in writing, neither I nor any member of My immediate family is an employee of any exchange, any corporation of which any exchange owns a majority of the capital stock, a member of any exchange or self-regulatory organization, a member of any firm or member corporation registered on any exchange, a bank, trust company, insurance company or any corporation, firm or individual engaged in the business of dealing either as a broker-dealer or as principal in securities. I understand and agree that I am obligated to promptly notify Robinhood in writing if I or a member of My immediate family becomes registered or employed in any of the above-described capacities. Except as otherwise disclosed to Robinhood in writing, I am not a Professional (as defined below). I further agree to promptly notify Robinhood in writing if I am now or if I become a Professional or an officer, director or 10% stockholder of any publicly traded company.

2. Market Data.

Robinhood may choose to make certain market data available to Me pursuant to the terms and conditions set forth in this Agreement. By executing this Agreement, I agree to comply with those terms and conditions.

A. Definitions.

1. "Market Data" means (a) last sale information and quotation information relating to securities that are admitted to dealings on the New York Stock Exchange ("NYSE"), (b) such bond and other equity last sale and quotation information, and such index and other market information, as United States-registered national securities exchanges and national securities associations (each, an "Authorizing SRO") may make available and as the NYSE may from time to time designate as "Market Data"; and (c) all information that derives from any such information.
2. "Nonprofessional" means any natural person who receives market data solely for his/her personal, non-business use and who is not a "Professional." A "Professional" includes an individual who, if working in the United States, is: (i) registered or qualified with the Securities and Exchange Commission (the "SEC"), the Commodity Futures Trading Commission (the "CFTC"), any state securities agency, any securities exchange or association, or any commodities or futures contract market or association; (ii) engaged as an "investment advisor" as that term is defined in Section 202 (a) (11) of the Investment Advisers Act of 1940 (whether or not registered or qualified under that Act); or (iii) employed by a bank or other organization exempt from registration under federal and/or state securities laws to perform functions that would require him or her to be so registered or qualified if he or she were to perform such functions for an organization not so exempt. A person who works outside of the United States will be considered a "Professional" if he or she performs the same functions as someone who would be considered a "Professional" in the United States.

B. Provisions Applicable to All Users.

1. Proprietary Nature of Data. I understand and acknowledge that each Authorizing SRO and Other Data Disseminator (as defined below) has a proprietary interest in the Market Data that originates on or derives from it or its market(s). I agree not to reproduce, distribute, sell or commercially exploit the Market Data in any manner.
2. Enforcement. I understand and acknowledge that (a) the Authorizing SROs are third-party beneficiaries under this Agreement and (b) the Authorizing SROs or their authorized representative(s) may enforce this Agreement, by legal proceedings or otherwise, against Me or any person that obtains Market Data that is made available pursuant to this Agreement other than as this Agreement contemplates.
3. Data Not Guaranteed. I understand that neither Robinhood nor any Authorizing SRO, other entity whose information is made available over the Authorizing SROs' facilities (an "Other Data Disseminator"), or information processor that assists any Authorizing SRO or Other Data Disseminator in making Market Data available (collectively, the "Disseminating Parties") guarantees the timeliness, sequence, accuracy, completeness, reliability, or content of Market Data or of other market information or messages disseminated to or by any Disseminating Party. I understand that neither Robinhood Financial nor any Disseminating Party guarantees the timeliness, sequence, accuracy, completeness, reliability or content of market information, or messages disseminated to or by any party. I understand that neither Robinhood Financial nor any Disseminating Party warrants that the service provided by any such entity will be uninterrupted or error-free. I further understand that Market Data by Xignite provides market data to Robinhood Financial customers. NEITHER ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, NOR ANY DISSEMINATING PARTY SHALL BE LIABLE IN ANY WAY FOR (A) ANY INACCURACY, ERROR OR DELAY IN, OR OMISSION OF (I) ANY MARKET DATA, INFORMATION OR MESSAGE, OR (II) THE TRANSMISSION OR DELIVERY OF ANY SUCH DATA, INFORMATION OR MESSAGE; OR (B) ANY LOSS (AS DEFINED IN THIS AGREEMENT) OR DAMAGE ARISING FROM OR OCCASIONED BY (I) ANY SUCH INACCURACY, ERROR, DELAY OR OMISSION, (II) NON-PERFORMANCE OR (III) INTERRUPTION IN ANY SUCH MARKET DATA, INFORMATION, OR MESSAGE, WHETHER DUE TO ANY ACT OR OMISSION BY ROBINHOOD FINANCIAL, ANY OF ITS AFFILIATES, THEIR RESPECTIVE OFFICERS OR EMPLOYEES, OR ANY DISSEMINATING PARTY, OR TO ANY "FORCE MAJEURE" (E.G., FLOOD, EXTRAORDINARY WEATHER CONDITIONS, EARTHQUAKE OR OTHER ACT OF GOD, FIRE, WAR, INSURRECTION, RIOT, LABOR DISPUTE, ACCIDENT, ACTION OF GOVERNMENT, OR COMMUNICATIONS OR POWER FAILURE, EQUIPMENT OR SOFTWARE MALFUNCTION) OR ANY OTHER

CAUSE BEYOND THE REASONABLE CONTROL OF ROBINHOOD FINANCIAL, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS AND EMPLOYEES, OR ANY DISSEMINATING PARTY.

4. Permitted Use. I shall not furnish Market Data to any other person or entity. If I receive Market Data other than as a Nonprofessional, I shall use Market Data only for My individual use.
5. Dissemination, Discontinuance, or Modification. I understand and acknowledge that, at any time, the Authorizing SROs may discontinue disseminating any category of Market Data, may change or eliminate any transmission method and may change transmission speeds or other signal characteristics. The Authorizing SROs shall not be liable for any resulting liability, loss or damages that may arise therefrom.
6. Duration; Survival. This Section 2 of this Agreement remains in effect for so long as I have the ability to receive Market Data as contemplated by this Section 2. In addition, Sections 2(B)(1)-(3) and the first two sentences of Section 2(B)(7), survive any termination of this Agreement.
7. Miscellaneous. The laws of the State of New York shall govern this Section 2 and it shall be interpreted in accordance with those laws. This Subsection is subject to the Securities Exchange Act of 1934, the rules promulgated under that act, and the joint-industry plans entered into pursuant to that act.

C. Provisions Applicable to Nonprofessionals.

1. Permitted Receipt. I understand that I may not receive Market Data from Robinhood as a Nonprofessional, and Robinhood may not provide Market Data to Me as a Nonprofessional, unless Robinhood first properly determines that I qualify as a Nonprofessional as defined above and I in fact qualify as a Nonprofessional. I agree that, as a prerequisite to Robinhood Financial qualifying Me as a Nonprofessional, I will provide to Robinhood truthful and accurate information about Me, such as: my occupation, employer, employment position and functions; my use of Market Data; my registration status with any securities agency, exchange, association, or regulatory body, or any commodities or future contract market, association, or regulatory body, whether in the United States or elsewhere; and any compensation of any kind I may receive from any individual or entity for my trading activities, asset management, or investment advice. Except as otherwise declared to Robinhood in writing, by executing this Agreement, I certify that I meet the definition of Nonprofessional as set forth in this Agreement.
2. Permitted Use. If I am a Nonprofessional, I agree to receive Market Data solely for my personal, non-business use.
3. Notification. I shall notify Robinhood promptly in writing of any change in my circumstances that may cause Me to cease to qualify as a Nonprofessional.

3. NASDAQ OMX Information.

A. Definitions.

1. "Information" means certain market data and other data disseminated that has been collected, validated, processed, and recorded by any system NASDAQ OMX has developed for the creation or dissemination of Information or other sources made available for transmission to and receipt from either a distributor such as RHF or from NASDAQ OMX relating to: a) eligible securities or other financial instruments, markets, products, vehicles, indicators, or devices; b) activities of a NASDAQ OMX company; c) other information and data from a NASDAQ OMX company. "Information" also includes any element of Information as used or processed in such a way that the Information can be identified, recalculated or re-engineered from the processed Information or that the processed Information can be used as a substitute for Information.
2. "NASDAQ OMX" means The NASDAQ OMX Group, Inc., a Delaware limited liability company and its subsidiaries and Affiliates (collectively, "NASDAQ OMX").

B. Use of Data.

I understand that I may use the Information only for personal use and not for any business purpose. I may not sell, lease, furnish or otherwise permit or provide access to the Information to any other natural person or entity ("Person") or to any other office or place. I will not engage in the operation of any illegal business use or permit anyone else to use the Information, or any part thereof, for any illegal purpose or violate any NASDAQ OMX or SEC Rule or any FSA rule or other applicable law, rule or regulation. I may not present the Information rendered in any unfair, misleading or discriminatory format. I shall take reasonable security precautions to prevent any Person other than Myself from gaining access to the Information.

C. Proprietary Data.

I acknowledge and agree that NASDAQ OMX has proprietary rights to the Information that originates on or derives from markets regulated or operated by NASDAQ OMX, and compilation or other rights to Information gathered from other sources. I further acknowledge and agree that NASDAQ OMX's third-party information providers have exclusive proprietary rights to their respective Information. In the event of any misappropriation or misuse by Me or anyone who accesses the Information through Me, NASDAQ OMX or its third-party information providers shall have the right to obtain injunctive relief for its respective materials.

D. System.

I acknowledge that NASDAQ OMX, in its sole discretion, may from time-to-time make modifications to its system or the Information. Such modifications may require corresponding changes to be made in Robinhood Financial's service. Changes or the failure to make timely changes by Me may sever or affect My access to or use of the Information. I understand that neither NASDAQ OMX nor Robinhood shall be responsible for such effects.

E. NASDAQ OMX Limitation of Liability.

Except as may otherwise be set forth herein, NASDAQ OMX shall not be liable to Me for indirect, special, punitive, consequential or incidental loss or damage (including, but not limited to, trading losses, lost profits, or other indirect loss or damage) of any nature arising from any cause whatsoever, even if NASDAQ OMX has been advised of the possibility of such damages. NASDAQ OMX shall not be liable to Me for any unavailability, interruption, delay, incompleteness or inaccuracy of the Information. This Section shall not relieve NASDAQ OMX or Me from liability for damages that result from their own gross negligence or willful tortious misconduct or from personal injury or wrongful death claims. I agree that the terms of this Section reflect a reasonable allocation of risk and limitation of liability.

F. Disclaimers of Warranties.

NASDAQ OMX and its third-party information providers make no warranties of any kind with respect to the Information—express, implied or statutory (including without limitation, timeliness, truthfulness, sequence, completeness, accuracy, freedom from interruption), any implied warranties arising from trade usage, course of dealing, course of performance or the implied warranties of merchantability or fitness for a particular use or purpose or noninfringement.

G. Termination by NASDAQ OMX.

I acknowledge that NASDAQ OMX, when required to do so in fulfillment of statutory obligations, may by notice to Robinhood unilaterally limit or terminate the right of any or all Persons to receive or use the

Information and that Robinhood will comply with any such notice and will terminate or limit the furnishing of the Information.

4. Authorization.

I understand that My Account is self-directed. Accordingly, I appoint Robinhood Financial as My agent for the purpose of carrying out My directions to Robinhood Financial in accordance with the terms and conditions of this Agreement and any attendant risks with respect to the purchase or sale of securities. Robinhood Financial is authorized to open or close My Account(s), place and withdraw orders and take such other steps as are reasonable to carry out My directions. All transactions will be effected only on My order or the order of My authorized delegate, except as described in Section 10. I understand Robinhood Financial provides trading and brokerage services through the Robinhood website (the "Website") and the Robinhood mobile application (the "App"). I agree to receive and transmit financial information through such electronic means. My use or My grant of access to My Account to any third party to access information or place transactions in My Account is solely at My risk.

5. Customer Representations and Responsibilities.

A. Self-directed Account.

I understand that My Account is self-directed, and so that I am solely responsible for any and all orders placed in My Account and that all orders entered by Me or on My behalf are unsolicited and based on My own investment decisions or the investment decision of My duly authorized representative or agent. Accordingly, I agree that neither Robinhood nor any of its employees, agents, principals, or representatives:

1. provide investment advice in connection with this Account;
2. recommend any security, transaction or order;
3. solicit orders;
4. act as a market maker in any security;
5. make discretionary trades; and
6. produce or provide first-party research providing a specific investment strategies such as buy, sell or hold recommendations, first-party ratings and/or price targets. To the extent research materials or similar information are available through the App or the Website or the websites of any entity controlled by, controlling, or under common control with Robinhood (such entity, an "Affiliate"), I understand that these materials are intended for informational and educational purposes only and they do not constitute a recommendation to enter into any securities transactions or to engage in any investment strategies.

B. Information Accuracy.

I: (i) certify that the information contained in this Agreement, the account application, and any other document that I furnish to Robinhood Financial in connection with My Account(s) is complete, true and correct, and acknowledge that knowingly giving false information for the purpose of inducing Robinhood Financial to extend credit is a federal crime; (ii) authorize Robinhood Financial to contact any individual or firm noted herein or on the documents referred to in subsection (i) of this Section and any other normal sources of debit or credit information; (iii) authorize anyone so contacted to furnish such information to Robinhood Financial as Robinhood may request; and (iv) agree that this Agreement, the account application and any other document I furnish in connection with My Account is Robinhood's property, as the case may be. I shall promptly advise Robinhood Financial of any changes to the information in such agreements and documents in writing within ten (10) calendar days. I authorize Robinhood Financial to obtain reports and provide information to others concerning My creditworthiness and business conduct. Upon My request, Robinhood agrees to provide Me a copy of any report so obtained. Robinhood may

retain this Agreement, the Account application, and all other such documents and their respective records at its sole discretion, whether or not credit is extended.

C. Risks.

I understand that all investments involve risk, that losses may exceed the principal invested, and that the past performance of a security, industry, sector, market, or financial product does not guarantee future results or returns.

D. Account Defaults.

I understand that My Account comes with many defaulted service instruction features and preferences. I further understand that I am not required to use these defaulted options or preferences and that once My Account is approved and opened I have the sole discretion to control and adjust such defaulted service preferences that relate to My account.

E. Knowledge of Account.

I understand that I am solely responsible for knowing the rights and terms for all securities purchased, sold and maintained in My Account including mergers, reorganizations, stock splits, name changes or symbol changes, dividends, option symbols, and option deliverables. I further understand that certain securities may grant Me valuable rights that may expire unless I take specific action. These securities include bonds, convertible securities, warrants, stock rights and securities subject to exchange offers or tenders. I am responsible for knowing all expiration dates, redemption dates, and the circumstances under which rights associated with My securities may be called, cancelled, or modified. Robinhood may, but are not obligated to, notify Me of any upcoming expiration or redemption dates, or take any action on My behalf without My specific instructions except as required by law and the rules of regulatory authorities. I acknowledge that Robinhood may adjust My Account to correct any error. If My Account has an option position on the last trading day prior to expiration, which is one cent or more in the money, Robinhood Financial will generally exercise the option, on My behalf. However, Robinhood Financial reserves the right at its discretion to close any option position prior to expiration date or any position resulting from the exercising/assignment after option expiration. I will be charged a commission for any such transaction. Robinhood Financial is not obligated to take any of these actions and Robinhood Financial is not liable for Losses should it not take them.

F. Purchases.

All orders for the purchase of securities given for My Account will be authorized by Me and executed in reliance on My promise that an actual purchase is intended. It is My obligation to pay for purchases immediately or on Robinhood's demand. I understand Robinhood may at any time, in its sole discretion and without prior notice to Me, prohibit or restrict My ability to trade securities. I further agree not to allow any person to trade for My Account unless a trading authorization for that person has been received and approved by Robinhood. Robinhood reserve the right to require full payment in cleared funds prior to the acceptance of any order. In the event that I fail to provide sufficient funds, Robinhood may, at its option and without notice to Me, i) charge a reasonable rate of interest, ii) liquidate the Property subject of the buy order, or iii) sell other Property owned by Me and held in any of My Accounts. Robinhood may also charge any consequential Loss to My Account. For purposes of this Agreement, "Property" shall mean all monies, contracts, investments and options, whether for present or future delivery, and all related distributions, proceeds, products and accessions.

G. Sales/Short Sales.

I promise to deliver all securities sold in My Account and to provide collateral of a type and amount acceptable to Robinhood Financial for all short sales in My Account. Robinhood Financial requires that a security be held in My Account prior to the acceptance of a sell order with respect to such security unless the order is specifically designated as a "short sale." If a security is not held in My Account and a sell order is processed, I must promptly deliver such security to Robinhood Financial for receipt in good deliverable form on or before the settlement date. Any order accepted without negotiable certificates or positions in My Account will be subject, at Robinhood Financial's sole discretion, to cancellation or buy-in. To ensure this will not occur, I agree to only place sell orders for securities owned by Me and held in My Account at the time My order is placed.

Proceeds of a sale will not be paid to Me or released into My Account until Robinhood Financial has received the security in good deliverable form, whether from a transfer agent or from Me and the settlement of the security is complete. If the security is not received on or before settlement date, or as market conditions warrant, Robinhood Financial may in its sole discretion purchase the security on the open market for My Account and may liquidate and close out any and all securities in My Account in order to pay for such purchase. In the event a security is bought in, I will be responsible for all resulting losses incurred by Robinhood Financial.

I understand that I may execute short sales only in a margin Account and that such execution must comply with applicable short sales rules.

H. Assistance by Robinhood.

I understand that when I request assistance from Robinhood or its employees in using the investment tools available on the Website or the App, it will be limited to an explanation of the tool's functionality and, if requested by Me, to the entry by Robinhood or its employees of variables provided by Me, and that such assistance does not constitute investment advice, an opinion with respect to the suitability of any transaction, or solicitation of any orders.

I. No Tax or Legal Advice.

I understand that Robinhood does not provide tax or legal advice.

J. Discontinuation of Services.

I understand that Robinhood may discontinue My Account and any services related to My Account immediately by providing written notice to Me.

K. Electronic Access.

1. I am solely responsible for keeping My Account numbers and PINs confidential and will not share them with third parties. "PINs" shall mean My username and password.
2. I agree and accept full responsibility for monitoring and safeguarding My Accounts and access to My Accounts.
3. I agree to immediately notify Robinhood in writing, delivered via e-mail and a recognized international delivery service, if I become aware of: (i) any loss, theft, or unauthorized use of My PINs or Account numbers; (ii) any failure by Me to receive any communication from Robinhood indicating that an order was received, executed or cancelled, as applicable; (iii) any failure by Me to receive an accurate written confirmation of an order, execution, or cancellation; (iv) any receipt by Me of confirmation of an order, execution or cancellation, which I did not place; (v) any

inaccurate information in or relating to My orders, trades, margin status, Account balances, deposits, withdrawals, securities positions or transaction history, or (vi) any other unauthorized use or access of My Account.

4. Each of the events described in subsections (K)(3)(i)-(vi) shall be deemed a "Potential Fraudulent Event". The use and storage of any information including My Account numbers, PINs, portfolio information, transaction activity, account balances and any other information or orders available on My wireless, web-enabled cellular telephone or similar wireless communications device (collectively, "Mobile Device") or My personal computer is at My own risk and is My sole responsibility. I represent that I am solely responsible for and have authorized any orders or instructions appearing in, originating from, or associated with My Account, My Account number, My username and password, or PINs. I agree to notify Robinhood immediately after I discover any Potential Fraudulent Event, but in no event more than twenty-four (24) hours following discovery. Upon request by Robinhood, I agree to report any Potential Fraudulent Event promptly to legal authorities and provide Robinhood a copy of any report prepared by such legal authorities. I agree to cooperate fully with the legal authorities and Robinhood in any investigation of any Potential Fraudulent Event and I will complete any required affidavits promptly, accurately and thoroughly. I also agree to allow Robinhood access to My Mobile Device, My computer, and My network in connection with Robinhood's investigation of any Potential Fraudulent Event. I understand that if I fail to do any of these things I may encounter delays in regaining access to the funds in My Account. I agree to indemnify and hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers, directors, and employees harmless from and against any Losses arising out of or relating to any Potential Fraudulent Event. I acknowledge that Robinhood does not know when a person entering orders with My username and password is Me.
5. Trusted Contact Person. I understand that, pursuant to FINRA regulations, Robinhood is authorized to contact the Trusted Contact Person (as defined by FINRA Rule 4512) designated for My Account and to disclose information about My account to address possible financial exploitation, to confirm the specifics of My current contact information, health status, or the identity of any legal guardian, executor, trustee or holder of a power of attorney, or as otherwise permitted by Rule 2165.

6. Clearance of Trades.

I understand that Robinhood Financial has entered into a clearing agreement with Robinhood Securities whereby Robinhood Financial will introduce My Account to Robinhood Securities, and Robinhood Securities will clear all transactions, on a fully-disclosed basis. I understand that Robinhood Securities carries My Account(s) and is responsible for the clearing and bookkeeping of transactions, but is not otherwise responsible for the conduct of Robinhood Financial.

Until receipt from Me of written notice to the contrary, Robinhood Securities may accept from Robinhood Financial, without inquiry or investigation, (i) orders for the purchase or sale of securities and other property on margin, if I have elected to have a margin account, or otherwise, and (ii) any other instructions concerning my Accounts. Robinhood Securities shall look solely to Robinhood Financial unless otherwise directed by Robinhood Financial, and not to Me, with respect to any such orders or instructions; except that I understand that Robinhood Securities will deliver confirmations, statements, and all written or other notices with respect to My Account directly to Me with copies to Robinhood Financial, and that Robinhood Securities will look directly to Me or Robinhood Financial for delivery of margin, payment, or securities. I agree to hold Robinhood Securities harmless from and against any Losses arising in connection with the delivery or receipt of any such communication(s), provided Robinhood Securities has acted in accordance with the above. The foregoing shall be effective as to My Account(s) until written notice to the contrary is received from Me by Robinhood Securities or Robinhood Financial.

7. Review of Confirmations and Statements.

I agree that it is My responsibility to review order execution confirmations and statements of My Account(s) promptly upon receipt. I agree to receive all confirmations and account statements, as well as all tax related documents, in electronic format. I understand that account statements will evidence all activity in My Account for the stated period, including securities transactions, cash balances, credits to My Account and all fees paid from My Account. Notwithstanding Section 36.B, confirmations will be considered binding on Me unless I notify Robinhood of any objections within two (2) calendar days from the date confirmations are sent. Account statements will be considered binding on Me unless I notify you

of any objections within ten (10) calendar days after My Account statements are posted online. Such objection may be oral or in writing, but any oral objection must be immediately confirmed in writing. In all cases, Robinhood reserves the right to determine the validity of My objection. If I object to a transaction for any reason, I understand and agree that I am obligated to take action to limit any losses that may result from such transaction or I will bear sole responsibility for any losses relating to the transaction, even if My objection to the transaction is ultimately determined to be valid. Nothing in this Section 7 shall limit My responsibilities as described in Section 5 of this Agreement.

8. Important Information Needed to Open a New Account.

To help the government better detect the funding of terrorism and money laundering activities, federal law requires all financial institutions to obtain, verify, and record information that identifies each person who opens an account. Therefore, I understand that when I open My Account Robinhood will ask for My name, address, date of birth and other identifying information. Robinhood may also ask copies of My driver's license, passport or other identifying documents. I understand that Robinhood may take steps to verify the accuracy of the information I provide to Robinhood in My Account application or otherwise, and that Robinhood may restrict My access to My Account pending such verification. I will provide prompt notification to Robinhood of any changes in the information including My name, address, e-mail address and telephone number.

I further understand that if I attempt to access My Account from a jurisdiction subject to certain U.S. sanctions or I am ordinarily resident in such a jurisdiction, or if you reasonably believe that I am attempting such access or have become a resident in such a jurisdiction, you may restrict My Account, and any pending orders may be cancelled. If this happens, I understand that I should contact help@robinhood.com, and that I may be asked to provide supplemental information as part of this process. I further understand that I must close My Account before establishing residency in any jurisdiction subject to U.S. sanctions.

9. Telephone Conversations and Electronic Communications.

I understand and agree that Robinhood may record and monitor any telephone or electronic communications with Me. Unless otherwise agreed in writing in advance, Robinhood does not consent to the recording of telephone conversations by any third party or Me. I acknowledge and understand that not all telephone or electronic communications are recorded by Robinhood, and Robinhood does not guarantee that recordings of any particular telephone or electronic communications will be retained or capable of being retrieved.

10. Oral Authorization.

I agree that Robinhood shall be entitled to act upon any oral instructions given by Me so long as Robinhood reasonably believes such instruction was actually given by Me or My authorized agent.

11. Applicable Laws and Regulations.

All transactions in My Account will be subject to federal securities laws and regulations, the applicable laws and regulations of any state or jurisdiction in which Robinhood Financial is registered, the rules of any applicable self-regulatory organization of which Robinhood Financial is a member and the rules, regulations, customs and usages of the exchange or market, and its clearing house, if any, where the transactions are executed. In no event will Robinhood Financial be obligated to effect any transaction it believes would violate any federal or state law, rule or regulation or the rules or regulations of any regulatory or self-regulatory organization.

12. Erroneous Distributions.

I agree to promptly return to Robinhood any assets erroneously distributed to Me. In the event that I sell a security prior to its ex-dividend/distribution date, and I receive the related cash/stock dividend or distribution in error, I direct Robinhood on My behalf to pay such dividend/distribution to the entitled purchaser of the securities I sold, and I guarantee to promptly reimburse Robinhood for, or deliver to Robinhood, said dividend or distribution.

13. Market Volatility; Market Orders; Limit Orders; and Queued Orders.

I understand that, whether I place a market or limit order, I will receive the price at which My order is executed in the marketplace, subject to any clarification stated below. Particularly during periods of high volume, illiquidity, fast movement or volatility in the marketplace, the execution price received may differ from the quote provided on entry of an order, and I may receive partial executions of an order at different prices. I understand that Robinhood Financial is not liable for any price fluctuations. I also understand that price quotes generally are for only a small number of shares as specified by the marketplace, and larger orders are relatively more likely to receive executions at prices that vary from the quotes or in multiple lots at different prices.

I understand that Robinhood Financial does not currently support sending traditional market buy orders and that Robinhood Financial collars all market buy orders (other than dollar-based buy orders executed during market hours) by using limit orders priced up to 5% above the last trade price. This is not the case for market sell orders. I further understand that when I send a market buy order through Robinhood Financial's trading system, the trading system generates a limit order up to 5% above the last trade price, and then Robinhood Financial sends the order to an executing broker. I understand that Robinhood Financial's implementation of market buy orders may vary depending on prices of instruments, market conditions, and other factors. I further understand that Robinhood Financial uses the following rounding mechanics with respect to buy orders: the last trade price is (i) multiplied by 1.05; (ii) rounded down to two decimal places if the last trade price is over \$1.00; otherwise, rounded down to four decimal places; and (iii) for securities included in the SEC's Tick Size Pilot Program, rounded down to the nearest \$.05 increment. I understand that securities may open for trading at prices substantially higher or lower than the previous closing price or the anticipated price. If I place a market order (whether during normal market hours or when the market is closed), I agree to pay or receive the prevailing market price at the time My market order is executed, subject to the specific clarification above relating to buy orders. I understand that the price I pay may be significantly higher or lower than anticipated at the time I placed the order. To avoid buying a security at a higher price and possibly exceeding My purchasing power, I understand My option to enter a limit order. I also understand that limit orders may not be executed at any particular time, or at all, if there is not sufficient trading at or better than the limit price I specify, and are only good until the end of the trading day in which they are entered. The Website contains further information regarding order types and limitations, which I agree to read and understand before placing such orders.

As a customer of Robinhood Financial, I understand that after the market has closed for the day, I have the ability to place in a queue order requests to be executed the following day upon the opening of the market ("Queued Order"). I understand that My Queued Order request is prioritized based on the order in which it is received by Robinhood Financial, and that the Queued Order requests are sent out for execution shortly after the market opens on the next day of trading. I further understand that each Queued Order request is sent out per customer and per security as Robinhood Financial market orders (described above), and that they are not aggregated.

A limit order may be "good till cancelled" which means the order remains valid until (A) it is executed; (B) I cancel the order; (C) approximately 90 days from when the order is placed; or (D) the contract to which it relates is closed. I understand that Robinhood will cancel a "good till cancelled" order at the end of every trading day (on the exchange on which the instrument to which the contract relates is traded) and place such order again at the start of the following trading day. This process will be repeated every day for as long as the "good till cancelled" order remains valid. I further agree that any "good till cancelled" orders I place should be treated as "do not reduce" orders.

14. Bulletin Board/Pink Sheet Stocks.

Bulletin board, pink sheet and other thinly-traded securities (collectively "bulletin board stocks") present particular trading risks, in part because they are relatively less liquid and more volatile than actively traded securities listed on a major exchange. I understand that bulletin board stocks may be subject to different trading rules and systems than other securities and that I may encounter significant delays in executions, reports of executions, and updating of quotations in trading bulletin board stocks. Robinhood Financial in its sole discretion may require limit orders on certain bulletin board stock transactions.

15. Research and Internet Links.

News, research, links to outside websites, and other information accessible through the App or Website ("Content") may be prepared by independent external providers not affiliated with Robinhood Financial,

including Morningstar, Inc. (all such providers, the "Providers"). I agree not to distribute, reproduce, sell, or otherwise commercially use the Content in any manner. I understand that Robinhood may terminate My access to the Content. I understand that none of the Content is a recommendation by Robinhood to buy or sell any securities or to engage in any investment strategy.

16. Restrictions on Trading.

I understand that Robinhood may, in its discretion, prohibit or restrict the trading of securities, or the substitution of securities, in any of My Accounts. I understand that Robinhood may execute all orders by Me on any exchange or market, unless I specifically instruct Robinhood to the contrary. In the event of a breach or default by Me under this Agreement, Robinhood shall have all rights and remedies available to a secured creditor under all applicable laws and in addition to the rights and remedies provided herein. I understand that Robinhood may at any time, at its sole discretion and without prior notice to Me: (i) prohibit or restrict My access to the use of the App or the Website or related services and My ability to trade, (ii) refuse to accept any of My transactions, (iii) refuse to execute any of My transactions, or (iv) terminate My Account. The closing of My Account will not affect the rights or obligations of either party incurred prior to the date My Account is closed.

Further, Robinhood will not tolerate any foul or abusive language, physical violence, threatening behavior, or other inappropriate conduct directed toward Robinhood, its Affiliates' officers, employees, contractors or customers. If I engage in any such behavior, as determined by Robinhood in its sole discretion, I agree that Robinhood is authorized to: (i) liquidate any securities, instruments or other property in My Account, (ii) send Me the proceeds, and (iii) close My account. Robinhood will not be responsible for any Losses caused by the liquidation of securities, instruments or other property pursuant to this paragraph, including any tax liabilities.

17. Waiver; Limitation of Liability; Indemnification.

I agree that My use of the App or the Website or any other service provided by Robinhood Financial or its Affiliates is at My sole risk. The Robinhood Financial service (including the App, the Website, the provision of Market Data, Information, Content, or any other information provided by Robinhood Financial, any of its Affiliates, or any third-party content provider or market data provider) is provided on an "as is," "as available" basis without warranties of any kind, either express or implied, statutory (including without limitation, timeliness, truthfulness, sequence, completeness, accuracy, freedom from interruption), implied warranties arising from trade usage, course of dealing, course of performance, or the implied warranties of merchantability or fitness for a particular purpose or application, other than those warranties which are implied by and incapable of exclusion, restriction or modification under the laws applicable to this Agreement.

Although considerable effort is expended to make the Website, App and other operational and communications channels available around the clock, Robinhood does not warrant that these channels will be available and error free every minute of the day. I agree that Robinhood will not be responsible for temporary interruptions in service due to maintenance, Website or App changes, or failures, nor shall Robinhood be liable for extended interruptions due to failures beyond our control, including but not limited to the failure of interconnecting and operating systems, computer viruses, forces of nature, labor disputes and armed conflicts.

EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, I UNDERSTAND AND AGREE THAT ROBINHOOD, ITS AFFILIATES, THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS, AND THE PROVIDERS (COLLECTIVELY THE "ROBINHOOD PARTIES") WILL NOT BE LIABLE TO ME OR TO THIRD PARTIES UNDER ANY CIRCUMSTANCES, OR HAVE ANY RESPONSIBILITY WHATSOEVER, FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES (INCLUDING TRADING LOSSES, DAMAGES, LOSS OF PROFITS, REVENUE, OR GOODWILL) THAT I MAY INCUR IN CONNECTION WITH MY USE OF THE SERVICE PROVIDED BY ROBINHOOD OR ANY OF ITS AFFILIATES UNDER THIS AGREEMENT (INCLUDING MY USE OF THE APP, THE WEBSITE, THE MARKET DATA, THE INFORMATION, OR THE CONTENT), BREACH OF THIS AGREEMENT, OR ANY TERMINATION OF THIS AGREEMENT, WHETHER SUCH LIABILITY IS ASSERTED ON THE BASIS OF CONTRACT, TORT (INCLUDING NEGLIGENCE), OR OTHERWISE, AND WHETHER OR NOT FORESEEABLE, EVEN IF ANY ROBINHOOD PARTY HAS BEEN ADVISED OR WAS AWARE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. THE ROBINHOOD PARTIES SHALL NOT BE LIABLE BY REASON OF DELAYS OR INTERRUPTIONS OF THE SERVICE OR TRANSMISSIONS, OR FAILURES OF PERFORMANCE OF THEIR RESPECTIVE SYSTEMS,

REGARDLESS OF CAUSE, INCLUDING THOSE CAUSED BY GOVERNMENTAL OR REGULATORY ACTION, THE ACTION OF ANY EXCHANGE OR OTHER SELF REGULATORY ORGANIZATION, OR THOSE CAUSED BY SOFTWARE OR HARDWARE MALFUNCTIONS.

Except as otherwise provided by law, Robinhood or any of its affiliates or respective partners, officers, directors, employees or agents (collectively, "Indemnified Parties") shall not be liable for any expenses, losses, costs, damages, liabilities, demands, debts, obligations, penalties, charges, claims, causes of action, penalties, fines and taxes of any kind or nature (including legal expenses and attorneys' fees) (whether known or unknown, absolute or contingent, liquidated or unliquidated, direct or indirect, due or to become due, accrued or not accrued, asserted or unasserted, related or not related to a third party claim, or otherwise) (collectively, "Losses") by or with respect to any matters pertaining to My Account, except to the extent that such Losses are actual Losses and are determined by a court of competent jurisdiction or an arbitration panel in a final non-appealable judgment or order to have resulted solely from Robinhood's or any of its affiliates' gross negligence or intentional misconduct. In addition, I agree that the Indemnified Parties shall have no liability for, and I agree to indemnify, defend and hold harmless the Indemnified Parties from all Losses that result from: (i) any noncompliance by Me with any of the terms and conditions of this Agreement; (ii) any third-party actions related to My receipt and use of any Information, Market Data, Content, market analysis, other third-party content, or other such information obtained on the App or Website, whether authorized or unauthorized under this Agreement; (iii) any third-party actions related to My use of the App or the Website; (iv) My or My agent's misrepresentation or alleged misrepresentation, or act or omission; (v) Indemnified Parties following My or My agent's directions or instructions, or failing to follow My or My agent's unlawful or unreasonable directions or instructions; (vi) any activities or services of the Indemnified Parties in connection with My Account (including any technology services, reporting, trading, research or capital introduction services); or (vii) the failure by any person not controlled by the Indemnified Parties and their affiliates to perform any obligations to Me. Further, if I authorize or allow third parties to gain access to Robinhood's services, including My Accounts, I will indemnify, defend and hold harmless the Indemnified Parties against any Losses arising out of claims or suits by such third parties based upon or relating to such access and use. Robinhood does not warrant against loss of use or any direct, indirect or consequential damages or Losses to Me caused by My assent, expressed or implied, to a third party accessing My Account or information, including access provided through any other third party systems or sites.

I consent to the use of automated systems or service bureaus by Robinhood and its respective affiliates in conjunction with My Account, including automated order entry and execution, record keeping, reporting and account reconciliation and risk management systems (collectively "Automated Systems"). I understand that the use of Automated Systems entails risks, such as interruption or delays of service, errors or omissions in the information provided, system failure and errors in the design or functioning of such Automated Systems (collectively, a "System Failure") that could cause substantial damage, expense, or liability to Me. I understand and agree that Indemnified Parties will have no liability whatsoever for any of my Losses arising out of or relating to a System Failure.

I also agree that Indemnified Parties will have no responsibility or liability to Me in connection with the performance or non-performance by any exchange, clearing organization, market data provider, or other third party (including other broker-dealers and clearing firms, and banks) or any of their respective agents or affiliates, of its or their obligations relative to any securities. I agree that Indemnified Parties will have no liability, to Me or to third parties, or responsibility whatsoever for: (i) any Losses resulting from a cause over which Indemnified Parties do not have direct control, including the failure of mechanical equipment, unauthorized access, theft, operator errors, government restrictions, force majeure (as defined in this Agreement), market data availability or quality, exchange rulings or suspension of trading; and (ii) any special, indirect, incidental, consequential, punitive or exemplary damages (including lost profits, trading losses and damages) that I may incur in connection with My use of the App, the Website, Robinhood's brokerage, and other services provided by Indemnified Parties under this Agreement.

18. Mutual Fund Transactions.

In the event that I purchase or hold a mutual fund, I agree to read and understand the terms of its prospectus. I understand that certain mutual funds reserve the right to change their purchasing, switching or redemption procedures or suspend or postpone redemptions under certain market conditions. I further understand that any mutual fund order entered with Robinhood is placed by Robinhood on a best efforts basis as prescribed and recognized by the individual fund, and that Robinhood is not responsible for unexecuted orders due to the failure of any communication system. I agree to be fully responsible for the information contained within the mutual fund prospectus and to hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers and employees harmless

for any deficiencies contained therein. I authorize Robinhood to act as My agent in the purchase and redemption of fund shares.

19. Exchange Traded Funds.

I understand that I should consider the investment objectives and unique risk profile of Exchange Traded Funds ("ETFs") carefully before investing, and that ETFs are subject to risks similar to those of other diversified portfolios. I further understand that leveraged and inverse ETFs may not be suitable for all investors and may increase exposure to volatility through the use of leverage, short sales of securities, derivatives, and other complex investment strategies, and that although ETFs are designed to provide investment results that generally correspond to the performance of their respective underlying indices, they may not be able to exactly replicate the performance of the indices because of expenses and other factors. I further understand that ETFs are required to distribute portfolio gains to shareholders at year end, which may be generated by portfolio rebalancing or the need to meet diversification requirements, and that ETF trading will also generate tax consequences. I understand that I can obtain prospectuses from issuers or their third party agents who distribute and make prospectuses available for review. Additional regulatory guidance on ETFs can be found [here](#).

20. Effect of Attachment or Sequestration of Accounts.

Robinhood shall not be liable for refusing to obey any orders given by or for Me with respect to any of My Accounts that has or have been subject to an attachment or sequestration in any legal proceeding against Me, and Robinhood shall be under no obligation to contest the validity of any such attachment or sequestration.

21. Event of Death.

It is agreed that in the event of My death, the representative of My estate or the survivor or survivors shall immediately give Robinhood written notice thereof, and Robinhood may, before or after receiving such notice, take such proceedings, require such papers and inheritance or estate tax waivers, retain such portion of, or restrict transactions in the Account as Robinhood may deem advisable to protect Robinhood against any tax, liability, penalty or loss under any present or future laws or otherwise. Notwithstanding the above, in the event of My death, all open orders shall be canceled, but Robinhood shall not be responsible for any action taken on such orders prior to the actual receipt of notice of death. Further, Robinhood may in its discretion close out any or all of the Accounts without awaiting the appointment of a personal representative for My estate and without demand upon or notice to any such personal representative. The estate of any of the Account holders who have died shall be liable and each survivor shall continue to be liable, jointly and severally, to Robinhood for any net debit balance or loss in said account in any way resulting from the completion of transactions initiated prior to the receipt by Robinhood of the written notice of the death of the decedent or incurred in the liquidation of the Account or the adjustment of the interests of the respective parties, and for all other obligations pursuant to this Agreement. Such notice shall not affect Robinhood's rights under this Agreement to take any action that Robinhood could have taken if I had not died.

22. Tax Reporting; Tax Withholding.

The proceeds of sale transactions and dividends paid will be reported to the Internal Revenue Service ("IRS") in accordance with applicable law.

A. U.S. Persons.

This subsection is applicable if I am a U.S. person. Under penalties of perjury, I certify that the taxpayer identification number that I have provided or will provide to Robinhood (including any taxpayer identification number on any Form W-9 that I have provided or will provide to Robinhood) is My correct taxpayer identification number. I certify that I am not subject to backup withholding and I am a United States Person (including a U.S. resident alien) as such term is defined in section 7701(a)(30) of the Internal Revenue Code of 1986, as amended ("U.S. Person"). If a correct Taxpayer Identification Number is not provided Robinhood Financial, I understand I may be subject to backup withholding tax at the appropriate rate on all dividends, interest and gross proceeds paid to me. Backup withholding taxes

are sent to the IRS and cannot be refunded by Robinhood Financial. I further understand that if I waive tax withholding and fail to pay sufficient estimated taxes to the IRS, I may be subject to tax penalties.

B. Non-U.S. Persons.

This subsection is applicable if I am not a U.S. Person. I certify that I fully understand all the information on any Form W-8BEN that I have submitted or will submit to Robinhood. Under penalties of perjury, I declare that (i) I have examined all the information (including all the information in the English language) on any Form W-8BEN that I have submitted or will submit to Robinhood and (ii) to the best of My knowledge and belief all such information is true, correct, and complete. I authorize Robinhood to provide any such Form W-8BEN to Robinhood Securities or any withholding agent that has control, receipt, or custody of the income of which I am the beneficial owner or any withholding agent that can disburse or make payments of the income of which I am the beneficial owner. I agree that I will submit a new Form W-8BEN to Robinhood within 30 calendar days if any certification made on any previously submitted Form W-8BEN becomes incorrect. I understand that the IRS does not require My consent to any provisions of such Form W-8BEN other than the certifications required to establish My status as a non-U.S. Person and, if applicable, obtain a reduced rate of withholding.

23. Equity Orders and Payment For Order Flow.

SEC rules require all registered broker-dealers to disclose their policies regarding any "payment for order flow" arrangement in connection with the routing of customer orders. "Payment for order flow" includes, among other things, any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker-dealer from any broker-dealer in return for directing orders. I understand that Robinhood transmits customer orders for execution to various exchanges or market centers based on a number of factors. These include: size of order, trading characteristics of the security, favorable execution prices (including the opportunity for price improvement), access to reliable market data, availability of efficient automated transaction processing and reduced execution costs through price concessions from the market centers. I further understand that certain of the exchanges or market centers may execute orders at prices superior to the publicly quoted market in accordance with their rules or practices and that while a customer may specify that an order be directed to a particular market center for execution, the order-routing policies, taking into consideration all of the factors listed above, are designed to result in favorable transaction processing for customers. The nature and source of any payments or credits received by Robinhood in connection with any specific transactions will be furnished upon written request.

24. Free Credit Balances and Sweep Service.

If I enroll in Robinhood Financial Cash Management ("Cash Management"), I understand that I am electing to participate in the Insured Network Deposit ("IND") sweep service (the "Sweep Service"). Under the Sweep Service, free credit balances in My Account will be deposited into interest-bearing accounts at one or more banks ("Participating Depository Institutions"), in accordance with the Insured Network Deposit Sweep Program Disclosures ("IND Disclosures") available on the Website and in the App. By enrolling in Cash Management, I represent and warrant that I have reviewed the IND Disclosures and agree to the terms set forth in the IND Disclosures. If I am not enrolled in Cash Management, free credit balances in My Account will remain in My Account, will not earn interest and will not be eligible for FDIC insurance, but will be eligible for SIPC protection as described in the IND Disclosures.

25. Fees and Charges.

I understand that Robinhood does not charge fees or commissions for executing buy and sell orders. However, I understand that other fees may apply. The current fees are included in the fee schedule available in the App and on the Website. I agree to pay any such fees at the then-prevailing rate. I acknowledge that the prevailing fees may change and that change may occur without notice. I agree to be bound by such changes once they are posted in the fee schedule available in the App and on the Website. I also agree to pay all applicable federal, state, local, and foreign taxes. I authorize Robinhood Financial to automatically debit My Account for any such fees and taxes. I also agree to pay such expenses incurred by Robinhood in connection with collection of any unpaid balance due on My Accounts including attorney's fees allowed by law.

26. ACH Transactions.**A. Debit Transactions.**

Robinhood will initiate an ACH debit at My request to debit funds from an account that I own at another financial institution ("External Account") for deposit into My Account. I understand that in order for Robinhood to initiate an ACH debit, the financial institution holding my External Account must participate in the ACH system. I understand that for the ACH transfers to be established, at least one common name must match exactly between My Account and My External Account. I authorize Robinhood to take such steps as it deems appropriate to verify my ownership of External Account, including by telling the bank at which such External Account is held that I have authorized and consented to such bank disclosing to Robinhood any information that Robinhood may request about Me or My External Account. I also agree to cooperate with Robinhood's verification of my ownership of such External Account by promptly providing any identification and/or other documentation that Robinhood may request regarding such External Account. I represent and warrant that there are sufficient funds in My External Account to cover the amount of the deposit to My Account. Robinhood will initiate the ACH debit to My External Account on the Business Day or next Business Day after I request the transfer. A transfer request will be deemed to have been made on a Business Day if it is received by Robinhood by 7:00 p.m. (Eastern Time) on such Business Day; if received after that time, the transfer request will be deemed to have been made on the next Business Day.

Within 60 days of the date of My ACH deposit, My funds may only be withdrawn to the External Account from which such funds were debited.

I understand that an ACH debit transfer may be reversed or rejected if: (A) there are insufficient funds in My External Account; (B) there is a duplicate transaction; (C) the transaction is denied by the bank holding My External Account; or (D) My External Account does not support ACH transfers. I acknowledge that in the event of an ACH reversal, I will incur a fee. Before initiating making an ACH debit transfer, I agree to check Robinhood Financial's most recent [Commissions and Fees Schedule](#). I agree that I am solely liable and responsible for any ACH reversal fees that I incur.

B. Credit Transactions.

Robinhood will initiate an ACH credit at My request to transfer funds from My Account to a recipient that I designate. I agree that I will have sufficient Available Funds in My Account to cover the amount of any ACH credit that I ask Robinhood to initiate. Robinhood will debit the amount of such request from My Account on the Business Day or next Business Day after I request the transfer. A transfer request will be deemed to have been made on a Business Day if it is received by Robinhood on such Business Day; if received after that time, the transfer request will be deemed to have been made on the next Business Day.

I agree that Robinhood may use any means which Robinhood, in its sole discretion, considers suitable to execute my ACH credit transfers.

27. Fractional Shares.

I acknowledge and understand that Robinhood rounds all holdings of fractional shares to the sixth decimal place, the value of fractional shares to the nearest cent, and any dividends paid on fractional shares to the nearest cent. I further understand that Robinhood will not accept dollar-based purchases or sales of less than \$1.00 and that I will receive proceeds from the sale of any whole or fractional shares rounded to the nearest cent.

I understand that if I enter repeated fractional orders with individual notional values of less than \$0.01, my account may be restricted.

I understand that a vendor employed by Robinhood will aggregate any proxy votes for fractional shares of Robinhood's customers with all votes reported to the issuer or issuer's designated vote tabulator and that, while Robinhood's vendor will report such proxy votes on fractional shares, the issuer or tabulator may not fully count such votes.

I understand that Robinhood will execute all orders that include fractional shares ("Fractional Orders") on a principal basis. To the extent that Robinhood must purchase or sell shares in the market to fulfill any part of my Fractional Order, the fractional component of that order will be fulfilled at the execution price Robinhood received for the corresponding whole shares. To the extent that Robinhood fulfills my Fractional Order for national exchange-listed securities ("NMS Securities") entirely out of its inventory and without purchasing or selling shares in the market ("Inventory Fulfillment"), Robinhood will endeavor to price such shares or fractional shares at a price between the National Best Bid and Offer ("NBBO") at the time of the order for orders made during market hours, or, for such orders made during extended hours trading (9:00-9:30 a.m. and 4:00-6:00 p.m. Eastern), Robinhood will endeavor to price such orders between the best bid and offer at the time of the order, as reported by an external vendor ("Vendor BBO"). For Inventory Fulfillment of Fractional Orders for securities not listed on a national exchange ("Non-NMS Securities") made during market hours as well as extended hours trading, Robinhood will endeavor to price such orders between Vendor BBO.

All non-market orders placed outside market hours and extended hours trading are queued and fulfilled either at or near the beginning of extended hours trading (9:00 a.m. Eastern) or at or near market open (9:30 a.m. Eastern), according to my instructions. All market orders placed outside market hours and extended hours trading are queued and fulfilled at or near market open. To the extent that I trade outside of market hours, these trades are subject to Robinhood's [Extended Hours Trading Disclosure](#).

I understand Robinhood only accepts market orders for fractional shares at this time and does not permit limit orders for fractional shares. I understand that fractional shares within My Account (i) are unrecognized, unmarketable, and illiquid outside the Robinhood platform, (ii) are not transferrable in-kind, and (iii) may only be liquidated and the proceeds transferred out via a wire transfer. I acknowledge that, subject to applicable requirements, Robinhood may report holdings and transactions in My Account in terms of either U.S. Dollars, shares, or both.

I agree that my fractional share holdings shall be treated as a "financial asset" under Article 8 of the Uniform Commercial Code.

28. Phone Calls.

You agree that, by providing information Robinhood requests, Robinhood and its third party services providers may contact you via mail, phone or email.

Specifically, if you provide us with a phone number: (a) you represent and warrant that the number you provide is your phone number, and you will promptly notify us if that changes, and (b) you consent to receive calls (including text messages) made to that phone number that may be prerecorded and/or completed with an automatic telephone dialing system (automated calls) for purposes including but not limited to providing account-related communications (including security alerts), investigating or preventing fraud, and/or collecting amounts owed to Robinhood. We may share your number with third parties that provide services to us in connection with any of the foregoing purposes, including but not limited to debt collectors. You understand that message, telephone minute and data rates may apply for calls made to a mobile phone number. You may opt out at any time from receiving these types of calls orally or in writing to limitsharing@robinhood.com. Please note, even if you opt out, we may still make other calls as permitted by law.

You consent to our recording of phone calls, including calls we make to you or that we receive from you.

29. Dividend Reinvestment Program.

Except as expressly stated otherwise, the provisions of this Section 29 will only apply if I am enrolled in Robinhood's Dividend Reinvestment Program ("DRIP"). My enrollment in the DRIP will be activated within three business days after I notify Robinhood of my intention to enroll an eligible security through the App. "Eligible security" means all shares available for fractional investing through Robinhood. I understand that in order to be eligible for dividend reinvestment, the securities must be held in My Account.

I may specify individual securities or have all Eligible securities in My Account enrolled for dividend reinvestment. If I choose to reinvest dividends from all Eligible securities, I understand that individual securities could subsequently no longer be Eligible securities at Robinhood's discretion or under applicable law. In those cases, only those securities will be discontinued from the DRIP. If I specify individual securities, I may add additional Eligible securities to the DRIP at any time if I hold a position

in those securities. Enrollment with respect to these additional Eligible securities will be effective within three business days after Robinhood receives notification from me through the App. If I maintain open orders for securities I do not already hold, I may not enroll those securities for dividend reinvestment until my open orders are executed. If my entire Account is set up for dividend reinvestment, any eligible securities I purchase in the future will automatically participate in the DRIP.

All eligible cash distributions will be reinvested on all securities I have selected in the DRIP, provided that I owned the securities on the record date for determining shareholders eligible to receive dividends, and continue to hold the securities through payable date. "Eligible cash distributions" means most cash distributions, including regular and optional dividends, cash-in-lieu payments, and capital gains distributions. Special dividends, late ex-date, liquidation, and miscellaneous payments may not be eligible distributions. Optional dividends will be processed in accordance with dividend reinvestment instructions. If I have a margin account, Robinhood is permitted to borrow a dividend paying stock in the normal course of business and, as a result, in such situations instead of a dividend payment I may receive a cash in lieu payment. If I receive a cash in lieu payment, I authorize Robinhood to treat such payment as if it was not "in lieu" and reinvest it accordingly.

Robinhood will credit My Account upon completion of the dividend reinvestment. Robinhood will reinvest dividends on the business day following receipt of funds. In the rare instance in which Robinhood is unable to reinvest all dividends on the business day following receipt, it will reinvest the remaining funds as soon as reasonably possible thereafter, which may take up to five business days. I will not have use of the funds prior to reinvestment.

I understand that my participation in the DRIP is voluntary and that Robinhood has not made any recommendation that I should participate. I further understand that Robinhood is not recommending or offering any advice regarding the purchase of any security included as an Eligible security in the DRIP. I further understand that dividend reinvestment does not assure profits on my investments, nor does it protect against losses in declining markets.

I may terminate my participation in the DRIP, or the enrollment of individual securities in the DRIP, at any time by giving notice through the App. Termination will take effect prior to the next Eligible cash distribution provided my notice to terminate was received at least three business days prior to the record date of that distribution. I understand that my notice to terminate my participation in the DRIP will not affect any obligations that may result from transactions initiated prior to Robinhood's receipt and processing of my notice.

If I participate in the DRIP, I understand Robinhood will reinvest the dividends of a particular stock at or near the opening price on the trading day following receipt of the dividend. Robinhood will combine Eligible cash distributions from My Account with those from other Robinhood clients requesting dividend reinvestment in the same security and use these combined funds to purchase securities on my behalf and on behalf of these other clients. If the combined reinvested funds do not total the purchase price of at least one share, the distribution will be invested in fractional shares. On that same day, Robinhood will credit My Account with that number of shares, including fractional shares, equal to my Eligible cash distribution divided by the purchase price per share. Robinhood does not intend to charge a fee for transactions executed pursuant to the DRIP.

Dividend reinvestment may result in my owning interests in fractional shares of a security. I will be entitled to receive future dividend payments on my fractional shares, although other corporate actions may result in allocation of only whole shares and cash in lieu of fractions as determined by the issuer. In mandatory corporate reorganizations, my partial interest will be handled according to the specific terms of the reorganization. In voluntary corporate reorganizations, Robinhood will act on my instructions with respect only to my whole shares.

Because fractional share positions cannot be transferred, reorganized, or issued in certificate form, my partial interest will be liquidated, without commission charges to me, at prevailing market prices in the event My Account is transferred or closed, the stock is reorganized, or stock certificates are ordered out of My Account. The timing of such liquidations will be at the discretion of Robinhood.

Reinvestment of dividends may result in my owning a fractional share position in securities that are callable in part. In the event of a call, fractional shares to be called will be determined through a random selection process. The probability of my fractional share holdings being called will be proportional to the holdings of all Robinhood clients who own a fractional share position in that security. Prior to the publication date of such a call, I have the right to withdraw from My Account cash in lieu of my uncalled, fully paid partial holdings. Once a call is announced, however, all shares, whether registered or held in

street name, participate in the random selection process. If my fractional shares are selected and I no longer hold the shares that I held on the publication date of the call, I will be responsible for covering those shares.

30. Cash Management Services.

Except as expressly stated otherwise, the provisions of this Section 30 will only apply if I am enrolled in Cash Management.

A. General.

I understand and agree that by enrolling in Cash Management, I may apply for a Robinhood-branded debit card issued by the bank identified in My Robinhood Debit Card Agreement ("Card"). I further understand and agree that by using My Card, exercising My electronic fund transfer ("EFT") privileges offered in connection with My Account, and/or by successfully completing a request using Pay by Check, I authorize Robinhood to debit My Account immediately whenever an electronic draft or Card transaction is presented for payment on My behalf, when an EFT transaction is effected, when a Pay by Check request is successfully completed on My Account and/or when any fee or charge is due (collectively "Payment" or "Payments"). I further understand and agree that when I request a Payment or withdrawal or instruct Robinhood to make a purchase of securities from My Account, Robinhood is authorized to place a block on the amount of the transaction ("Blocked Amounts") prior to the settlement date of the Payment, withdrawal or trade, and that the Blocked Amounts will not be available for use for additional Payments or the purchase of securities. I agree to maintain Available Funds sufficient to pay for Payments made by Me or any Authorized Card User (as defined below) and to pay for any securities trades and for interest on any margin loans and other transaction fees. For this purpose, "Available Funds" in My Account will fluctuate daily and means the sum of (i) free credit balances, (ii) deposits to Participating Depository Institutions through the Sweep Service, and (iii) available margin loan value if My Account has margin privileges, minus (x) uncleared funds, (y) Blocked Amounts, and (z) deposits subject to a hold. The loan value of eligible securities for the purpose of margin is subject to regulatory requirements and Robinhood credit policies then in effect.

B. Payments and Withdrawals.

I agree that any Payments that I make from My Account will be lawful. I agree that Payments will be deducted from the Available Funds in My Account in the following order: first, from free credit balances; second, by withdrawal of funds deposited to Participating Depository Institutions as part of the Sweep Service; and third, if My Account has margin privileges, from margin loans on the eligible securities in My margin Account. Robinhood will debit My Account only up to an amount equal to the Available Funds. I understand and agree that (i) if there are insufficient Available Funds in My Account to cover Payments when they become due, Robinhood has no obligation to make such Payments, and (ii) Robinhood has no obligation to make partial Payments. Robinhood will not charge a fee with respect to any declined Payment for which there were insufficient Available Funds. I acknowledge and agree, however, that Robinhood will not be responsible for any costs or losses that I may incur (including fees, costs, charges, attorneys' fees, investment losses, claims, demands, or liability resulting from any litigation or other actions) as a result of Robinhood's decision to decline any Payment or withdrawal or other transaction because My Account has insufficient Available Funds.

I understand that if a Payment is funded by a margin loan, I will incur interest until the margin loan is repaid.

I agree that if my Available Funds at any time falls below zero, Robinhood may suspend my ability to make Payments and terminate My Card. If this occurs, I agree to immediately pay all amounts owed to Robinhood, including any purchases on My Card which will be immediately charged to My Account.

I acknowledge and agree that Robinhood reserves the right to decline any Payments at any time for any reason with or without notice to Me. If Robinhood decides to take such action, I understand and agree that I am responsible for any pending debits, which will be processed and deducted from My Account.

I understand that transactions will post to My Account in any order determined by Robinhood and that Robinhood may change that order without prior notice to Me. Robinhood will comply with requirements of applicable law regarding the order of posting transactions.

C. Limitation of Liability.

I agree that, subject to any limitations imposed by applicable law, and except as otherwise set forth in this Agreement or in the disclosures contained in the Robinhood Debit Card Agreement, which has been provided to Me or made available to me in connection with the opening of My Account, Robinhood, Robinhood's agents, any processing bank, and the Card issuer will not be liable for any loss I incur in connection with My Account and any Payments or other features of My Account unless Robinhood is grossly negligent in fulfilling this Agreement. In no event will Robinhood, Robinhood's agents, any processing bank, and the Card issuer shall not be liable for consequential, special or indirect damages or losses unless applicable law requires otherwise. I also agree that liability regarding online services or use of the App is further limited by the Robinhood Terms and Conditions, available at <https://about.robinhood.com/legal/>. To the extent I utilize online services or the App I acknowledge that I am bound by such Robinhood Terms and Conditions.

D. Debit Cards.

I understand and agree that My use of the Card is subject to the terms, conditions and disclosures set forth in the Robinhood Debit Card Agreement, which has been provided to Me in connection with the opening of My Account and which I may access on the Website.

I understand and agree that I cannot request a Card for another person to use. I agree, however, that if I permit another person to have access to use My Card or Card number (an "Authorized Card User"), I am authorizing all Card transactions by such person and I agree that there are no limits to my authorization. I accept all liability with respect to the Card transactions effected by Me and any Authorized Card Users. I further agree that I may terminate the authority of an Authorized Card User only by contacting help@robinhood.com, to cancel my Card. I agree that the cancellation of My Card is effective only after Robinhood has a reasonable period to act on My notice.

If My Card is cancelled, I agree to destroy, or if requested by Robinhood, return the Card to Robinhood. I acknowledge that I will be responsible for any Card transactions that are processed because of My failure to destroy or return the Card following cancellation.

If My Account includes margin privileges, I agree that transactions that exceed My free credit balances and deposits in the Sweep Service may result in margin credit being extended to My Account, for which I will be charged interest. I agree to review the Margin Disclosure Statement, which is available at <https://about.robinhood.com/legal/>.

E. Deposits.

The provisions in this Section 30.E shall apply to My Account whether or not I am enrolled in Cash Management.

General; Holds. I acknowledge and agree that funds that I deposit to My Account may be subject to one or more hold periods, which are described in the RHF Funds Availability schedule available at <https://about.robinhood.com/legal/>. I understand and agree that Robinhood reserves the right to modify the RHF Funds Availability schedule at any time by posting an updated schedule at <https://about.robinhood.com/legal/>, or otherwise providing notice to me. During the applicable hold period, My funds will not be available for Payments, withdrawal, or the settling of securities transactions, in each case as described in the RHF Funds Availability schedule. I further understand and agree that Robinhood reserves the right to further delay making deposited funds available for periods longer than the hold periods specified in the RHF Funds Availability schedule to the extent Robinhood determines that additional time is needed to verify information about the item deposited or the sender or if Robinhood otherwise believes there is a risk of fraud or other unlawful activity with respect to My Account.

Mistaken Deposits. If funds are deposited or transferred into My Account by mistake or otherwise, I agree that Robinhood may correct the situation and deduct any interest paid by Participating Depository Institutions, if applicable, without prior notice to Me.

Returned Funds. I acknowledge and agree that I am responsible for returned transactions. If I have funds transferred into My Account and that transfer is returned for any reason, Robinhood may charge the transfer and interest paid by Participating Depository Institutions, if applicable, against My Account, without prior notice to Me.

F. Electronic Fund Transfers.

The provisions in this Section 30.F relating to EFTs other than Card transactions shall apply to My Account whether or not I am enrolled in Cash Management.

I understand that My Account may be eligible for a variety of EFTs, which may be subject to separate agreements, terms and conditions. These services may include use of the Card, and the "Move Money" functionality of the App. I understand that I may be required to agree to separate terms and conditions governing the particular service I use to initiate EFTs. In addition, I understand and agree that my use of EFT services are subject to the disclosures set forth in Appendix A (Electronic Fund Transfer Disclosures), and acknowledge that I have received and reviewed such disclosures.

G. Security.

I agree to protect My Card, and My PINs, from access by anyone not authorized by Me to use them. I acknowledge that I will be liable for all Card and online transactions conducted by anyone to whom I have given access or who has obtained access even if not authorized by Me, up to applicable legal limits. I understand that I am responsible for reviewing My Account statement promptly to discover and report unauthorized activity, including use of My Card, Card number or PIN. I agree to notify Robinhood as provided in Appendix A (Electronic Fund Transfer Disclosures) if I believe or have reason to believe that there has been unauthorized activity in My Account or that My Card, Card number or PIN has been lost, stolen or may be used by an unauthorized person. Unless limited by law or as otherwise set forth in this Agreement or in the disclosures contained in Robinhood Debit Card Agreement, which is provided to Me as part of the Account opening process and is available on the Website, I agree that I will be responsible for losses that arise from My failure to (i) safeguard My Card and PINs, (ii) review My monthly statement for possible unauthorized activity and (iii) report any unauthorized activity to Robinhood as provided herein or in the Robinhood Debit Card Agreement.

H. No Illegal Purpose.

I agree and understand that I may not use my debit card or any Payments on My Account for any illegal purpose. I agree and understand that Robinhood may, in its discretion, deny any transactions that appear to be made for an illegal purpose.

I. Pay by Check.

I agree and understand that if I try to stop payment on a check after it has been mailed to the payee, Robinhood will attempt to but cannot guarantee that payment on the check will be stopped. I understand that a stop payment order on a check is valid for six months. I understand that if I wish to renew a stop payment on a check after the six month period, I must contact Robinhood to request another stop payment. I agree and understand that I may still be liable to the holder of the check even if I have requested a stop payment for the amount of the check. I agree and understand that Robinhood may deduct My Account for the amount on the check if the stop payment request is unsuccessful.

J. Disclosure of Information.

I agree and understand that all disclosures of My non-public personal information shall be made in accordance with the terms of the this Agreement or the Robinhood Privacy Policy (available on the Website at <https://about.robinhood.com/legal/>, as applicable. I agree that My consent to sharing non-public personal information will remain in effect until I revoke such consent by updating My settings and visibility, which I may do at any time through the App.

In addition, I understand and agree that Robinhood may disclose information about My Account and My related activities to third parties under the following circumstances: - As necessary to complete My Payment transactions; - To investigate any complaint, disputed transaction, transaction inquiry or request I make or as necessary to investigate potential fraud or misuse related to My Account; - To respond to requests from credit bureaus, creditors or other third parties for account-related information, to the extent such inquiries are necessary for processing My transactions or are usual and customary in the course of servicing similar products or accounts; - As necessary to comply with any applicable law, government or court order or subpoena; or - In accordance with My written permission or as otherwise permitted under the Robinhood Privacy Policy.

I. Termination.

I understand that Robinhood may terminate my participation in Cash Management or in specific features of Cash Management for any reason, upon notice to me.

31. Consent to Redeem Shares.

I understand and agree that whenever it is necessary for Robinhood's protection or to satisfy a margin call, deficiency, debit or other obligation owed to Robinhood, Robinhood may (but is not required to) sell, assign and deliver all or any part of the securities in My Account, or close any or all transactions in My Account. I understand that Robinhood may, but is not obligated to, attempt to contact Me before taking any such action. I understand and agree that Robinhood reserves the right to take any such action without prior notice or demand for additional collateral, and free of any right of redemption, and that any prior demand, call or notice will not be considered a waiver of our right to sell or buy without demand, call or notice.

I further understand that Robinhood may choose which securities to buy or sell, which transactions to close, and the sequence and timing of liquidation, and may take such actions on whatever exchange or market and in whatever manner (including public auction or private sale) that Robinhood chooses in the exercise of its business judgment. I agree not to hold Robinhood liable for the choice of which securities to buy or sell or of which transactions to close or for the timing or manner of the liquidation. I also agree not to hold Robinhood liable for taking such action.

I understand and agree that Robinhood is entitled to exercise the rights described in this section in its sole discretion, including, but not limited to, whenever any of the following occurs:

- The equity level in My Account falls below required minimums;
- Sufficient funds or securities are not deposited to pay for transactions in My Account;
- I reverse any ACH debit transfer to My Account;
- A petition of bankruptcy or for the appointment of a receiver is filed by or against Me;
- An attachment is levied against My Account;
- I die or become incapacitated or incompetent; or
- My Account is closed.

32. Electronic Delivery of Trade and Account Information; Notice.

All communications, notices, legal disclosures, and other materials related to My Account or this Agreement, including account statements, trade confirmations, margin calls, notices, disclosures, regulatory communications and other information, documents, data and records regarding My Account (the "Communications"), or an alert that any such Communication has been posted to the secure section of the Website or the App, and is available for viewing, may be sent to Me at the mailing address for My Account or the e-mail address that I have given to Robinhood in My account application or at such other

address as I may hereafter give Robinhood in writing or by e-mail at least ten (10) calendar days prior to delivery, and all communications so sent, whether in writing or otherwise, shall be deemed given to Me personally, whether actually received or not.

33. API.

A. Overview; Definitions.

Robinhood may, in Robinhood's sole discretion, provide third parties with an application programming interface and other materials in accordance with any accompanying documentation (collectively, the "API Package") (such third parties, "API Licensees"), to make available certain features and functionality of Robinhood's mobile applications, websites, or technology platform via the API Licensees' products (such products, the "Licensee Products"). The API Package and the Licensee Products are collectively referred to as the "API Products". "Personal Information" means My personally identifiable information (including username, login password, financial information, trade data, and other financial information) and all data exchanged between Robinhood and the API Products.

B. Access to My Personal Information.

Through My use of any API Products, I may be providing API Licensees with access to My Account and Personal Information. By using any API Products, I acknowledge that such API Products may employ security, policies, procedures and systems of API Licensees which may or may not be less stringent and secure than Robinhood's policies, procedures and systems. I agree that My use of any API Products shall be subject to the terms and conditions of this Agreement, in addition to any other agreements which I executed with respect to any such API Products. I understand and agree that any end user agreement that I executed with any API Licensee is concluded between Me and such API Licensee only, and not with Robinhood; and such API Licensee, not Robinhood, is solely responsible for such Licensee Product and the content thereof. I understand and agree that the API Products may deliver Personal Information to Robinhood, and that Robinhood is authorized to receive and store such Personal Information consistent with Robinhood's then-in-effect policies and procedures. Further, I agree that the API Products may request Personal Information stored by Robinhood, and I consent to Robinhood's disclosure of such Personal Information to the API Products.

C. No Recommendations.

To the extent the Licensee Products or API Licensees express opinions or make recommendations, I understand that such opinions and recommendations are expressed solely by API Licensees and are not the opinions or recommendations of Robinhood. The existence of the API Products and Robinhood's consent to any connectivity between any Licensee Products and Robinhood's technology, the App, the Website, or trading platform(s) does not constitute (i) any recommendation by Robinhood to invest in any security or utilize any investment strategy; or (ii) any representation, warranty, or other guarantee by Robinhood as to the present or future value or suitability of any sale, trade, or other transaction involving any particular security or any other investments. The existence of any and all information, tools and services provided by API Licensees or by the Licensee Products shall not constitute Robinhood's endorsement of API Licensees or the Licensee Products.

D. Data Provided by Robinhood to API.

From time to time, and subject to then-in-effect agreements between Robinhood and API Licensees, Robinhood may, in its own discretion, make market data feeds received from third parties available via the API Products. Robinhood does not make any guarantees in regard to such market data feeds. Furthermore, API Licensees or Licensee Products may make available to Me market data feeds independent of Robinhood. I am aware that from time to time that there may be discrepancy between the market data presented on the App or Website and information provided by any API Products due to a variety of reasons, including the time to update and transmit such data to a mobile application or website.

and latency caused by such API Product's or My local environment (such as computer set up, connection speed, etc.). Robinhood is not responsible for the accuracy of any market data displayed on any API Products or otherwise made available by API Licensees.

E. Risks; No Liability.

I acknowledge that there may be latency between the time an order (or other Personal Information) is submitted from the API Products and the time such order or Personal Information is received by Robinhood. Latency may also affect order modification and order cancellation requests. The time an order or a request is actually received by Robinhood (including for execution) will be the official time, including for the purposes of routing the order to the market for execution. In addition, all orders submitted to Robinhood are subject to order vetting by Robinhood. Orders created and submitted through any API Products are not vetted until they are received by Robinhood. It is possible that Robinhood may reject an order placed through any API Products. Robinhood cannot guarantee that any order will be accepted when such order is routed to the market for execution, and Robinhood cannot guarantee that notifications and Personal Information provided to Me by Robinhood will be successfully delivered to or displayed by any API Products.

Without limiting the generality of any other terms in this Agreement, I agree that:

1. Robinhood or its Affiliates shall not be liable for any Losses as a result of any issues addressed in this Section 33 of this Agreement, nor shall Robinhood or its Affiliates be liable for any Losses realized for technical issues involving any API Products or API Licensee technology or product offerings (including system outages or downtime).
2. Robinhood or its Affiliates shall not be responsible for any investment research provided by any API Licensee or any Licensee Products.
3. Robinhood or its Affiliates makes no representations, warranties or other guarantees as to the accuracy, timeliness or efficacy of any market data, information, or other functionality made available by any API Licensee or any API Products.

F. Intellectual Property.

My use of any API Products will not confer to Me any title, ownership interest or intellectual property rights that otherwise belongs to Robinhood or any of its affiliates. The API Package, including content, is protected under U.S. patent, copyright laws, international treaties or conventions, and other laws and will remain Robinhood's exclusive property, as applicable. Names, logos, and all related product and service names, design marks, and slogans displayed by or relating to Robinhood or any of its Affiliates or API Licensees in the context of the API Products shall remain the property of the respective owner, and use of such property by Robinhood or any API Licensee in marketing or provision of any API Products does not grant ownership of or entitle Me to use any such name or mark in any manner.

G. User's Representations and Warranties.

I represent and warrant that:

1. By virtue of utilizing any API Products, I consent to and accept any risk associated with Robinhood's sharing of Personal Information with any API Licensee and shall not hold Robinhood, its Affiliates, or their respective officers, directors, or employees responsible for any Losses resulting from the sharing of such Personal Information.
2. I agree that My use of any API Products or API Licensee's content, information, technology, or functionality is at My own risk.
3. I agree that Robinhood may revoke any API Licensee or API Products' authorization at any time, for any reason, with or without cause and without prior notice to Me.

34. Electronic Signatures; Modifications to the Agreement.

I agree to transact business with Robinhood electronically. By electronically signing an application for an Account, I acknowledge and agree that such electronic signature is valid evidence of My consent to be legally bound by this Agreement and such subsequent terms as may govern the use of Robinhood's services. The use of an electronic version of any document fully satisfies any requirement that the document be provided to Me in writing. I accept notice by electronic means as reasonable and proper notice, for the purpose of any and all laws, rules and regulations. I acknowledge and agree that Robinhood Financial may modify this Agreement from time to time and I agree to consult the Website from time to time for the most up-to-date Agreement. The electronically stored copy of this Agreement is considered to be the true, complete, valid, authentic and enforceable record of the Agreement, admissible in judicial or administrative proceedings to the same extent as if the documents and records were originally generated and maintained in printed form. I agree to not contest the admissibility or enforceability of Robinhood Financial's electronically stored copy of the Agreement.

35. Margin Accounts.**A. Election.**

This numbered section applies to my account to the extent I elect and am approved for a Robinhood Gold margin account.

B. Margin Trading.

I understand that margin trading involves interest charges and risks, including the potential to lose more than deposited or the need to deposit additional collateral in a falling market. Before using margin, customers must determine whether this type of trading strategy is right for them given their specific investment objectives, experience, risk tolerance, and financial situation. If I have elected to have a margin Account, I represent that I have read the [Margin Disclosure Statement](#), [Day Trading Risk Disclosure](#), and [FINRA Investor Information](#). These disclosures contain information on Robinhood's lending policies, interest charges, and the risks associated with margin accounts.

C. Hypothecation.

Within the limitations imposed by applicable laws, rules and regulations, all securities now or hereafter held by Robinhood, or carried by Robinhood in any account for Me (either individually or jointly with others), or deposited to secure same, may from time to time, without any notice, be carried in your general loans and may be pledged, repledged, hypothecated or re-hypothecated, separately or in common with other securities for the sum due to you thereon or for a greater sum and without retaining in your possession or control for delivery a like amount of similar securities. The IRS requires Broker Dealers to treat dividend payments on loaned securities positions as payments received in lieu of dividends for 1099 tax reporting purposes. Taxation of substitute dividend payments may be greater than ordinary on qualified dividends. It is understood, however, that you agree to deliver to Me upon My demand and upon payment of the full amount due thereon, all securities in such accounts, but without obligation to deliver the same certificates or securities deposited by Me originally. Any securities in My margin or short account may be borrowed by you, or lent to others.

D. Interest.

Debit balances in My Accounts shall be charged with interest in accordance with your established custom, as disclosed to Me in the Customer Information Brochure pursuant to the provisions of the Securities Exchange Act.

E. Margin.

I agree to maintain in all accounts with Robinhood such positions and margins as required by all applicable statutes, rules, regulations, procedures and custom, or as you deem necessary or advisable. I agree to promptly satisfy all margin and maintenance calls.

F. Sales.

I agree to specifically designate any order to sell a security, which I do not own as a short sale, and understands that Robinhood will mark such order as a short sale. I agree that any order which is not specifically designated as a short sale is a sale of securities owned by me, and that I will deliver the securities on or before settlement date, if not already in the account. If I should fail to make such delivery in the time required, Robinhood is authorized to borrow such securities as necessary to make delivery for the sale, and I agree to be responsible for any loss you may thereby sustain, or which you may sustain as a result of your inability to borrow such securities.

36. Consent to Electronic Delivery of Documents.**A. Consent.**

By agreeing to electronic delivery, I am giving My informed consent to electronic delivery of all Account Documents, as defined below, other than those I have specifically requested to be delivered in paper form. "Account Documents" include notices, disclosures, current and future account statements, regulatory communications (such as prospectuses, proxy solicitations, and privacy notices), trade confirmations, tax-related documents, and any other information, documents, data, and records regarding My Account, this Agreement (including amendments to this Agreement), and the agreements and disclosures governing the services delivered or provided to Me by Robinhood Financial, the issuers of the securities or other property in which I invest, and any other parties. I agree that I can access, view, download, save, and print any Account Documents I receive via electronic delivery for My records.

B. Electronic Delivery System.

I acknowledge that Robinhood's primary methods of communication with Me include (A) posting information on the Website, (B) providing information via the App, (C) sending email(s) to My email address of record, and, to the extent required by law, (D) providing Me with notice(s) that will direct Me to the App or the Website where I can read and print such information. Unless otherwise required by law, Robinhood reserves the right to post Account Documents on the Website without providing notice to Me. Further, Robinhood reserves the right to send Account Documents to My postal or email address of record, or via the App or Website. I agree that all Account Documents provided to Me in any of the foregoing manner is considered delivered to Me personally when sent or posted by Robinhood, whether I receive it or not.

All e-mail notifications regarding Account Documents will be sent to My e-mail address of record. I agree to maintain the e-mail address that I have provided Robinhood until I provide Robinhood with a new one. I understand that e-mail messages may fail to transmit promptly or properly, including being delivered to SPAM folders. I further understand that it is My sole responsibility to ensure that any emails from Robinhood or its Affiliates are not marked as SPAM. Regardless of whether or not I receive an e-mail notification, I agree to check the Website regularly to avoid missing any information, including time-sensitive or otherwise important communication. If I authorize someone else to access the e-mail account I have provided Robinhood, I agree to tell them to share the Account Documents with Me promptly, and I accept the risk that they will see My sensitive information. I understand that if I use a work e-mail address or computing or communications device, My employer or other employees may have access to the Account Documents.

Additionally, I acknowledge that the Internet is not a secure network and agree that I will not send any confidential information, including Account numbers or passwords, in any unencrypted e-mails. I also

understand that communications transmitted over the Internet may be accessed by unauthorized or unintended third parties and agree to hold Robinhood, its Affiliates, and Robinhood and its Affiliates' respective officers and employees harmless for any such access regardless of the cause.

I agree to promptly and carefully review all Account Documents when they are delivered and notify Robinhood Financial in writing within five (5) calendar days of delivery if I object to the information provided (or other such time specified herein). If I fail to object in writing within such time, Robinhood Financial is entitled to treat such information as accurate and conclusive. I will contact Robinhood to report any problems with accessing the Account Documents.

C. Costs.

Potential costs associated with electronic delivery of Account Documents may include charges from Internet access providers and telephone companies, and I agree to bear these costs. Robinhood Financial will not charge Me additional online access fees for receiving electronic delivery of Account Documents.

D. Archival.

Upon My request, I may obtain copies of up to six (6) prior years of account statements, and three (3) prior years of trade confirmations.

E. Revocation of Consent.

Subject to the terms of this Agreement, I may revoke or restrict My consent to electronic delivery of Account Documents at any time by notifying Robinhood Financial in writing of My intention to do so. I also understand that I have the right to request paper delivery of any Account Document that the law requires Robinhood Financial to provide Me in paper form. Robinhood Financial will not treat My request for paper copies as a withdrawal of My consent to electronic delivery of Account Documents. I understand that if I revoke or restrict My consent to electronic delivery of Account Documents or request paper delivery of same, Robinhood Financial, in its sole discretion, may charge Me a reasonable service fee for the delivery of any Account Document that would otherwise be delivered to Me electronically, restrict or close My account, or terminate My access to Robinhood Financial's services. I understand that neither My revocation or restriction of consent, My request for paper delivery, nor Robinhood Financial's delivery of paper copies of Account Documents will affect the legal effectiveness or validity of any electronic communication provided while My consent was in effect.

F. Duration of Consent.

My consent to receive electronic delivery of Account Documents will be effective immediately and will remain in effect unless and until either I or Robinhood Financial revokes it. I understand that it may take up to three (3) Business Days to process a revocation of consent to electronic delivery, and that I may receive electronic notifications until such consent is processed.

G. Hardware and Software Requirements.

I understand that in order to receive electronic deliveries, I must have access to a computer or Mobile Device with Internet access, a valid e-mail address, and the ability to download such applications as Robinhood Financial may specify and to which I have access. I also understand that if I wish to download, print, or save any information I wish to retain, I must have access to a printer or other device in order to do so.

H. Consent and Representations.

I hereby agree that I have carefully read the above information regarding informed consent to electronic delivery and fully understand the implications thereof. Additionally, I hereby agree to all conditions outlined above with respect to electronic delivery of any Account Document. I will maintain a valid e-mail address and continue to have access to the Internet. If My e-mail address changes, I agree to immediately notify Robinhood Financial of My new e-mail address in writing.

37. Miscellaneous Provisions.

The following provisions shall also govern this Agreement:

A. Contact Information.

Robinhood Customer Service may be contacted by visiting support.robinhood.com or by email at help@robinhood.com.

B. Interpretation.

The heading of each provision hereof is for descriptive purposes only and shall not be (1) deemed to modify or qualify any of the rights or obligations set forth herein or (2) used to construe or interpret any of the provisions hereunder. When a reference is made in this Agreement to a Section, such reference shall be to a Section of this Agreement unless otherwise indicated. Whenever the words "include," "includes" or "including" are used in this Agreement, they shall be deemed to be followed by the words "without limitation." The word "or," when used in this Agreement, has the inclusive meaning represented by the phrase "and/or." Unless the context of this Agreement otherwise requires: (i) words using the singular or plural number also include the plural or singular number, respectively; and (ii) the terms "hereof," "herein," "hereunder" and derivative or similar words refer to this entire Agreement. References to any law shall be deemed to refer to such law as amended from time to time and to any rules or regulations promulgated thereunder.

C. Binding Effect; Assignment.

This Agreement shall bind My heirs, assigns, executors, successors, conservators and administrators. I may not assign this Agreement or any rights or obligations under this Agreement without first obtaining Robinhood's prior written consent. Robinhood may assign, sell, or transfer My Account and this Agreement, or any portion thereof, at any time, without My prior consent.

D. Severability.

If any provisions or conditions of this Agreement are or become inconsistent with any present or future law, rule, or regulation of any applicable government, regulatory or self-regulatory agency or body, or are deemed invalid or unenforceable by any court of competent jurisdiction, such provisions shall be deemed rescinded or modified, to the extent permitted by applicable law, to make this Agreement in compliance with such law, rule or regulation, or to be valid and enforceable, but in all other respects, this Agreement shall continue in full force and effect.

E. Website Postings.

I agree and understand that Robinhood Financial may post other specific agreements, disclosures, policies, procedures, terms, and conditions that apply to My use of the App, the Website, or My Account

on the Website ("Website Postings"). I understand that it is My continuing obligation to understand the terms of the Website Postings, and I agree to be bound by the Web Postings as are in effect at the time of My use.

F. Entirety of Agreement.

This Agreement, any attachments hereto, other agreements and policies referred to in this Agreement (including the Website Postings), and the terms and conditions contained in My Account statements and confirmations, contain the entire agreement between Robinhood and Me and supersede all prior or contemporaneous communications and proposals, whether electronic, oral, or written, between Robinhood and Me, provided, however, that any and all other agreements between Robinhood and Me, not inconsistent with this Agreement, will remain in full force and effect.

G. Amendment.

Robinhood may at any time amend this Agreement without prior notice to Me. The current version of the Agreement will be posted on the Website and My continued Account activity after such amendment constitutes My agreement to be bound by all then-in-effect amendments to the Agreement, regardless of whether I have actually reviewed them. Continued use of the App, the Website or any other Robinhood Financial services after such posting will constitute My acknowledgment and acceptance of such amendment. I agree to regularly consult the Website for up-to-date information about Robinhood Financial services and any modifications to this Agreement. Robinhood is not bound by any verbal statements that seek to amend the Agreement.

H. Termination.

Robinhood may terminate this Agreement, or close, deactivate, or block access to My Account at any time in its sole discretion. I will remain liable to Robinhood for all obligations incurred in My Account, pursuant to this Agreement, or otherwise, whether arising before or after termination. I may terminate this Agreement after paying any obligations owed upon written notice. This Agreement survives termination of My Account.

I. No Waiver; Cumulative Nature of Rights and Remedies.

I understand that Robinhood's failure to insist at any time upon strict compliance with any term contained in this Agreement, or any delay or failure on Robinhood's part to exercise any power or right given to Robinhood in this Agreement, or a continued course of such conduct on Robinhood's part, shall at no time operate as a waiver of such power or right, nor shall any single or partial exercise preclude any other further exercise. All rights and remedies given to Robinhood in this Agreement are cumulative and not exclusive of any other rights or remedies to which Robinhood is entitled.

J. International Customers.

The products and services described on the Website are offered only in jurisdictions where they may be legally offered. Neither the Website nor the App shall be considered a solicitation for or offering of any investment product or service to any person in any jurisdiction where such solicitation or offering would be illegal. I understand that Robinhood, in its sole discretion, may accept unsolicited accounts from non-U.S. residents, depending on the country of residence and other factors. I understand that Robinhood is based in the United States and that Robinhood accepts only U.S. currency in Robinhood's customer accounts.

K. Governing Law.

This Agreement and all transactions made in My Account shall be governed by the laws of the State of California (regardless of the choice of law rules thereof), except to the extent governed by the federal securities laws, FINRA Rules, and the regulations, customs and usage of the exchanges or market (and its clearing house) on which transactions are executed.

38. Arbitration.

A. This Agreement contains a pre-dispute arbitration clause. By signing an arbitration agreement, the parties agree as follows: (1) All parties to this Agreement are giving up the right to sue each other in court, including the right to a trial by jury, except as provided by the rules of the arbitration forum in which a claim is filed. (2) Arbitration awards are generally final and binding; a party's ability to have a court reverse or modify an arbitration award is very limited. (3) The ability of the parties to obtain documents, witness statements and other discovery is generally more limited in arbitration than in court proceedings. (4) The arbitrators do not have to explain the reason(s) for their award unless, in an eligible case, a joint request for an explained decision has been submitted by all parties to the panel at least 20 days prior to the first scheduled hearing date. (5) The panel of arbitrators will typically include a minority of arbitrators who were or are affiliated with the securities industry. (6) The rules of some arbitration forums may impose time limits for bringing a claim in arbitration. In some cases, a claim that is ineligible for arbitration may be brought in court. (7) The rules of the arbitration forum in which the claim is filed, and any amendments thereto, shall be incorporated into this Agreement. B. Any controversy or claim arising out of or relating to this Agreement, any other agreement between me and Robinhood, any Account(s) established hereunder, any transaction therein, shall be settled by arbitration in accordance with the rules of FINRA Dispute Resolution, Inc. ("FINRA DR"). I agree to arbitrate any controversy or claim before FINRA DR in the State of California. C. This agreement to arbitrate constitutes a waiver of the right to seek a judicial forum unless such a waiver would be void under the federal securities laws. If I am a foreign national, non-resident alien, or if I do not reside in the United States, I agree to waive My right to file an action against Robinhood in any foreign venue. D. No person shall bring a putative or certified class action to arbitration, nor seek to enforce any pre-dispute arbitration agreement against any person who has initiated in court a putative class action; or who is a member of a putative class who has not opted out of the class with respect to any claims encompassed by the putative class action until: (1) the class certification is denied; or (2) the class is decertified; or (3) the customer is excluded from the class by the court. Such forbearance to enforce an agreement to arbitrate shall not constitute a waiver of any rights under this Agreement except to the extent stated herein.

ACCEPTED AND AGREED: I acknowledge that I have read the preceding terms and conditions of this Agreement, that I understand them and that I hereby manifest my assent to, and my agreement to comply with, those terms and conditions by accepting this agreement. I ALSO UNDERSTAND THAT BY ACCEPTING THIS AGREEMENT I HAVE ACKNOWLEDGED THAT THIS AGREEMENT CONTAINS A PREDISPUTE ARBITRATION CLAUSE IN SECTION 38 HEREIN. I ALSO AGREE (1) THAT ANY OF MY MARGIN ACCOUNT SECURITIES MAY BE BORROWED BY ROBINHOOD OR LOANED TO OTHERS; (2) I HAVE RECEIVED OF A COPY OF THIS AGREEMENT AND (3) I HAVE REVIEWED A COPY OF THE MARGIN DISCLOSURE STATEMENT.

Appendix A**Electronic Fund Transfer Services Disclosures**

The following disclosures apply to the use of any EFT services offered by Robinhood, including the Card, ACH transactions and the Move Money functionality of the App.

Solely for purposes of these disclosures: (i) references to the Bank shall include any financial institution that issues the Card or provides services in connection with ACH, Move Money or other EFT transactions; (ii) "you" and "your" mean the owner of the Account; and (iii) "we" and "us" means Robinhood and the Bank collectively.

1. Your Liability.

Contact Robinhood Customer Service AT ONCE if you believe your Card or PIN has been lost or stolen or if you believe that an electronic fund transfer has been made without your permission. Telephoning is the best way of keeping your losses down. You could lose all the Available Funds in your Account (plus your maximum overdraft line of credit). If you tell Robinhood within 2 business days after you learn of the loss or theft of your Card or PIN, you can lose no more than \$50 if someone used your Card or PIN without your permission.

If you do NOT tell Robinhood within 2 business days after you learn of the loss or theft of your Card or PIN, and Robinhood can prove that it could have stopped someone from using your Card or PIN without your permission if you had told Robinhood, you could lose as much as \$500.

Also, if your statement shows transfers that you did not make, including those made by Card or using your PIN, tell Robinhood at once. If you do not tell Robinhood within sixty (60) days after the statement was mailed to you, or otherwise made available to you, you may not get back any money you lost after the sixty (60) days if Robinhood can prove that Robinhood could have stopped someone from taking the money if you had told Robinhood in time. If a good reason (such as a long trip or a hospital stay) kept you from telling Robinhood, Robinhood will extend the time periods.

2. Contact in event of unauthorized transfer.

If you believe your Card or PIN has been lost or stolen, contact Robinhood by emailing help@robinhood.com.

3. Business Days.

Business Days are Monday through Friday, excluding federal holidays.

4. Transfer Types and Limitations.

You may use your Card to make purchases at any merchant that accepts Mastercard debit cards or debit cards of other networks in which the Bank participates, and to make ATM withdrawals, in each case subject to the Available Funds in your Account, the transaction limits described below, and the other terms and conditions of this Agreement. You acknowledge and agree that the value available to you for use with the Card is limited to the Available Funds in your Account. So long as you do not exceed the Available Funds in your Account, you may use the Card to purchase goods or services wherever the Card is honored, and to obtain cash by initiating cash withdrawal transactions through the Card from any financial institution or ATM that accepts the Card. Each time you use the Card, you authorize Robinhood to reduce the Available Funds in your Account by the amount of the purchase or withdrawal and any applicable fees, costs, or holdings. Nevertheless, if you exceed the Available Funds in your Account you shall remain fully liable to Robinhood for the amount of the transactions and any applicable fees and charges.

You may also make ACH withdrawals from your Account, either originated through Robinhood or originated by a third party (a "non-originated" withdrawal), subject to the Available Funds in your Account, the transaction limits described below, and the other terms and conditions of this Agreement. You also may make ACH deposits to your Account, either originated through Robinhood or originated by a third party (a "non-originated" deposit), subject to the transaction limits described below.

There are limits on the dollar amount of transactions you can make with your Card each day and each month, and limits on the amount of ACH withdrawals and deposits you can make each day. The following lists the limits for each type of transaction:

Originated ACH Withdrawals* Daily Limit: \$50,000.00
Weekly Limit: N/A Monthly Limit: N/A

Originated ACH Deposits* Daily Limit: \$50,000.00
Weekly Limit: N/A Monthly Limit: N/A

Non-Originated ACH Withdrawals* Daily Limit: \$250,000.00
Weekly Limit: N/A Monthly Limit: N/A

Non-Originated ACH Deposits* Daily Limit: \$250,000.00
Weekly Limit: N/A Monthly Limit: N/A

Point of Sale Purchases with the Card* Daily Limit: \$5,000.00 Weekly Limit: N/A Monthly Limit: \$15,000.00

ATM Withdrawals* Daily Limit: \$510.00 Weekly Limit: N/A Monthly Limit: \$5,000.00

Originated ACH* Daily Limit: N/A, subject to the Weekly Limit Weekly Limit: \$2,999 Monthly Limit: N/A

5. Fees.

We will not charge you any fees for use of ATMs that are part of the AllPoint or MoneyPass ATM networks, or for point of sale transactions using the Card, or for initiating other EFTs on your behalf. If you withdraw funds from ATMs outside of the AllPoint or MoneyPass ATM networks, you may be separately assessed fees by those ATM owners or operators.

6. Confidentiality.

We may disclose information to third parties about you, your Card, or the transactions you make using any of the EFT services we provide:

1. Where it is necessary or helpful for completing or correcting transactions and resolving claims regarding transactions;
2. In order to verify the existence and condition of your Card or your Account for a third party, such as a merchant;
3. In order to comply with a valid request by a government agency, a court order, or other legal or administrative reporting requirements;
4. If you consent by giving us your written permission;
5. To our employees, auditors, affiliates, service providers, or attorneys as needed;
6. In order to prevent, investigate or report possible illegal activity;
7. In order to issue authorizations for transactions on the Card;
8. As permitted by applicable law; or
9. Otherwise as necessary to fulfill our obligations under this Agreement and the terms applicable to the EFT service you are using.

Please see Robinhood's privacy policy, available at [about.robinkood.com/legal](https://www.robinkood.com/legal), and the applicable Bank's privacy policy, available at <https://www.suttonbank.com/kcms-dcc/85/49033/WK-Privacy-Disclosure-1218.pdf>, for further details. (The Robinhood privacy policy and the applicable Bank's privacy policy are referred to collectively as the "Privacy Policies"). You hereby agree to Robinhood's and the Bank's collection, use and sharing of information about you and the Card as provided in the Privacy Policies, which are made a part of this Agreement. The Privacy Policies also tell you how you can (i) limit the ways in which Bank and Robinhood share information about you, or (ii) request corrections to the information that Bank or Robinhood maintain about you. You agree that information you provide in connection with your Card or other EFT services you use is being provided directly to both Robinhood as the holder of the Account associated with the service and the Bank as the Card issuer or provider of the EFT service, as applicable.

7. Documentation.

Terminal Transfers. You can get a receipt at the time you make any transfer to or from your Account using an ATM from the AllPoint or MoneyPass ATM networks or at the point of sale.

Preauthorized Credits. If you have arranged to have direct deposits made to your Account at least once every 60 days from the same person or company, the person or company making the deposit will tell you every time they send us the money. You can also check your Account online to see if a deposit has been received.

Periodic Statements. You will get a monthly Account statement, unless there are no transfers in a particular month. In any case you will get the statement at least quarterly. You may obtain information about the Available Funds in your Account and a history of your Cash Management transactions on the App.

8. Preauthorized Payments/Stop Payment Procedure and Notice of Varying Amounts.

You do not have the right to request that Robinhood in advance make regular payments out of your Account, although you may ask third parties to initiate regular payments out of your Account.

Right to stop payment: If you have automatic recurring payments taken out of your Account, you can stop any of these payments by contacting us at help@robinhood.com. You must contact us in time for us to receive your request at least three business days before the payment is scheduled to be made.

Notice of varying amounts: If these regular payments vary in amount, the party you are going to pay will tell you, 10 days before each payment, when the payment will be made and how much it will be. (The party you are going to pay may allow you to choose to get this notice only when the payment would differ by more than a certain amount from the previous payment, or when the amount would fall outside certain limits that you set.)

Liability for failure to stop payment of a preauthorized transfer: If you order us to stop a payment at least three business days before the transfer is scheduled and we do not do so, we will be liable for your losses or damages.

9. Our Liability.

If we do not complete a transaction to or from your Account on time or in the correct amount according to our Agreement with you, we will be liable for your losses or damages. However, there are some exceptions. We will not be liable, for instance:

1. If through no fault of Robinhood or the Bank, you do not have enough Available Funds in your Account to complete the transaction;
2. If a merchant refuses to accept your Card;
3. If an electronic terminal where you are making a transaction does not operate properly, and you knew about the problem when you initiated the transaction;
4. If access to your Card has been blocked after you reported your Card lost or stolen;
5. If there is a hold or your funds are subject to legal or administrative process or other encumbrance restricting their use;
6. If Robinhood or the Bank have reason to believe the requested transaction is unauthorized;
7. If circumstances beyond the control of Robinhood or the Bank (such as fire, flood, or computer or communication failure) prevent the completion of the transaction, despite reasonable precautions that Robinhood or the Bank have taken; or
8. For any other exception stated in this Agreement with you or by applicable law.

10. Errors or Questions About Electronic Transfers.

In case of errors or questions about your electronic transfers, including your Card transactions, or if you think your statement or receipt is wrong or if you need more information about a transaction listed on the statement or receipt, contact Robinhood by emailing help@robinhood.com. Robinhood must hear from you no later than sixty (60) days after you were sent the FIRST statement on which the problem or error appeared.

1. Tell Robinhood your name and account number.
2. Describe the error or the transfer you are unsure about, and explain as clearly as you can why you believe it is an error or why you need more information.
3. Tell Robinhood the dollar amount of the suspected error.

Robinhood will determine whether an error occurred within ten (10) business days after Robinhood hears from you and will correct any error promptly. If Robinhood needs more time, however, it may take up to forty-five (45) days to investigate your complaint or question. If Robinhood decides to do this, Robinhood will credit your Account within ten (10) business days for the amount you think is in error, so that you will have the use of the money during the time it takes Robinhood to complete our investigation.

For errors involving new accounts, point of sale, or foreign initiated transactions, Robinhood may take up to ninety (90) days to investigate your complaint or question. For new accounts, Robinhood may take up to twenty (20) business days to credit your Account for the amount you think is in error.

Robinhood will tell you the results of our investigation within three (3) business days after completing the investigation. If Robinhood decides that there was no error, Robinhood will send you a written explanation. You may ask for copies of the documents that Robinhood used in our investigation.

EXHIBIT E

Robinhood Terms & Conditions

Robinhood Financial LLC ("Robinhood Financial"), a wholly-owned subsidiary of Robinhood Markets, Inc. ("Robinhood Markets"), is a registered broker-dealer and member of FINRA and SIPC that provides online and mobile application-based discount stock brokerage services to self-directed investors.

These Terms and Conditions are in addition to any other agreements between you and Robinhood Financial and Robinhood Markets (collectively, "Robinhood"), including any customer or account agreements and any other agreements that govern your use of software, products, goods, services, content, tools, and information provided by Robinhood.

General

The Robinhood website and mobile application (collectively, the "Service") may include or make available certain content (the "Content"). Content includes, without limitation: (1) account positions, balances, transactions, confirmations, and order history; (2) general news and information, commentary, research reports, educational material and information and data concerning the financial markets, securities and other subjects; (3) market data¹ such as quotations for securities transactions and/or last sale information for completed securities transactions reported in accordance with federal securities regulations; (4) financial and investment interactive tools, such as alerts or calculators; (5) tax preparation, bill payment and account management tools; (6) company names, logos, product and service names, trade names, trademarks and services marks (collectively, "Marks") owned by Robinhood, and Marks owned by Third Party Providers (defined below); and (7) any other information, content, services, or software. Certain Content is furnished by third parties (each, a "Third-Party Provider" and collectively, the "Third-Party Providers"). Such Content ("Third Party Content") includes, without limitation, any information, content, service or software made available by or through social media websites, blogs, wikis, online conferences, telecasts, podcasts, and other forums (collectively, the "Forums"). Third Party Content may be available through framed areas or through hyperlinks to the Third-Party Providers' websites.

Acceptance of Terms and Conditions

By using the Service and the Content, you agree to follow and be bound by these Terms and Conditions, including the policies referenced herein. Customers of Robinhood are granted additional levels of access to the website and their relationship with Robinhood is governed by additional agreements and terms of use, such as the Customer Agreement.

Disclaimer and Limitations of Liability

The Content and the Service are provided on an "as is" and "as available" basis. To the fullest extent permitted under applicable law, Robinhood and the Third Party Providers expressly disclaim all warranties of any kind with respect to the Content and the Service, whether express or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose and non-infringement. Neither Robinhood nor Third Party Providers guarantee the accuracy, timeliness, completeness or usefulness of any Content. You agree to use the Content and the Service only at your own risk.

Neither Robinhood nor the Third Party Providers explicitly or implicitly endorse or approve any Third Party Content. Third Party Content is provided for informational purposes only.

¹ Market Data by Xignite provides market data to Robinhood customers.

The Content is not intended to provide financial, legal, tax or investment advice or recommendations. You are solely responsible for determining whether any investment, investment strategy or related transaction is appropriate for you based on your personal investment objectives, financial circumstances and risk tolerance. You should consult your legal or tax professional regarding your specific situation.

ROBINHOOD AND THE THIRD PARTY PROVIDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES, INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFITS, REVENUE, INCOME, GOODWILL, USE, DATA OR OTHER INTANGIBLE LOSSES (EVEN IF ROBINHOOD OR ANY THIRD PARTY PROVIDER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES), RESULTING FROM: (1) THE USE OF OR THE INABILITY TO USE THE CONTENT OR THE SERVICE; (2) THE COST OF PROCUREMENT OF SUBSTITUTE GOODS AND SERVICES RESULTING FROM ANY GOODS, DATA, INFORMATION OR SERVICES PURCHASED OR OBTAINED OR MESSAGES RECEIVED OR TRANSACTIONS ENTERED INTO, THROUGH OR FROM THE SERVICE; (3) ACCESS TO OR ALTERATION OF YOUR ACCOUNT, TRANSMISSIONS OR DATA DUE TO YOUR CONDUCT, INACTION OR NEGLIGENCE; OR (4) ANY OTHER MATTER RELATING TO THE CONTENT OR THE SERVICE.

No Recommendations or Investment Advice

Robinhood Financial provides self-directed investors with discount brokerage services, and does not make recommendations or offer investment advice of any kind. You are solely responsible for evaluating the merits and risks associated with the use of any Content provided through the Service before making any decisions based on such Content. You agree not to hold Robinhood or any Third-Party Provider liable for any possible claim for damages arising from any decision you make based on the Content or other information made available to you through the Service or any Third-Party Provider websites. Past performance data should not be construed as indicative of future results.

U.S. Residents Only

The Content and the Service are intended for United States residents only. They shall not be considered a solicitation to any person in any jurisdiction where such solicitation would be illegal.

Content

Content posted on the Service is published as of its stated date or, if no date is stated, the date of first posting. Neither Robinhood nor the Third-Party Providers have undertaken any duty to update any such information.

Robinhood does not prepare, edit, or endorse Third Party Content. Robinhood does not guarantee the accuracy, timeliness, completeness or usefulness of Third Party Content, and is not responsible or liable for any content, advertising, products, or other materials on or available from third party sites.

You will not hold Robinhood and/or any Third-Party Provider liable in any way for (a) any inaccuracy of, error or delay in, or omission of the Content; or (b) any loss or damage arising from or occasioned by i) any error or delay in the transmission of such Content, ii) interruption in any such Content due either to any negligent act or omission by any party to any "force majeure" (e.g., flood, extraordinary weather conditions, earthquake or other act of God, fire, war, insurrection, riot, labor dispute, accident, action of government, communications or power failure, equipment or software malfunction), or iii) to any other cause beyond the reasonable control of Robinhood and/or Third-Party Provider, or iv) non-performance.

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Any price quotes may be delayed 20 minutes or longer, according to the rules and regulations applicable to exchanges and Third Party Providers. Neither Robinhood nor the Third-Party Providers make any representations, warranties or other guarantees as to the accuracy or timeliness of any price quotes. Neither Robinhood nor the Third-Party Providers make any representations, warranties or other guarantees as to the present or future value or suitability of any sale, trade or other transaction involving any particular security or any other investment.

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You acknowledge that Robinhood is the sole owner of Robinhood Marks and that other Marks are the property of their respective owners. You agree that you will not use any Marks for any purpose without the prior express written consent of the respective owners.

Termination; Modification

You agree that, without notice, Robinhood may terminate these Terms and Conditions, or suspend your access to the Service or the Content, with or without cause at any time and effective immediately. These Terms and Conditions will terminate immediately without notice from Robinhood if you, in Robinhood's sole discretion, fail to comply with any provision of these Terms and Conditions. Robinhood shall not be liable to you or any third party for the termination or suspension of the Service or the Content, or any claims related to such termination or suspension.

Robinhood and/or the Third-Party Providers may discontinue or modify the Content, or any portion thereof, at any time. You release and agree to indemnify and hold harmless Robinhood, and the Third-Party Providers, for any loss or damages arising from or relating to such discontinuation or modification.

Communications

By using the Service or the Content, you consent to any form of recording and retention of any communication, information and data exchanged between you and Robinhood or its representatives or agents.

All communications made at or through the Forums are public. Neither Robinhood nor the Third-Party Providers screen, review, approve or endorse any Third Party Content available on or through the Forums. Reliance on any Third Party Content available on or through the Forums is at your own risk. When discussing a particular company, stock or security in the Forums, you agree to reveal any ownership interest in such company, stock or security. Without limitation, you agree not to do any of the following:

- a) upload, post, transmit or otherwise make available any Content that is unlawful, harmful, threatening, abusive, harassing, tortuous, defamatory, vulgar, obscene, libelous, invasive of another's privacy (including, but not limited to, any address, email, phone number, or any other contact information without the written consent of the owner of such information), hateful, or racially, ethnically or otherwise objectionable;
- b) harm minors in any way;
- c) impersonate any person or entity, including, but not limited to, (i) a Robinhood or Third-Party Provider manager, employee, agent, or representative or (ii) forum leader, guide or host;
- d) falsely state or otherwise misrepresent your affiliation with any person or entity;
- e) forge headers or otherwise manipulate identifiers in order to disguise the origin of any material;
- f) upload, post or otherwise transmit any material that you do not have a right to transmit under any law or under contractual or fiduciary relationships (such as inside information, proprietary and

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confidential information learned or disclosed as part of employment relationships or under nondisclosure agreements);

- g) upload, post or otherwise transmit any material that infringes any patent, trademark, trade secret, copyright, rights of privacy or publicity, or other proprietary rights of any party;
- h) upload, post, or transmit unsolicited commercial email or "SPAM," including, but not limited to, unethical marketing, advertising, or any other practice that is in any way connected with SPAM, such as: (1) sending mass email to recipients who haven't requested email from you or with a fake return address; (2) promoting a site with inappropriate links, titles, or descriptions; or (3) promoting any site by posting multiple submissions in forums that are identical;
- i) upload, post or otherwise transmit any material that contains software viruses or any other computer code, files or programs designed to interrupt, destroy or limit the functionality of any computer software or hardware or telecommunications equipment;
- j) interfere with or disrupt the Service or servers or networks connected to the Service, or disobey any requirements, procedures, policies or regulations of networks connected to the Service;
- k) intentionally or unintentionally violate any applicable local, state, national or international law, including, but not limited to, regulations promulgated by the U.S. Securities and Exchange Commission, any rules of any national or other securities exchange, and any regulations having the force of law;
- l) "stalk" or otherwise harass another;
- m) collect or store personal data about other users of the Service;
- n) promote or provide instructional information about illegal activities, promote physical harm or injury against any group or individual, or promote any act of cruelty;
- o) promote, offer for sale or sell any security or item, good or service that i) violates any applicable federal, state, or local law or regulation, ii) you do not have full power and authority under all relevant laws and regulations to offer and sell, including all necessary licenses and authorizations, or iii) Robinhood or the Third-Party Providers determine, in their sole discretion, is inappropriate for sale;
- p) use the Forums as a forwarding service to another website; or
- q) access or otherwise use the Forums in any unlawful manner, for any unlawful purpose or in violation of these Terms and Conditions.

External Links

Robinhood and/or the Third-Party Providers may provide links to other websites or resources. Because neither Robinhood or the Third-Party Providers have any control over such sites and resources, you acknowledge and agree that neither Robinhood nor the Third Party Providers are responsible for the availability of such external sites or resources. Robinhood and the Third Party Providers do not endorse and are not liable for any content, advertising, products, or other materials on or available through such sites or resources. You further acknowledge and agree that neither Robinhood nor the Third Party Providers shall be responsible or liable, directly or indirectly, for any damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods or services available on or through any such site or resource.

Applicable Policies

In addition to these Terms and Conditions, your access to and use of the Content and the Service is subject to Robinhood's then-current policies relating to the Content and the Service, including, without limitation, the Robinhood Privacy Policy available on the Service. You agree to be bound by these policies and all other Robinhood policies applicable to the access and use of the Content and the Service.

By using the Service, you are consenting to have your personal data transferred to and processed by Robinhood and its affiliates. As part of providing you the Service, Robinhood may need to provide you with certain communications, such as service announcements and administrative messages. These communications are considered part of the Service, which you may not be able to opt-out from receiving.

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Indemnification

You will indemnify and hold harmless Robinhood and the Third Party Providers, and the officers, directors, agents, partners, employees, licensors, distributors, and representatives of Robinhood and the Third Party Providers, from and against any and all claims, demands, actions, causes of action, suits, proceedings, losses, damages, costs, and expenses, including reasonable attorneys' fees, arising from or relating to your access and/or use of, or interaction with the Content (including, without limitation, Third Party Content), or any act, error, or omission of your use of your account or any user of your account, in connection therewith, including, but not limited to, matters relating to incorrect, incomplete, or misleading information; libel; invasion of privacy; infringement of a copyright, trade name, trademark, service mark, or other intellectual property; any defective product or any injury or damage to person or property caused by any products sold or otherwise distributed through or in connection with the Service; or violation of any applicable law.

Revisions

Robinhood may at any time revise these Terms and Conditions by updating this document. You agree to be bound by subsequent revisions and agree to review these Terms and Conditions periodically for changes. The most updated version of this document will be available for your review under the "Robinhood Terms and Conditions" link that appears on the Robinhood website and mobile application.

Applicable Law and Venue; Severability

You agree that these Terms and Conditions shall be governed by and interpreted in accordance with the laws of the State of California, without giving effect to principles of conflicts of law. Any legal action or proceeding arising under these Terms and Conditions will be brought exclusively in courts located in Santa Clara County, California, and you hereby irrevocably consent to the personal jurisdiction and venue therein. If any provision of these Terms and Conditions is deemed unlawful, void or for any reason unenforceable, then that provision will be deemed severable from these Terms and Conditions and will not affect the validity and enforceability of the remaining provisions.

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EXHIBIT F

Disclosure Library

RHF-RHS Customer Agreement

Robinhood Debit Card Agreement

RHF and RHS Insured Network Deposit (IND) Sweep Program Disclosures

FINRA - Customer Identification Program Notice

RHF and RHS Business Continuity Plan Summary

RHF ETF Disclosure

RHF Funds Availability

RHF Jurisdictions

RHF Low-Priced Securities Disclosure

RHF and RHS Margin Disclosure Statement

RHS Customer Margin and Short Account Agreement

RHS SEC Rule 606 and 607 Disclosure

RHF SEC Rule 606 and 607 Disclosure

RHF Privacy

Financial Privacy Notice

RHF Fee Schedule

RHF SIPC and Account Protection

RHF Use and Risk Disclosures

RHF Product Features Disclosures

Robinhood Terms & Conditions

RHF Day Trading Risk Disclosure

Robinhood Instant Agreement

Extended Hours Trading Disclosure

Robinhood Gold Agreement

Robinhood Gold Pricing

Options Agreement

Characteristics and Risks of Standardized Options

Options and Instant Agreement

Robinhood Crypto User Agreement

Robinhood Crypto Risk Disclosures

Robinhood Crypto Licenses

Robinhood Crypto Customer Code of Conduct

RHF Customer Relationship Summary

Fractional Shares Account Agreement Addendum

RHF Form CRS Responses to Conversation Starters

RHS Unaudited Statement of Financial Condition (June 30, 2020)

RHS Audited Statement of Financial Condition (December 31, 2019)

FINRA Rule 4340 Allocation Procedures



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Brokerage Customer Relationship Summary

Robinhood Terms & Conditions

Disclosure Library

Privacy

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All investments involve risks, including the possible loss of capital.

Securities trading is offered to self-directed customers by Robinhood Financial. Robinhood Financial is a member of the [Financial Industry Regulatory Authority \(FINRA\)](#).



View Important Disclosures

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 21 *Robinhood Securities, LLC; and Robinhood Markets, Inc.*

22 **UNITED STATES DISTRICT COURT**
 23 **CENTRAL DISTRICT OF CALIFORNIA**

24 LEVI COBOS, an individual on behalf
 25 of those similarly situated,

26 Plaintiff,
 27 v.

28 ROBINHOOD FINANCIAL LLC, a
 Delaware Corporation; ROBINHOOD
 SECURITIES, LLC, a Delaware
 Corporation; and ROBINHOOD
 MARKETS, INC., a Delaware
 corporation; and DOES 1 through 1000,
 inclusive,
 Defendants.

Case No. 21-cv-00843-VAP-MRW

[Related Cases 2:21-cv-00835-VAP
 (MRWx); 2:21-cv-00837-VAP
 (MRWx)]

DECLARATION OF SHIV VERMA

Judge: Hon. Virginia A. Phillips
 Courtroom: 8A
 Hearing Date: February 10, 2021
 Hearing Time: 10:00 A.M.

1 I, Shiv Verma, declare as follows:

2 1. I am the Head of Treasury, Finance & Strategy and Investor Relations
3 at Robinhood Markets, Inc. ("RHM"). I have been at Robinhood since 2018. In
4 my position, I am responsible for treasury, finance and strategy, as well as investor
5 relations. I report directly to Jason Warnick, the Chief Financial Officer of RHM.
6 I have personal knowledge of the facts stated in this declaration, except for those
7 matters stated on information and belief, and if called upon to do so, I could and
8 would so testify.

9 2. I respectfully submit this Declaration in support of Robinhood's
10 Opposition to Plaintiff's Motion for a Temporary Restraining Order.

11 **I. Background on Robinhood.**

12 3. RHM is a financial services company headquartered in Menlo Park,
13 California. RHM wholly owns Robinhood Financial LLC ("RHF"), which acts as
14 an introducing broker for its customers by taking their trade orders. RHF is
15 headquartered in Menlo Park, California. RHM also wholly owns Robinhood
16 Securities, LLC ("RHS"), which, as a member of SEC-registered clearinghouses,
17 serves as a clearing broker for RHF. In that capacity, RHS executes customer
18 orders received from RHF by routing them to market-makers and also clears and
19 settles trades for RHF. RHS's headquarters is registered with FINRA and the SEC
20 in Lake Mary, Florida. Throughout this Declaration, I refer to these three entities
21 collectively as "Robinhood."

22 **II. Role As Head of Treasury.**

23 4. As Head of Treasury, my role is to manage RHM's liquidity. I also
24 monitor RHF's and RHS's liquidity to ensure compliance with all regulatory and
25 clearinghouse deposit requirements. My team and I monitor whether there is
26 sufficient capital for Robinhood to serve its customers while also monitoring
27 obligations to our counterparties and under the law. Accordingly, we are required
28

1 to monitor and engage with a number of market participants that, collectively, form
2 the infrastructure that enables Robinhood customers to trade in financial markets.

3 **III. Monitoring Capital Requirements.**

4 5. Broker-dealers are required to pay deposits to clearinghouses, such as
5 the National Securities Clearing Corporation (“NSCC”). The deposit supports
6 trades during the two-day settlement period (known as “T+2”) in which the
7 clearinghouse delivers the stock to the buyer and the funds to the seller. To
8 calculate the deposit requirements, clearinghouses look at, among other things, a
9 firm’s customer holdings, including unsettled trades. They use a volatility
10 multiplier, including looking at specific securities, to quantify their risk. The
11 clearinghouse may assign additional charges to the broker-dealer’s deposit
12 requirement depending on value-at-risk (“VaR”) calculations and the broker-
13 dealer’s available net capital.

14 6. Broker-dealers must also comply with certain net capital requirements
15 under an SEC rule known as the Uniform Net Capital Rule.

16 7. Between the clearinghouse deposit requirements and the requirements
17 of the Uniform Net Capital Rule, RHF and RHS are required to monitor available
18 liquidity to ensure that they are balancing customer demands and their obligations
19 to the clearinghouses and federal regulators.

20 **IV. Unprecedented Volatility and Volume in the Market.**

21 8. During the week of January 25 to January 29, 2021, Robinhood saw a
22 tremendous surge in demand for its services. Between January 28 and February 1,
23 2021, hundreds of thousands of users opened new Robinhood accounts.

24 9. During this period, there was also a significant surge in market
25 volatility and volume, which triggered a large increase in clearinghouse-mandated
26 deposit requirements. During the week of January 25, 2021, Robinhood’s
27 clearinghouse-mandated deposit requirements related to equities increased tenfold,
28

1 or 1,000 percent. Individual volatile stocks accounted for hundreds of millions of
2 dollars in deposit requirements.

3 10. Robinhood monitored the stocks that were undergoing particularly
4 volatile price swings and began to take proactive measures to ensure that it could
5 support the trades in those particular stocks. For example, beginning on January
6 25, RHF began increasing its margin maintenance ratio for a number of these
7 volatile stocks to 100 percent. RHF also began limiting the number of options
8 contracts that customers could purchase on a security-by-security basis.

9 11. From January 25 to January 27, 2021, the NSCC increased RHS's
10 deposit requirements by several hundred million dollars as a result of the increased
11 volatility in the market and trading volume by Robinhood customers. RHS met
12 those increased deposit requirements.

13 12. Early on January 28, 2021, RHS's operations team received its daily
14 margin notice from the NSCC requesting an increase in RHS's deposit requirement
15 for that day to more than \$3 billion. This increase put RHS's deposit requirements
16 an order of magnitude above typical levels. I understand that RHS's operations
17 team promptly reached out to the NSCC to discuss the request. My role as Head of
18 Treasury at RHM was to support RHS in financial calculations and planning.

19 13. In discussions with the NSCC, RHS learned that a substantial portion
20 of the increased deposit requirement resulted from the NSCC's VaR calculation for
21 specific stocks, such as AMC Entertainment Holdings, Inc. ("AMC") and
22 GameStop Corp. ("GameStop" or "GME"). In addition, because RHS's VaR
23 charge exceeded its net capital, the NSCC imposed an additional special charge.
24 The NSCC notified RHS that the NSCC's Risk Committee was reviewing the
25 system generated margin calls. As a way to mitigate the sudden increase in the
26 NSCC deposit requirements, RHS proposed to the NSCC that, as a temporary
27 measure, it would limit customer purchases for certain volatile stocks that had
28 driven the increased deposit requirements. Based on the issues it was facing and

1 the discussions with the NSCC, RHS believed that these temporary restrictions
2 would help mitigate the increase in its clearinghouse deposit requirements by
3 eliminating or significantly reducing the special charge. Within several hours of
4 the discussion with NSCC concerning the temporary restrictions, the NSCC issued
5 an amended margin call that removed the special requirement, leaving only the
6 VaR charge of \$1.4 billion. By 10:00 a.m. Eastern Time on January 28, RHS
7 deposited approximately \$700 million in incremental deposit charges with the
8 NSCC to meet the revised deposit requirement for that day.

9 14. On January 28, 2021, RHS informed RHF that it would not accept
10 purchase orders for certain volatile stocks that had driven the increased deposit
11 requirements. As noted, RHS imposed these measures in order to reduce the
12 collateral deposits demanded by the NSCC to a manageable level, and RHS
13 expected that these actions would lead to such a result. To provide flexibility to
14 customers with existing positions, RHF permitted customers to sell their
15 positions—*i.e.*, a “position closing only” (“PCO”) restriction. As a result, RHF
16 maintained trading continuity for Robinhood customers at market opening and
17 enabled millions of customers to transact in thousands of other securities.

18 15. The PCO limitations were a necessary step for RHS to take to protect
19 the Firm, Robinhood customers, and the markets. The temporary restrictions on
20 specified securities helped RHS to comply with its clearinghouse deposit
21 requirements in the face of unprecedented volatility and volume, thereby allowing
22 the Firm to continue to serve Robinhood customers and comply with all trading
23 requirements and regulations. Nonetheless, broker-dealers like RHS may face
24 increased deposit requirements from clearinghouses at any time, necessitating the
25 continued need to monitor trading activity of volatile stocks.

26 16. While the PCO limitations temporarily prevented customers from
27 buying certain stocks, after market close on January 28, 2021, RHS informed RHF
28 that it could take steps to ease the restrictions. Rather than restrict certain stocks to

1 PCO trades, RHF permitted some additional purchases but set a maximum number
2 of shares or options contracts on a security-by-security basis that a customer could
3 purchase.

4 **V. Robinhood Draws On A Line of Credit and Raises Money From**
5 **Investors.**

6 17. To deal with the ongoing market volatility, Robinhood took actions to
7 ensure it has sufficient funds to comply with deposit requirements and to serve its
8 growing customer base. Such actions have ensured that customers continue to be
9 able to trade freely in thousands of securities, and have allowed RHF to reduce the
10 temporary restrictions on a small number of volatile securities that, as explained
11 above, were necessary to protect the firm and its customers.

12 18. One way in which Robinhood increased capital was to draw on
13 existing lines of credit, as is common in the normal course of operating its
14 business. On January 27 to January 28, 2021, Robinhood drew on existing lines of
15 credit.

16 19. Robinhood also raised capital from investors. Over the next several
17 days, Robinhood raised approximately \$3.4 billion, \$1 billion of which it
18 contributed to RHS. This fundraising was a strong sign of confidence from
19 investors that will help Robinhood continue to build for the future and further serve
20 its customers through the strong growth the company has seen this year.

21 20. RHS has applied the capital to support Robinhood customers' trades.

22 21. These additional funds, combined with the temporary restrictions,
23 enabled RHS to continue to execute trades for its customers and to continue its
24 mission to democratize finance for all by providing access to the financial markets
25 to everyone.

1 **VI. No Citadel Entity or Other Third Party Was Involved In**
2 **Robinhood's Decision-Making.**

3 22. I am familiar with the recent rumors on social media and in the press
4 suggesting that Citadel LLC ("Citadel"), a hedge fund, or Citadel Securities LLC
5 ("Citadel Securities"), a market maker, has an ownership interest in Robinhood,
6 and that Citadel or Citadel Securities played a role in Robinhood's decision to
7 restrict trades of certain volatile stocks during the weeks of January 25 and
8 February 1, 2021. These rumors and speculation are false.

9 23. Neither Citadel nor Citadel Securities has an ownership stake in
10 Robinhood. I am unaware of any indirect ownership stake by Citadel or Citadel
11 Securities in Robinhood.

12 24. To the best of my knowledge based on my involvement in the
13 discussions concerning RHS's decision to apply these limited restrictions, no third
14 party, including Citadel and Citadel Securities, requested that Robinhood apply
15 restrictions on stock or options trading or played any role in RHS's decision to
16 apply limited restrictions on stock and options purchases in certain securities.

17 25. As of January 27, 2021 and through the present, RHM did not hold,
18 and has not held, short positions in GameStop, AMC or Blackberry, Ltd. I
19 understand that no Robinhood customers held short positions in any of those
20 securities through Robinhood, as the Robinhood app and website do not permit
21 short selling.

22 **VII. The Need for Broker-Dealer Discretion Over Trading Restrictions.**

23 26. I understand that the plaintiff in this action seeks a court order to
24 require Robinhood to remove any trading restrictions or limitations on specific
25 securities. Such an order would be dangerous for the financial system. If
26 Robinhood were to lose the ability to temporarily restrict or limit trading in
27 response to rapidly changing market conditions, it would be unable to protect
28

1 itself, its customers, and the markets during periods of significant volatility and
2 enhanced risk.

3 27. As recent events make clear, in times of extreme volatility and high
4 trading volume, collateral deposit requirements, which exist to protect investors,
5 can increase significantly—including by hundreds of millions or even several
6 billion dollars overnight.

7 28. The steps Robinhood has taken in recent days to draw on its line of
8 credit and raise money from investors, as set forth above, have substantially
9 increased RHS's net capital and liquid assets and thereby enable it to support
10 customer trading in more extreme market conditions. Raising capital cannot be the
11 only tool through which a broker-dealer can address stressed market conditions.
12 Indeed, no amount of raised capital could support limitless T+2 settlement. Like
13 any broker-dealer, Robinhood must have the ability to impose risk management
14 measures like trading restrictions or limitations, if necessary, to address conditions
15 of extreme market volatility.

16 I declare under penalty of perjury that the foregoing is true and correct.

17 Executed February 8, 2021, at Menlo Park, California.

18 *Shiv Verma*

19 _____
20 Shiv Verma
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20 *Attorneys for Defendants Robinhood Financial LLC;*
 21 *Robinhood Securities, LLC; and Robinhood Markets, Inc.*

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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

LEVI COBOS, an individual on behalf
 of those similarly situated,

Plaintiff,

v.

ROBINHOOD FINANCIAL LLC, a
 Delaware Corporation; ROBINHOOD
 SECURITIES, LLC, a Delaware
 Corporation; and ROBINHOOD
 MARKETS, INC., a Delaware
 corporation; and DOES 1 through 1000,
 inclusive,
 Defendants.

Case No. 21-cv-00843-VAP-MRW

[Related Cases 2:21-cv-00835-VAP
 (MRWx); 2:21-cv-00837-VAP
 (MRWx)]

**DECLARATION OF JAMES
 SWARTWOUT**

Judge: Hon. Virginia A. Phillips
 Courtroom: 8A
 Hearing Date: February 10, 2021
 Hearing Time: 10:00 A.M.

1 I, James Swartwout, declare as follows:

2 1. I am the President and Chief Operating Officer of Robinhood
3 Securities, LLC ("RHS"). I have been employed at Robinhood since 2019. In my
4 position, I am responsible for sales operations and customer engagement issues. I
5 also manage RHS's operations team. I have personal knowledge of the facts stated
6 in this declaration, except for those matters stated on information and belief, and if
7 called upon to do so, I could and would so testify.

8 2. I respectfully submit this Declaration in support of Robinhood's
9 Opposition to Plaintiff's Motion for a Temporary Restraining Order.

10 3. Robinhood Markets, Inc. ("RHM") is a financial services company
11 headquartered in Menlo Park, California. RHM wholly owns Robinhood Financial
12 LLC ("RHF"), which acts as an introducing broker for its customers by taking their
13 trade orders. RHF is headquartered in Menlo Park, California. RHM also wholly
14 owns RHS, which, as a member of SEC-registered clearinghouses, serves as a
15 clearing broker for RHF. In that capacity, RHS executes customer orders received
16 from RHF by routing them to market-makers and also clears and settles trades for
17 RHF. RHS's headquarters is registered with FINRA and the SEC in Lake Mary,
18 Florida. Throughout this Declaration, I refer to these three entities collectively as
19 "Robinhood."

20 4. In my capacity as President and Chief Operating Office at RHS, I lead
21 teams responsible for the margin lending, risk assessment of introduced customer
22 accounts as well as order routing and best execution. In the ordinary course of
23 business, RHS monitors and adjusts requirements for customer margin restrictions
24 and trading restrictions. This includes removing symbols no longer eligible for
25 trading at RHS. In addition, RHS monitors market fluctuations and makes risk-
26 based assessments for increases in initial margin and margin maintenance
27 requirements as deemed appropriate by the business. As a matter of course, RHS
28

1 does not permit trading in certain security equities, does not allow naked options,
2 short selling of stock, trading in mutual funds, bonds and other securities.

3 **I. Clearinghouse Deposits.**

4 5. As broker-dealers, both RHF and RHS are registered with the U.S.
5 Securities and Exchange Commission ("SEC"), and are members of the Financial
6 Industry Regulatory Authority ("FINRA") and the Securities Investor Protection
7 Corporation ("SIPC"). RHS is also a member of several clearinghouses and as
8 such is bound by membership rules for the clearinghouses with which Robinhood
9 transacts to fulfill customer orders.

10 6. Specifically, our introducing broker, RHF, interfaces with customers
11 to take their trade orders. RHS then takes those orders from RHF and executes or
12 routes them to other broker-dealers called market makers for execution. Once the
13 trades have been executed, RHS then submits them to clearinghouses for post-trade
14 processing, including clearance and settlement. Clearinghouses typically
15 intermediate transactions between market participants through a process of
16 continuous net settlement, becoming the guarantor of each transaction. They also
17 process payments and securities deliveries and maintain records of securities
18 ownership. Among their required functions in connection with clearance and
19 settlement is to protect investors and the markets by making sure that participants
20 like brokerage firms have sufficient funds available to settle the trades they have
21 made for their customers and, in the event of a member failure, to mutualize risk.
22 For stocks and exchange traded funds ("ETFs") in the United States, the main
23 clearinghouse is the National Securities Clearing Corporation ("NSCC"), which is
24 part of a larger clearing organization called the Depository Trust & Clearing
25 Corporation ("DTCC"). For options in the United States, the main clearinghouse
26 is the Options Clearing Corporation ("OCC").

27 7. Securities clearinghouses are self-regulatory organizations overseen
28 by the SEC. The clearinghouses are required to have member rules, which are

1 approved by the SEC, to ensure, among other things, that members appropriately
2 cover the potential credit risk to counterparties from customers' trades, which
3 includes requiring members to deposit cash or securities at the clearinghouse to
4 cover related settlement obligations. A clearinghouse may ask its members to
5 increase their deposits at times when the clearinghouse determines that they are
6 submitting trades of a type or volume that the clearinghouse views as increasing
7 overall risk. The aim is to reduce the likelihood that the clearinghouse will be
8 exposed to unsecured liabilities in the event of a member's failure and to mutualize
9 risk among other members by permitting the clearinghouse to access their deposits
10 to pay or replace contracts if a member fails. As a clearing broker that is a member
11 of the NSCC and OCC, RHS is subject to the NSCC's and OCC's cash deposit and
12 collateral requirements, which may fluctuate based on the nature and volume of
13 Robinhood's customers' trading activity and market volatility.

14 8. After signing up and receiving approval to use Robinhood's app or
15 website, customers may invest in listed stocks and ETFs without paying
16 Robinhood any commission, across over 5,000 available securities. In addition to
17 stocks and ETFs, Robinhood customers may also get approved to trade options
18 contracts using the Robinhood app or website.

19 9. When a Robinhood customer buys or sells a security on the
20 Robinhood app or website, the trade may appear to be executed nearly
21 instantaneously. But behind the scenes, the trade takes two days after the trade
22 date to settle and involves clearinghouses.

23 10. When a Robinhood customer buys or sells a security, RHF, as the
24 introducing broker, sends the order to RHS, the clearing broker, which executes or
25 routes the order for execution to a market maker and submits the resulting trade to
26 a clearinghouse for clearance and settlement. For equities, it takes two days for the
27 clearinghouse to process the transaction and effect the related transfers of cash and
28 securities between buyers and sellers. This is known as "T+2" settlement,

1 denoting the trade date plus a two-day “settlement period.” To cover the open
2 settlement risk during the settlement period, RHS is required to place a deposit at
3 the clearinghouse to cover the risk until the trade “settles.”

4 11. The two-day period between execution and settlement creates a
5 potential risk for the clearinghouse that either the buyer or the seller defaults on its
6 obligation to complete the trade. As the clearinghouse determines that the risk is
7 increasing, a clearinghouse may increase the broker-dealer’s required deposits. To
8 calculate the deposit requirements, clearinghouses look at a firm’s customer
9 holdings, including unsettled trades. They use a volatility multiplier, including
10 looking at specific stocks, to quantify their risk. The clearinghouse may assign
11 additional charges to the broker-dealer’s deposit requirement depending on value-
12 at-risk (“VaR”) calculations and the broker-dealer’s available net capital. For
13 example, if a broker-dealer’s customers have submitted more orders to purchase
14 than to sell a particular security and the price of the security that the broker-
15 dealer’s customers are buying is more volatile, then the resulting deposit
16 requirement will generally be higher.

17 12. In order to clear and settle customer transactions, each trading day by
18 10:00 a.m. Eastern Time, clearing brokers like RHS must satisfy the NSCC’s
19 deposit requirements, often referred to as margin, to support their customer trades
20 during the settlement period. Depending on a particular day’s deposit requirement
21 at the clearinghouse, RHS may be required to deposit additional money with the
22 clearinghouse that day. Clearinghouses can also require RHS to deposit additional
23 money throughout the day.

24 13. Ultimately, this system of clearinghouses and collateral requirements
25 is designed to minimize risk in the financial system in the event a market
26 participant becomes unable to pay for securities it has purchased or deliver
27 securities it has sold between the time of purchase or sale and settlement. The
28 deposit requirements serve as a protection against the risk of these failures.

1 **II. Net Capital Requirements.**

2 14. In addition to clearinghouse requirements, as broker-dealers, RHF and
3 RHS are subject to SEC regulations that require broker-dealers to maintain certain
4 levels of regulatory capital to ensure the ability to promptly satisfy their liabilities
5 at all times. The SEC's primary rule is generally referred to as the "Uniform Net
6 Capital" rule, which sets forth a methodology for computing a broker-dealer's net
7 capital, sets forth minimum net capital levels which must be maintained at all
8 times, establishes notification requirements in the event that a broker-dealer's level
9 of net capital falls below certain minimum thresholds, and sets restrictions on
10 broker-dealer activities when capital falls below certain levels. The Uniform Net
11 Capital Rule functions as a net liquid assets requirement insofar as the rule
12 recognizes only liquid assets as contributing to regulatory capital.

13 15. The purpose of the Uniform Net Capital Rule is to protect customers,
14 creditors and counterparties by preventing broker-dealer failures and ensuring that
15 broker-dealers that do fail have enough liquid assets to satisfy claims promptly.
16 The rule thereby serves to protect the financial system and ordinary investors.

17 16. The Uniform Net Capital Rule imposes a "moment to moment"
18 requirement, meaning that broker-dealers must ensure compliance with the rule at
19 all times. SEC and FINRA rules require notification when net capital falls below
20 certain defined "early warning" levels. The purpose of these notifications is to
21 provide warning to regulators that the broker-dealer may be approaching a state
22 where it would have insufficient liquid assets to support its customer trades, so that
23 the regulators can consider intervening prior to bankruptcy.

24 17. To ensure compliance with the Uniform Net Capital Rule, broker-
25 dealers perform repeated net capital computations. The calculation begins with the
26 broker-dealer's ownership equity under Generally Accepted Accounting Principles
27 ("GAAP"). The broker-dealer is then required to perform adjustments by
28 deducting illiquid assets, and applying variable "haircuts" or charges to risky assets

1 such as securities to compensate for market and credit risks. The resulting figure is
2 the broker-dealer's regulatory capital. This amount is then compared to various
3 minimums based on the broker-dealer's types and volume of activity.

4 18. If a broker-dealer were to fail to maintain specified levels of
5 regulatory capital, that entity could be subject to immediate suspension or
6 revocation of registration, which could lead to the liquidation of that broker-
7 dealer's holdings on behalf of customers and eliminate the broker-dealer's ability
8 to serve its customers.

9 **III. RHS Enacts Limitations on the Exercise of OTM Options.**

10 19. As part of its ordinary operations, Robinhood tracks data concerning,
11 among other things, customers' exercise of options contracts, a type of security
12 available to Robinhood's customers.

13 20. One type of options contract is a call option, which gives its owner the
14 right, but not the obligation, to buy a specified amount of stock at a specified price
15 (the "strike price") by a specific date (the "expiration date"). When a customer
16 buys a call option, he or she is generally hoping that the stock price will rise above
17 the strike price before the expiration date. If the stock rises above the strike price,
18 a call option is said to be in the money ("ITM"). The customer has the right to buy
19 the stock at the strike price even though the stock is trading at a higher price in the
20 open market. By contrast, if the stock price is below the strike price at a particular
21 time prior to expiration of the option, the option is out of the money ("OTM") at
22 that time. If the stock does not rise above the strike price by the time the option
23 expires, there generally is no reason for the customer to exercise the call option,
24 and the contract will simply expire by its own terms.

25 21. Customers can also buy and sell put options. A put option gives its
26 owner the right, but not the obligation, to sell a specific amount of stock at a strike
27 price. If the price of the stock declines below the strike price, the put option is
28 ITM, and it is profitable for the owner to exercise that option.

1 22. In January 2021, Robinhood became aware that some customers were
2 occasionally exercising OTM options, causing them to suffer losses immediately
3 upon exercise. This issue continued despite Robinhood's warnings and education
4 available in-app and on its website.

5 23. To prevent these unnecessary customer losses, RHS requested, and
6 RHF implemented, a procedure requiring customers to speak to a live broker
7 before exercising OTM options. This requirement was intended to provide an
8 opportunity for the broker to explain to the customer the downsides of exercising
9 an OTM option. This procedure remained in effect through Thursday, January 28,
10 2021. Beginning on Friday, January 29, 2021, RHF stopped permitting customers
11 to exercise OTM options altogether.

12 24. At no time on or since January 27, 2021, did Robinhood restrict a
13 customer's ability to exercise ITM options.

14 **IV. The NSCC Demands Over \$3 Billion In Additional Deposits.**

15 25. Early on Thursday, January 28, 2021, RHS's operations team received
16 its daily margin notice from the NSCC requesting a more than \$3 billion increase
17 in RHS's deposit requirement for that day. This increase put RHS's deposit
18 requirements an order of magnitude above typical levels. RHS's operations team
19 promptly reached out to the NSCC to discuss the request.

20 26. In discussions with the NSCC, RHS learned that a substantial portion
21 of the increased deposit requirement resulted from the NSCC's VaR calculation for
22 specific stocks, such as AMC Entertainment Holdings, Inc. ("AMC") and
23 GameStop Corp. ("GameStop" or "GME"). In addition, because RHS's VaR
24 charge exceeded its net capital, the NSCC imposed an additional special charge.
25 The NSCC notified RHS that the NSCC's Risk Committee was reviewing the
26 system generated margin calls. As a way to mitigate the sudden increase in the
27 NSCC deposit requirements, RHS proposed to the NSCC that, as a temporary
28 measure, it would limit customer purchases for certain volatile stocks that had

1 driven the increased deposit requirements. Based on the issues it was facing and
2 the discussions with the NSCC, RHS believed that these temporary restrictions
3 would help mitigate the increase in its clearinghouse deposit requirements by
4 eliminating or significantly reducing the special charge. Within several hours of
5 the discussion with NSCC concerning the temporary restrictions, the NSCC issued
6 an amended margin call that removed the special requirement, leaving only the
7 VaR charge of \$1.4 billion. By 10:00 a.m. Eastern Time on January 28, RHS
8 deposited approximately \$700 million in incremental deposit charges with the
9 NSCC to meet the revised deposit requirement for that day.

10 27. On January 28, 2021, RHS informed RHF that it would not accept
11 purchase orders for certain volatile stocks that had driven the increased deposit
12 requirements. As noted, RHS imposed these measures in order to reduce the
13 collateral deposits demanded by the NSCC to a manageable level, and RHS
14 expected that these actions would lead to such a result. To provide flexibility to
15 customers with existing positions, RHF permitted customers to sell their
16 positions—*i.e.*, a “position closing only” (“PCO”) restriction. As a result, RHF
17 maintained trading continuity for Robinhood customers at market opening and
18 enabled millions of customers to transact in thousands of other securities.

19 28. The PCO limitations were a necessary step for RHS to take to protect
20 the Firm, Robinhood customers, and the markets. The temporary restrictions on
21 specified securities helped RHS to comply with its clearinghouse deposit
22 requirements in the face of unprecedented volatility and volume, thereby allowing
23 the Firm to continue to serve Robinhood customers and comply with all trading
24 requirements and regulations. Nonetheless, broker-dealers like RHS may face
25 increased deposit requirements from clearinghouses at any time, necessitating the
26 continued need to monitor trading activity of volatile stocks.

27 29. I understand that taking steps to place PCOs on selected volatile
28 securities was not unique to RHS. Certain other broker-dealers also placed

1 restrictions on certain volatile securities due to these unprecedented market
2 conditions.

3 **V. Subsequent Revisions to the Trading Restrictions.**

4 30. In the following days, RHS revised the limitations on customer
5 purchases of certain securities as market conditions permitted. For example, as of
6 February 3, 2021, RHS informed RHF that it would accept purchase orders for all
7 securities except for AMC and GME—both of which customers could still
8 purchase up to certain share and options contract limits.

9 31. As of February 4, 2021, restrictions remained in place for only AMC
10 (up to 5,500 shares; up to 5,000 options contracts) and GME (up to 500 shares; up
11 to 500 options contracts).

12 32. As of February 5, 2021, the temporary restrictions have been
13 eliminated entirely.

14 **VI. No Citadel Entity or Other Third Party Was Involved In**
15 **Robinhood's Decision-Making.**

16 33. I am familiar with speculation on social media and in the press
17 suggesting that Citadel LLC ("Citadel"), a hedge fund, or Citadel Securities LLC
18 ("Citadel Securities"), a market maker, played a role in RHS's decision to instruct
19 RHF to restrict trades of certain volatile stocks during the weeks of January 25 and
20 February 1, 2021. This speculation is completely false.

21 34. To the best of my knowledge, no third party, including either Citadel
22 or Citadel Securities, requested that Robinhood apply restrictions on stock or
23 options trading or played any role in connection with RHS's decision on January
24 28, 2021 to apply limited restrictions on stock and options trading in certain
25 securities. This was a decision I made on behalf of RHS and in consultation with
26 my operations team at RHS and others at Robinhood.

27 35. As of January 27, 2021 and through the present, RHS did not hold,
28 and has not held, short positions in GameStop, AMC or BlackBerry, Ltd. Nor did

1 Robinhood customers hold short positions in any of those securities through
2 Robinhood, as the Robinhood app and website do not permit short selling.

3 I declare under penalty of perjury that the foregoing is true and correct.
4 Executed February 8, 2021, at Lake Mary, Florida.
5

6 *James Swartwout*

7 _____
8 James Swartwout
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