GAME STOPPED? WHO WINS AND LOSES WHEN SHORT SELLERS, SOCIAL MEDIA, AND RETAIL INVESTORS COLLIDE, PART II

VIRTUAL HEARING

BEFORE THE

COMMITTEE ON FINANCIAL SERVICES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

MARCH 17, 2021

Printed for the use of the Committee on Financial Services

Serial No. 117–10

U.S. GOVERNMENT PUBLISHING OFFICE
44–343 PDF WASHINGTON : 2021

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GAME STOPPED? WHO WINS AND LOSES WHEN SHORT SELLERS, SOCIAL MEDIA, AND RETAIL INVESTORS COLLIDE, PART II

Wednesday, March 17, 2021

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON FINANCIAL SERVICES,
Washington, D.C.

The committee met, pursuant to notice, at 10:02 a.m., via Webex, Hon. Maxine Waters [chairwoman of the committee] presiding.

Members present: Representatives Waters, Maloney, Velazquez, Sherman, Scott, Green, Cleaver, Perlmutter, Himes, Beatty, Vargas, Gottheimer, Gonzalez of Texas, Lawson, San Nicolas, Axne, Casten, Pressley, Torres, Lynch, Adams, Tlaib, Dean, Garcia of Illinois, Garcia of Texas, Williams of Georgia, Auchincloss; McHenry, Lucas, Posey, Luetkemeyer, Huizenga, Stivers, Wagner, Barr, Williams of Texas, Hill, Emmer, Zeldin, Loudermilk, Mooney, Davidson, Budd, Kustoff, Hollingsworth, Gonzalez of Ohio, Rose, Steil, Gooden, Timmons, and Taylor.

Chairwoman WATERS. The Financial Services Committee will come to order.

Without objection, the Chair is authorized to declare a recess of the committee at any time.

As a reminder, I ask all Members to keep themselves muted when they are not being recognized by the Chair. The staff has been instructed not to mute Members, except where a Member is not being recognized by the Chair and there is inadvertent background noise. Members are also reminded that they may only participate in one remote proceeding at a time. If you are participating today, please keep your camera on, and if you choose to attend a different remote preceding, please turn your camera off.

Before we begin today's hearing, I would also like to note that my staff and I are continuously monitoring the evolving situation around vaccinations and the COVID-19 pandemic, and looking for opportunities to begin to return the committee to normal proceedings as soon as medical experts advise that it is safe to do so. I have appreciated the coordination from the ranking member in ensuring proper safety protocols in committee proceedings thus far, and I am committed to working with him to ensure that we are following the recommendations of medical experts, moving forward.

Today's hearing is entitled, "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II."

I now recognize myself for 3 minutes to give an opening statement.

Good morning, everyone. Today, this committee convenes for our second hearing on the ongoing volatility involving GameStop and other stocks. In our first hearing on this matter, I called for a number of those involved in those events to testify before the committee. The goal was to get the facts, and so we heard directly from the CEOs of the trading app, Robinhood; Wall Street firms Citadel and Melvin Capital; and social media company, Reddit; as well as Keith Gill, one of the retail investors involved in WallStreetBets. The committee asked those witnesses questions on a broad range of issues, touching upon topics including conflicts of interest and payment for order flow, gamification of trading and harm to retail investors, the process for clearing and settling stock trades in the United States, and the ways that social media and technology are changing the way our markets function, as well as other related issues.

I concluded our first hearing by voicing my concerns on how Robinhood's retail investors are sometimes treated more like a product than a customer, and Robinhood's actual customer, Citadel, with its expansive role in our capital markets, may pose a systemic risk to our financial system. Today, as a next step, I am convening this hearing with a panel of capital markets experts and investor advocates so that the committee can hear their perspectives on these issues and possible reforms.

As the events in January put a spotlight on gaps in regulation of our capital markets, the committee must assess what legislative steps may be necessary. Following this hearing, I plan to convene a third hearing to hear the perspectives from the regulators who oversee these markets and are supposed to be putting investors first. My goal in continuing to scrutinize these events and the related policy issues is to ensure that our capital markets are fair and transparent, that investors have strong protections, and that Wall Street is indeed accountable and beneficial to the American economy.

I now recognize the ranking member of the committee, the gentleman from North Carolina, Mr. McHenry, for 4 minutes.

Mr. MCHENRY. Thank you, Madam Chairwoman, and thank you for holding today's hearing.

I fear a pattern is emerging here that regardless of the facts or data, Democrats are going to use every opportunity to justify their priorities. Whatever is in the news, whatever fears people have, they are going to exploit it to justify advancing an extreme progressive agenda, simply repackaging old, outdated policy failures with the wrappings of whatever else is in the news this week, and using that to sell the American people on the idea that this time, it is different. Ask yourself, for example, why it is that in the Biden plan, signed into law last week, the Congressional Democrats landed on $350 billion in State and local aid when States only have a shortfall of $1.75 billion right now? That is like your friend needing $2, and you say, no problem, here is $350. Will that cover it? The reality is that Democrats are stuck in their thinking no matter what the data actually tells us. Trust me, that massive spending bill is just the start, and the same thing is going to happen with the infrastructure bill and climate change disclosures as well.

I fear the same thing is happening today with this GameStop hearing. Democrats are using GameStop to justify more regulations, greater restrictions, and putting more costs onto businesses and everyday investors. They will say this technology is the new scary thing and that it is dangerous, but let's be honest: None of these ideas are new. Regardless of what information may be gleaned from conducting oversight or an investigation, Democrats have already come up with the same old tired ideas: more taxes; more disclosure; more regulation; more limitation; more fees; and more government bureaucrats telling Americans how and what they should be able to invest in. But these ideas come with a track record.

We know their agenda creates perverse incentives, bad policy outcomes, and rampant inequality that they then can seize on politically to say they are going to fix inequality, but their policies only make things worse, and enhance inequality. To repeat my point I made in last month's hearing, because of the Democrats' progressive policies, it is easier for most Americans to buy a lottery ticket than it is to invest in the next Google. Because of the regulatory structure, we have the, "accredited investor" definition, which, in the D.C. spin on regulation, ensures that only the rich get to invest in things that make you rich. That is backwards and wrong. Let's remove these hurdles and move forward. Let's find a way to work together to harness the power of financial innovation that benefits everyday Americans. Instead of clamping down on innovation and shutting the American people out of opportunities, let's stand with the American people who want a better life.

And on a final note, I want to thank the Chair for laying out her approach to holding hearings, and I would ask unanimous consent to submit for the record the letter exchange that we have had over the last week. Look, folks have been vaccinated. As an institution, Congress has had opportunities to be vaccinated. We had hybrid hearings before the vaccine was even available, and so I am asking, Madam Chairwoman, if we could return to those practices that we had last Congress, so that we can actually have both sides represented, and we can have more productive, better hearings when we have a hybrid model or in person. And I think that is commensurate with almost every committee member being vaccinated.

So with that, I yield back, and I look forward to the hearing.

Chairwoman WATERS. Thank you. Without objection, the letter exchange will be added to the record.

I now recognize the gentleman from California, Mr. Sherman, who is also the Chair of our Subcommittee on Investor Protection, Entrepreneurship, and Capital Markets, for 1 minute.

Mr. SHERMAN. Madam Chairwoman, I thank you for holding this hearing, and I couldn't disagree more with the ranking member when he says this hearing is about raw meat for the woke left-wing masses. I have been to far more left-wing demonstrations than he can imagine. And let me tell you now, there may be shouting of slogans like, "Impeach Trump," but I have never been at a left-wing rally where people are shouting, "End payment for order flow. Price improvements for all." This is a hearing on important technical issues that affect investors which both parties should be trying to protect.

We need to look at short selling and the fact that we disclose far less here than in Europe. We need to look at the conflicts of interest involved in payment for order flow. We need to look at a system where you have best execution versus Congress getting price-improved best execution and the gamification and glorification of high-frequency trading. None of that is partisan, none of it is ideological, and none of it will get you cheered at a left-wing rally.

Chairwoman WATERS. I now recognize the ranking member of the Subcommittee on Investor Protection, Entrepreneurship, and Capital Markets, the gentleman from Michigan, Mr. Huizenga, for 1 minute.

[No response.]

Chairwoman WATERS. Mr. Huizenga?

[No response.]

Chairwoman WATERS. Is Mr. Huizenga on the platform?

VOICE. He is on the platform. He is just muted.

Chairwoman WATERS. Mr. Huizenga, you are muted.

[No response.]

Chairwoman WATERS. Mr. Huizenga, unmute.

Mr. HUIZENGA. Finally. Okay. Sorry, Madam Chairwoman. Technology is one of our challenges. I have been trying to unmute that entire time.

Chairwoman WATERS. You are recognized for 1 minute.

Mr. HUIZENGA. Retail trading has surged in popularity and in practice due to the rise of app-based trading. These app-based interfaces, combined with zero-commission trades, fractional share trading, and lowered account minimums, have ushered in a new era of investment. Advancements in technology have improved access to our capital markets and created new opportunities for countless Americans to participate in our markets who were previously excluded. Today, nearly 25 percent of market trading volume is attributable to retail orders. This is up from 10 percent of trading volume just a mere 2 years ago.

The median age of Robinhood customers is 31, and more than half of new Robinhood accounts for the first half of 2020 were opened by first-time investors. At Charles Schwab, since 2019, half of their new clients have been under the age of 40. This is good. How have my colleagues across the aisle responded to this new era of investment? By falsely claiming this increase in market participation has caused, "gamification of the trading experience", that markets are rigged, and some have even gone so far as to equate it to gambling in a casino.

We should be working together to understand how innovation and technology can improve access to our capital markets instead of jumping to conclusions. I yield back.

Chairwoman WATERS. Thank you. I now recognize the gentleman from Texas, Mr. Green, who is also the Chair of our Subcommittee on Oversight and Investigations, for 1 minute.

Mr. GREEN. Thank you, Madam Chairwoman. I am grateful for this hearing, and the salient question is, should we continue to allow a middleman or market maker, who is a high-speed, high-frequency trader, to execute trades for itself and its clients. If the answer is yes, then are there sufficient penalties to deter self-dealing and unlawful trading, mainly buying or selling ahead of one's clients when the trades of the clients are known? I thank you, and I yield back.

Chairwoman WATERS. I want to welcome today's distinguished witnesses to the committee: Sal Arnuk, who is a partner at and co-founder of Themis Trading, an institutional equities agency brokerage firm; Michael Blaugrund, who is chief operating officer at the New York Stock Exchange; Vicki Bogan, who is an associate professor at the SC Johnson School of Business at Cornell University; Alexis Goldstein, who is a senior policy analyst at Americans for Financial Reform; Dennis Kelleher, who is co-founder, president, and chief executive officer of Better Markets; Alan Grujic, who is chief executive officer of All Of Us Financial; and Michael Piwowar, who is executive director of the Milken Institute Center for Financial Markets.

Each of you will have 5 minutes to summarize your testimony. You should be able to see a timer on your screen that will indicate how much time you have left, and a chime will go off at the end of your time. I would ask you to be mindful of the timer and quickly wrap up your testimony if you hear the chime. And without objection, your written statements will be made a part of the record.

Mr. Arnuk, you are now recognized for 5 minutes to present your oral testimony.

STATEMENT OF SAL ARNUK, PARTNER/CO-FOUNDER, THEMIS TRADING LLC

Mr. ARNUK. Thank you, esteemed members of the House Financial Services Committee, for inviting me to participate in this hearing.

Joe Saluzzi and I co-founded Themis Trading in 2002, and we trade as agents on behalf of money managers, collectively managing trillions of dollars for long-term investors. We believe the most damaging elements of what has come to be called the meme stock craze are playing out because of extremely poor investor education, conflicts of interest in the form of order routing inducements, referred to as, "payment for order flow", and a lack of accountability for this poor investor education and these misaligned incentives.

In our written testimony, we have included more detail and nuance on why we think there is an issue with how Robinhood conducts its business. Therefore, we will use our opening statement to instead talk about payment for order flow, which is the practice that makes their model exist.

Payment for order flow presents an undeniable conflict of interest. While it may enable free commissions and explicit cost, there are implied costs we feel everyone ignores. While payment for order flow is legal, we have long wondered how it possibly could be. How can a broker, charged with the duty of getting its clients the best available prices, do so by selling the clients' orders to sophisticated high-frequency trading firms, who, in turn, will make billions of dollars trading against these orders? While retail brokers and market-making firms claim to provide price improvement (PI) to these orders, it is a flawed calculation. It is based off of a slower price feed called the SIP. It doesn't take into account odd lots and midpoint exchange order flow, and the NBBO reference price it uses is largely set by the very same market-making firms bestowing this PI in the off-exchange environment.

Regulators know this. The SEC recently fined Citadel $22 million for mishandling retail orders, and they also fined Robinhood $65 million for failing its best execution responsibilities. They know the concept of PI is flawed as well. They approved a huge market structure change which included odd lots in the SIP, and protected them as a quote, yet our industry sued to block this overhaul. Payment for order flow increases overall costs in the market for all investors, including pension funds. When a few HFT market makers buy up orders that account for as much as a third of the trading volume each day, the orders are less informed and benign so that they don't go to the exchanges. What is left on those exchanges is much, much more toxic and costly to trade with. Market impact costs are higher and spreads are wider as well.

Two studies that confirm this are the Babelfish Study of Transaction Costs and Meme Stocks and another academic study that amazingly points out that when Robinhood experiences technical outages, spreads in the general market become narrower. Wider spreads mean that retail investors receive the worst prices, even after accounting for PI, and all other investors see their costs increase as well.

The practice of payment for order flow also provides a disincentive for displayed limit orders on exchanges. These displayed orders are often stepped in front of by HFT market makers who piggyback the price set by them. Those market makers step in and are rewarded with a sale that was only made possible by the displayed order, which narrows the spread in the first place. Would any of you, when buying a home, for example, put a sign in front of the home with the price you would pay, only to help someone else buy the house ahead of you for the same price or a dollar more? Yet, this is what happens to displayed orders in the market every day.

Payment for order flow also takes the form of maker-taker rebates on exchanges. The practice creates race conditions to be first in line to get a rebate every time the quote changes. Investor orders do not dominate these races; market makers do. Investor orders are typically further back in the queue and miss opportunities at buying cheaper stocks, but despite this, brokers representing those investor orders still route largely to these exchanges for that rebate, and regulators know this behavior is problematic. In December 2018, the SEC adopted a transaction fee pilot, whose purpose was to test the effect of rebates on market quality. Sadly, the exchanges sued and blocked the pilot. What were the exchanges afraid that the pilot would confirm?

Finally, maker-taker has taken fixed exchange costs to the moon. This has resulted in less diverse public markets, which hurts price discovery. Which market will have better price discovery, one where the prices are determined by an oligopoly of four large HFT trading firms, or one where the prices are determined by diverse investors and traders from all walks?

To conclude, we are all witnessing the dangerous intersection of poor investor education by a broker that should know better, and the payment for order flow that creates the massive incentive in their business model to sell the orders on its platform to its real customers, the HFT market makers. Payment for order flow is a flawed and conflict-ridden practice.

[The prepared statement of Mr. Arnuk can be found on page 82 of the appendix.]

Chairwoman WATERS. Thank you, Mr. Arnuk. Mr. Blaugrund, you are now recognized for 5 minutes to present your oral testimony.

STATEMENT OF MICHAEL BLAUGRUND, CHIEF OPERATING OFFICER, NEW YORK STOCK EXCHANGE (NYSE)

Mr. BLAUGRUND. Chairwoman Waters, Ranking Member McHenry, and distinguished members of the committee, thank you for the opportunity to testify today. I am Michael Blaugrund, the chief operating officer of the New York Stock Exchange. The NYSE is the world's largest exchange, and our listed companies employ more than 43 million people worldwide and represent roughly 30 percent of the world's public market value. The New York Stock Exchange's purpose is to help companies raise capital so they can change the world and provide an opportunity for investors to share in their growth. The events of January have raised questions as to what, if anything, policymakers and regulators should seek to reform in the equity markets. Whatever conclusions the regulators reach about what ought or ought not be done, public policy should build investor confidence in the markets.

The first of four areas that merit reform is shareholder disclosures. At the NYSE, we sit at the nexus of issuers and investors, and both groups have strong feelings about shareholder disclosures under Section 13(f). Corporate issuers feel that the current limited frequency and lengthy lag time for 13(f) reporting prevents them from engaging efficiently with their investor base, while institutional investors are concerned that increased disclosures would erode the value of their fundamental research. We facilitated joint discussions with representatives of both groups in hopes of identifying a middle ground. Based on this dialogue, we believe the SEC should consider shortening the delay for 13(f) reporting and consider mechanisms that enable direct disclosures to corporate issuers when a reportable position is established or fully divested.

The second area for reform is securities lending. Short selling is an essential practice for liquidity price discovery and risk management, but the securities lending market on which it depends is opaque and inefficient. The Financial Industry Regulatory Authority (FINRA) collects short position information from its member firms twice a month, but this aggregate data is insufficient for market participants or regulators to understand how supply and demand are changing for stock loans. The NYSE believes the SEC should consider establishing a consolidated tape for securities lending. A system that anonymously published the material terms for each stock loan would provide the necessary data to understand shifts in short-selling activity while protecting the intellectual property of individual market participants.

Third, the SEC should eliminate competitive barriers for public investors. Over the past year, retail trading has been the fastest-growing segment of the market. It is encouraging to see increased direct investment as public markets are a powerful mechanism for reducing economic inequality. The vast majority of retail order flow, however, never makes it to the public market. Instead, retail orders are typically routed to a broker-dealer wholesaler for internalization, a process that guarantees an execution to the retail customer in exchange for granting the wholesaler an opportunity to trade with the order before other market participants. Investors trading on public exchanges, including the NYSE, have a limited ability to compete for much of the retail volume due largely to the difference in the regulatory framework for broker-dealers and exchanges.

For example, unlike exchanges, wholesalers can offer privately-negotiated terms for price improvement or payment for order flow. However, investors trading on exchanges are also on unequal footing in a more straightforward way. Off-exchange trading is permitted at price increments as small as one-one-hundredth of a cent, while investors trading on exchanges are limited to price increments of a full penny. The NYSE believes that it is time to level the playing field for on-and-off exchange price increments. Reducing the minimum pricing increment on exchanges and active, low-price securities with lower investor trading costs improves transparency and provides an increased opportunity for investors trading on exchanges to interact with retail orders.

Finally, NYSE supports the growing consensus to accelerate industry settlement cycles from 2 days to 1 day after the trade. Though a shorter settlement cycle increases the potential for an operational error, the capital efficiency to be achieved by the industry is likely worth the risk.

In conclusion, smarter regulation of today's equity market structure will improve investor confidence, encourage entrepreneurs to access the capital markets, and allow the U.S. to extend its global leadership. We look forward to working with the new Congress, the SEC, the Biden Administration, and all of our stakeholders on these matters. And I thank the committee for the opportunity to participate today.

[The prepared statement of Mr. Blaugrund can be found on page 91 of the appendix.]

Chairwoman WATERS. Thank you very much. Dr. Bogan, you are now recognized for 5 minutes to present your oral testimony.

STATEMENT OF VICKI L. BOGAN, ASSOCIATE PROFESSOR, CORNELL UNIVERSITY

Ms. BOGAN. Chairwoman Waters, Ranking Member McHenry, and distinguished members of the committee, thank you for the opportunity to provide my views on an important matter that has been referred to as a gamification of investing. In my remarks, I will focus on what research tells us about behavioral influences with regard to retail investing and the ways in which policies could better protect retail investor interests while maintaining individuals' access to financial markets.

Research in the area of household finance is clear and consistent in finding that participating in financial markets is a pathway to economic mobility and wealth building for households in the United

States. Thus, it is important to remove barriers that hinder individuals accessing and safely participating in equity markets. I strongly believe this, as I have spent more than 20 years studying household finance and individual investment decision-making behavior. My own research has shown the importance of reducing market frictions, like transaction and information costs, to household participation in equity markets.

The payment for order flow business model used by Robinhood and other online brokers does, in fact, reduce the significant market friction that historically inhibited access to financial markets for retail investors. Specifically, no direct fee per transaction is a beneficial way in which the barriers to participation have been lowered. The payment for order flow model, however, does not mean that there are no transaction costs for the retail investor. Transaction costs due to bid-ask spreads remain, but the exact amount of these costs are not transparent to the investor. The recent GameStop incident has highlighted several acute financial market functioning issues related to payment for order flow conflict of interest and duration of settlement clearing.

However, one critical issue resurfaced during this time that is not unique to the GameStop incident and has the potential for long-lasting negative effects on the finances of households, the gamification of investing. The practice of financial institutions responsibly serving retail investors does not start and end with giving lower-cost access to financial markets. Robinhood CEO, Mr. Tenev, is quoted as testifying that, "Robinhood works to give people what they want in a responsible, accessible way." The gamification of investing, which has been pioneered by Robinhood, is not responsible because it has the demonstrated ability to harm the lives of people by creating financial fragility through wealth erosion. Beyond merely developing a user interface to facilitate ease of use for retail investors, online brokers like Robinhood employ powerful behavioral science-based techniques to influence investor behavior in a particular direction. These online brokers use prompts, push notifications, and other nudges for the purpose of eliciting a specific behavior: increased trading by the investor.

The nudges to increase trading are not based upon a sound investment strategy for the specific investor, so why are they used? Given the payment for order flow model, it is in the firm's best interest to have more trading volume. More volume equates to more revenue. Thus, the core of these practices increase from profits while potentially harming customers.

The realm of financial planning rarely supports day trading strategies for households. Buy and hold is conventional wisdom for retail investors. While a special few may have the time, energy, and knowledge to watch the markets with the keen attention required to practice day trading successfully, most households have limited quantities of those resources. With or without direct transaction fees, it is generally not advantageous for the majority of households to trade multiple times per day. From the perspective of traditional finance theory, one could argue that if individuals behave rationally, they will not trade if it is not in their best interest to do so. However, a key insight from behavioral science research is that nudges have strong and powerful effects. Nudges exploit behavioral biases to trigger specific responses. Knowledge of a bias is not sufficient to mitigate its effect on one's behavior, and mistakes are made even when the stakes are high. Online brokers can be important vehicles for retail investors to access financial markets.

For the past few years, Robinhood and similar online platforms have marketed themselves as working to democratize finance for all. However, this narrative does not ring true. This rhetoric detracts from the reality that these firms are reinforcing the status quo by converting customer orders into the actual products that are being sold. The customers of these payments for order flow online brokers are, in fact, market makers, like Citadel Securities. Hence, it is imperative for the retail investors to be provided more protection through regulation. There is a significant opportunity for more consumer safeguards governing online broker app user interfaces and enhance regulation around fee transparencies.

Improving and strengthening customer financial protection laws and regulations is as critical to facilitating economic mobility as accessing the markets themselves. Thank you.

[The prepared statement of Dr. Bogan can be found on page 95 of the appendix.]

Chairwoman WATERS. Thank you very much. Ms. Goldstein, you are now recognized for 5 minutes to present your oral testimony.

STATEMENT OF ALEXIS GOLDSTEIN, SENIOR POLICY ANALYST, AMERICANS FOR FINANCIAL REFORM

Ms. GOLDSTEIN. Chairwoman Waters, Ranking Member McHenry, and distinguished members of the committee, thank you for inviting me to testify today. My name is Alexis Goldstein, and I am senior policy analyst at Americans for Financial Reform. Previously, I spent many years on Wall Street, first as a programmer at Morgan Stanley in electronic trading, and then as a business analyst at Merrill Lynch and Deutsche Bank in equity derivatives. There, I worked primarily as a product manager for the trading and risk management software that was used globally by our equity options flow trading desks.

I want to start by thanking Chairwoman Waters for her leadership in convening the very first congressional exploration of the issues raised by the volatility in GameStop equities last month. Many have framed the GameStop mania as a David versus Goliath struggle. I believe it is more likely a story about Goliath versus Goliath, where the Goliaths are the largest Wall Street players, including hedge funds and the flow trading desks at major banks like Goldman Sachs and Morgan Stanley. Institutional players have structural advantages over retail traders: superior data; high-frequency trading algorithms; and access to trading venues not available to retail clients.

GameStop's 1,700-percent price run was not the end of Wall Street's dominance. In fact, it may be a source of major first quarter profits at large banks with flow trading desks. The derivatives trading desk that I used to work with took in the biggest profits on the most volatile days, and that is because they are mostly agnostic to price movements. They often profit on market churn rather than on the traditional ways that retail investors make money, by buying and holding. My time on Wall Street showed me that institutional players ferociously guard information about their positions while spending large sums of money and time trying to figure out what their competitors are holding. Thousands of Reddit users posting their positions online is another data point for Wall Street players who are already creating software to extract and mine it for information.

It is understandable why a narrative of David versus Goliath emerged at this moment. Wall Street profits have been soaring during the pandemic while Main Street has endured intense and prolonged suffering in a phenomenon that has been called a K-shaped recovery. In November, 10.7 million workers were officially unemployed. A disproportionate burden of the impact of the pandemic has fallen on Black and Brown Americans. Latinx Americans have faced large losses in employment, and White workers are getting hired back twice as fast as Black workers. Given the extreme imbalances in the economy, it makes sense that the media and the public might be drawn to a story of the little guy taking down Wall Street, but GameStop shines a spotlight on issues in the market that long predate this incident.

Policymakers should focus on examining the footprint of institutional players in the volatility, investigate if large hedge funds are creating undue risks and regulatory blind spots, improve hedge fund trading disclosures, scrutinize payment for order flow, and consider changes to capital requirements at brokerages. In the wake of the 2008 crisis, playing the lottery increased among people who were still struggling financially. Reddit and Robinhood are driving a new kind of financial lottery: trading cheap options that require giant price moves to become profitable. I, myself, have used Robinhood. I found it to be very streamlined. It has a slick user interface, but that simplicity has a downside: It provides its users with far less context and information compared with other retail brokerages.

The way to truly rebalance the economy is not to democratize the Wall Street casino, but instead to invest in rebuilding public institutions. Canceling Federal student loan debt, which President Biden can do without Congress, would grow the economy, relieve the disproportionate debt burdens carried by Black and Brown borrowers, and incentivize science and engineering graduates to consider careers benefiting the public good rather than writing algorithms to optimize trading. A modest wealth tax could be redirected to priorities like universal child care or tuition-free education, and a very small financial transaction tax could fund investments in reducing the racial wealth gap through programs like baby bonds.

I also want to flag that while this committee, under previous leadership, has advocated for vastly expanding the definition of, “accredited investors”, they have also voted to limit the oversight tools and the budget of the Securities and Exchange Commission, essentially making retail investors sitting ducks for powerful special interests. Trying to democratize the zero-sum game of trading is not the answer to our dire economic state. Instead, the country needs transformational policies that tackle the deep inequalities the pandemic has exacerbated.

Thank you very much, and I look forward to your questions.

[The prepared statement of Ms. Goldstein can be found on page 102 of the appendix.]

Chairwoman WATERS. Thank you very much, Ms. Goldstein. Mr. Kelleher, you are now recognized for 5 minutes to present your oral testimony.

STATEMENT OF DENNIS M. KELLEHER, CO-FOUNDER, PRESIDENT, AND CHIEF EXECUTIVE OFFICER OF BETTER MARKETS

Mr. KELLEHER. Good morning, Chairwoman Waters, Ranking Member McHenry, and members of the committee. Thank you for holding this important hearing, and for the invitation to Better Markets to testify.

We have already heard many of the market structure and regulatory issues addressed by this hearing are complex, hotly disputed, and often difficult to understand, but it is important to remember that they directly affect the economic activity and growth of the country. In fact, these issues actually impact how businesses form, grow, and create jobs or not, and that is what is really at stake and why everyone has a stake in these issues. Simply put, the purposes of our financial system and markets are supposed to be a wealth creation system for the many, not a wealth extraction mechanism for the few, and that is why the work of this committee is so important to the lives and livelihoods of all Americans.

However, because of the limited time and the format for hearings like this, many of those issues won't be able to be adequately covered today, and that is why the written testimony I have submitted is so long. It covers many of the issues extensively and in detail. It is intended to be a resource to you and your staffs long after this hearing.

While all of that written testimony is, of course, fascinating and well worth reading, I want to draw your attention in particular to the attached Appendix C. That appendix has seven slides that I created to visually show how payment for order flow works and how retail investors do not get best execution. Indeed, as I show in those slides, retail investors are virtually guaranteed to get the worst execution. That written testimony and those slides demonstrate that the markets are not a level playing field. They are rigged to advantage the sell side against retail investors, pension funds, and the buy side generally. But these markets are too often a wealth extraction mechanism to enrich the few at the expense of the many. That is detailed in my written testimony.

I want to make just two quick points before my time is up. First, our markets may be the envy of the world today, but that is not preordained, guaranteed, or destined to always be the case. It is only because people believe our markets are relatively transparent, well-regulated, and policed. That is due to the hard work of legislators like yourselves and regulators like the SEC. That work has engendered faith and confidence that our markets are fair and relatively free of fraud. That confidence underpins our markets. Lose that, and our markets will not function. If they don't function, then our economy will be hurt. Jobs, growth, and living standards are at stake. That, unfortunately, is the precipice we currently stand on.

While the world may be envious of our markets, poll after poll shows many Americans are losing faith and confidence in our markets, and that is why the many issues raised by the GameStop frenzy are so important. If not properly addressed, they will happen again, and if they do, they will crush investor confidence, then our markets, and then our economy. Remember, a growing, thriving economy is the very purpose of the markets, capital allocation and formation to fuel economic growth, rising living standards, decreasing inequality, and making the American Dream available to more people. That requires a level playing field, full and fair price discovery, and serious investor protection. Anything that interferes with that erodes investor confidence and should be eliminated. That is why payment for order flow and the many other wealth extraction activities and conflicts of interest revealed and highlighted by the GameStop frenzy have to go.

Second and finally, Congress must remain deeply skeptical of the disingenuous argument that retail investors have never had it so good. While that is arguably true, it is not attributable to payment for order flow. The actual causes of increased market access and narrowing spreads over the last 25 years are due to technological innovations, cost reductions, the introduction of electronic trading, the implementation of decimalization, and other elements of the regulation MNS framework. In fact, without payment for order flow and the other intentionally-created complexity used to disguise the wealth extraction activities, retail investors would be significantly better off today, and investors and public confidence would be higher. That could be the foundation for a virtuous cycle where more people invest, more capital is available, more businesses are formed and funded, more jobs are created, and economic growth increases and broadens, benefitting all Americans. That is our collective goal.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Kelleher can be found on page 117 of the appendix.]

Chairwoman WATERS. Thank you very much, Mr. Kelleher. Mr. Grujic, you are now recognized for 5 minutes to present your oral testimony.

STATEMENT OF ALAN GRUJIC, CEO, ALL OF US FINANCIAL

Mr. GRUJIC. Thank you. Good morning, Chairwoman Waters, Ranking Member McHenry, and distinguished members of the committee. My name is Alan Grujic. I am founder and CEO of All of Us Financial, a new San Francisco-based online broker launched in May 2020, and on a mission to empower retail investors. Thank you for the opportunity to add to this important discussion regarding January's unprecedented activity in GameStop and the associated lessons learned from an entrepreneurial perspective.

Let me start by saying that I have learned from decades of direct practitioner experience that most of the choices before us involve tradeoffs. Most have both costs and benefits and must be considered in that silver light. I am an engineer by training, but my career has been in capital markets. For a decade, I worked for Toronto Dominion Bank across the globe, and in 2002, I co-founded a high-frequency trading firm, Infinium, and in 2011, I built and ran a quantitative hedge fund, Galiam. After looking at market issues from all of these angles, I found that no one was properly solving a critically important problem, which is leveling the playing field for retail investors. Retail investors don't have the same tools as large institutions, and underperform the broader markets over time. I decided to apply my experience to try to address this critical societal need. The narrative that markets are rigged and that big institutions steal from little girls and guys out there is mostly not correct. That narrative exploits fear and reduces rich complexity to a simple fairy tale: find a victim, finger the villain, promote a hero.

We don't live in Sherwood Forest. Our markets are well-structured, highly competitive, and expertly regulated. There is plenty of room for improvement, no doubt, particularly as we adapt to an ever-changing world. One needed improvement is to deliver institutional-grade capabilities to reach all investors, including in the areas of data, knowledge, access, and influence, and that is our mission at All of Us. Let me be clear that we currently are pay for order flow (PFOF) at All of Us, and because we believe in radical transparency and alignment, unlike some other brokers, we share this revenue with our customers. We believe this aligns our interests with our customers, and it helps educate them about how markets work.

Some view disclosure as a point-in-time regulatory requirement. We take the view that transparency is a real-time foundation for our entire business. PFOF is not a necessary component of our market structure, but it is an effective way for markets to operate and should not be banned without careful consideration of its costs and benefits. Importantly, regulation requires all market makers to trade with customers at or better than best prices available on exchanges, and there is a comprehensive execution audit trail for brokers and regulators to monitor.

As we consider PFOF in this light, there are some truths to consider. First, market makers and exchanges all provide valuable services and need to be paid for them. Market makers provide liquidity, price discovery, and critical customer services. Exchanges provide, among other things, order matching and settlement services. These services cannot be provided for free.

Second, market makers are indifferent between PFOF and price improvement, because that price for them is the same. Brokers care, however. They also need to be paid for providing services in a highly-competitive environment. If we prohibit PFOF, commissions will likely increase, and valuable retail innovations, such as fractional shares, may become uneconomical.

Finally, some claim separating retail institutional flow harms retail investors. In fact, because market makers' value is thought of more highly than institutional flow, if we force them into the same market structure—and this is important—the average price received will be worse for retail orders and better for institutional orders than it is today.

In terms of gamification and social investing, social media platforms and gamification are powerful forces, and, like most implements, can be used for both good and bad purposes. But society is evolving, and younger generations want products and services delivered via social media. Good gamification and social investing can drive financial literacy and education, and encourage healthy behaviors, such as regular savings and investment, and that is a standard we hold ourselves to at All of Us. Brokerage is highly competitive, and innovations in social investing will continue to emerge. The right regulatory balance is to encourage innovation for the benefit of retail investors while ensuring investor protection. Our markets can be a wonderful means for Americans to invest and build wealth, but as the GameStop activity shows, our markets can be improved, and efforts to educate and improve the experience of retail investors are critical as markets become increasingly accessible and more and more people invest for the first time.

I appreciate this opportunity to appear before the committee today. I look forward to answering your questions from an entrepreneurial perspective at the appropriate time. Thank you.

[The prepared statement of Mr. Grujic can be found on page 112 of the appendix.]

Chairwoman WATERS. Thank you, Mr. Grujic. And Mr. Piwowar, you are now recognized for 5 minutes.

STATEMENT OF THE HONORABLE MICHAEL S. PIWOWAR, EXECUTIVE DIRECTOR, MILKEN INSTITUTE CENTER FOR FINANCIAL MARKETS

Mr. PIWOWAR. Good morning. Thank you, Chairwoman Waters, Ranking Member McHenry, and members of the committee, for inviting me to testify today. My name is Mike Piwowar, and I am the executive director of the Milken Institute Center for Financial Markets. Previously, I had the pleasure of serving as a visiting academic scholar, senior financial economist, Commissioner, and acting Chairman of the Securities and Exchange Commission.

Thank you for calling this second hearing on the lessons learned from the trading activity in GameStop and other so-called meme stocks. In the first hearing, members of this committee identified a number of issues that the SEC could prioritize in its regulatory compliance and enforcement roles. I hope that my testimony today will be helpful in guiding some of those priorities.

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. The SEC's Division of Examinations has said that one of their 2021 examination priorities will be to examine broker-dealers to assess whether they are meeting their legal and compliance obligations when providing retail customers access to complex strategies, such as options trading, and the Commission has said they are investigating whether abusive or manipulative trading activity prohibited by the Federal securities laws occurred during this episode.

I have complete confidence that the Commission and its compliance and enforcement staff will identify and pursue any evidence of noncompliance or wrongdoing. Accordingly, I will focus my testimony on the regulatory policy issues that have been raised in the aftermath of the January trading. The first part of my testimony focuses on achieving more equitable access to investing in private companies. The second part focuses on improving three specific areas of market structure and market infrastructure policy.

Here is a quick summary. Retail investors enjoy more choices and face lower costs when investing their hard-earned savings in public companies than ever before. Retail investors have taken advantage of these beneficial trends over the past few decades. The fraction of U.S. households that own stocks, either directly or indirectly through funds and retirement savings accounts and pension funds, increased from less than one-third in 1989 to more than one-half in 2019. Low-income households saw the biggest gains over this period, but they still lag high-income households in public stock ownership rates. In 2019, 15 percent of households in the lowest-income quintile held stocks in public companies compared to 88 percent of households in the highest income quintile.

While I am not aware of any statistics on ownership rates by household income level for private companies, the gap is undoubtedly worse, because SEC rules currently effectively prohibit low-income investors from investing in this high-growth sector of the economy. Accordingly, I believe 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.

I also 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; and three, evaluate various alternatives to increase regulatory reporting and public transparency in securities lending. 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 again for bringing attention to these critical issues and for the opportunity to testify before you here today.

[The prepared statement of Dr. Piwowar can be found on page 162 of the appendix.]

Chairwoman WATERS. Thank you very much, Mr. Piwowar. I now recognize myself for 5 minutes for questions.

Last month, the committee reviewed the actions of various market participants surrounding the volatile trading in GameStop and other stocks. We discussed how Robinhood, which caters to retail investors, earns nearly all of its revenue from selling its customers' orders to firms like Citadel, raising questions about who really is Robinhood's customer. Robinhood claims it does its customers a service because it doesn't charge any commissions, but it costs its customers more than $34 million last year, and Robinhood paid $65 million to settle an enforcement action related to selling its customer stock orders. I understand the allure of Robinhood. When I first learned about Robinhood, I thought it showed great promise.

Ms. Goldstein, payment for order flow, which was pioneered by the fraudster, Bernie Madoff, allows brokers like Robinhood to make huge profits by routing their customers' orders to market makers like Citadel, instead of sending them directly to an exchange, like the New York Stock Exchange, even if it means brokers won't obtain the most favorable trading terms for investors. Can you please explain whether you think these disturbing conflicts can ever be truly mitigated in such a way that guarantee brokers and other market participants are acting in the best interests of their customers?

Ms. GOLDSTEIN. Chairwoman Waters, thank you for the question, and thank you for holding this hearing today. If we look back to 2016 and the Obama Administration, the Securities and Exchange Commission wrote a memo to its Equity Market Structure Advisory Committee, and it identified a series of potential conflicts with payment for order flow. They thought it might interfere with a broker's duty to receive best execution for their customers. They thought it might create perverse incentives for them to route their orders to market makers instead of to exchanges, and they identified that it may, in fact, be obscuring the true cost that customers are paying for their order flow.

I liken it, sort of, to Facebook. If you are not paying for something, that often means that you yourself are the product, and Robinhood, many years ago, made upwards of 80 percent of their revenue from payment for order flow. In that SEC enforcement action that you identified, they pointed out that they hid that information from their customers after the publication of the best-selling book, "Flash Boys", made payment for order flow somewhat unpopular. They took it off of their frequently-asked questions page.

So, I do think that the Securities and Exchange Commission should revisit all of those questions that they had previously in 2016 in the Obama Administration. They should ask, should this practice be prohibited? Is it too confusing? Does it mask the true cost of the trade, or should brokers be required to pass these payments on to their customers, which could be another way to address the problem?

Chairwoman WATERS. Thank you. You indicated that you had at some point been involved with Robinhood, that you had done some trading, and that is how you became very knowledgeable about how they operate. Could you tell us what that experience was?

Ms. GOLDSTEIN. I would be happy to, Congresswoman. I have used Robinhood. I have also used a number of other brokerages. I was, quite frankly, very shocked at how quickly I was able to get set up for trading on Robinhood. I have a lot of expertise in options because I have a history of working with options trading desks on Wall Street, but even with that expertise, it is usually much slower when I have tried to use other brokerages to get permission to trade in certain kinds of options tradings, like what are known as option spreads, but in Robinhood, there was no friction. I did not have to fill out any kind of complicated forms. I was honestly quite surprised at how easy it was, and I do think that the folks who have criticized Robinhood for the gamification of it, there is something behind that.

When you place your first trade, this confetti bursts on your screen. There are lots of recommendations about the products you trade. It says, oh, you traded this, so you might be interested in this other company. So, I do think there are a lot of questions about the ways that Robinhood may be enticing people who may not have the needed expertise to trade, for example, options strategies, where you can lose a lot of money called spreads, put spreads. So I was, quite frankly, pretty surprised at how different it was from other brokerages, especially when it came to how much outstanding risk I had. I think it is very simplified, and that is often cited as a benefit, but it is simplified in a way that can be very dangerous if people don't understand their risk.

Chairwoman WATERS. I thank you very much for the testimony. I now recognize the distinguished ranking member, Mr. McHenry, for 5 minutes for questions.

Mr. MCHENRY. Thank you, Madam Chairwoman. Mr. Piwowar, I would like to actually go to you, and I just want to take a step back and look at the evolution of retail investing over the last decade or so and the impact of rules prohibiting everyday investors from investing in high-tech, high-growth, or a number of segments of our economy that are currently prohibited. What was the rationale behind the rules, and what impact did the prohibition have on investors and investment opportunities, the accredited investor standard in particular?

Mr. PIWOWAR. Thank you, Congressman McHenry, for that question. The original rationale for this rule was quite well-intended. It was an investor protection rule, and the idea was that it would protect investors from investing in riskier securities. Now, I question the premise of that as an economist. I am only the third Ph.D. economist to be a Commissioner at the SEC. Most of the SEC Commissioners and staffers there are lawyers, and they tend to think of the risk of securities in isolation, the risk of any particular security.

But when I look at it through the lens of an economist, what we know is that individual retail investors and institutional investors don't hold securities in isolation. They hold portfolios of securities. And so, once I apply the principles of economics to this, you can add riskier securities to your portfolio, which, as you point out, also tend to be higher-growth, and higher-expected returns to your portfolio without increasing the overall risk that you are facing within the markets. And what you are essentially doing is limiting the upside of these individual portfolios.

Mr. MCHENRY. Does that have any impact on inequality? Does that exacerbate inequality?

Mr. PIWOWAR. Absolutely. We know that younger companies tend to be higher growth, and so what we have seen over the long term is, over the last 20 years, we have had about half as many public companies as we did about 20 years ago. And so, by limiting non-accredited investors to that public company universe, we are limiting them to a smaller portfolio of securities, right? We know that there are fewer companies that are going public at all. We also see in the trend that growing companies are going public later in their life, so when they do finally become public, a lot of the growth opportunities to invest in them have gone by the wayside. And individual, retail, non-accredited investors didn't get the opportunity to invest in those companies during that growth cycle, whereas accredited investors have had that opportunity, which by the definition of, "accredited investor", is somebody who is already rich, so the rich get richer.

Mr. MCHENRY. It sounds like this dual track system is outdated and the rationale is outdated. Mr. Grujic, let's go to you. Technology platforms like yours are attempting to democratize investor access to public markets, making it easier, and we have seen this move over the last really 50 years in this country, attracting a whole new class of investors, but that has been heightened because of technology, obviously. Do you think that FinTech could be similarly useful to everyday investors if they were able to access early-stage investment opportunities?

Mr. GRUJIC. Yes, absolutely, and there are a lot of platforms now. The crowdfunding platforms that are opening up in this space and the recent regulations, I think, are very helpful with changes to the regulations to open up this space. I also concur that the accredited investor rules are outdated. I have always been very uncomfortable with them. The concept that we don't have equal rights as citizens to participate in investments has always troubled me. I do actively participate in the markets as an accredited investor. I invested in Facebook before it went public. I have invested in other companies. That really should be accessible to everyone. At the same time, if we are to look for investor protections in this area, they should come in the form of assessing people's understanding and ability to make these investments, certainly not based on their wealth.

Mr. MCHENRY. Okay. It sounds like we need to update our system and allow more people access to investment opportunities. And, Mr. Piwowar, I will just close by saying I agree with your assessment that payment for order flow and given the regulation of our market structure as it is, they are only tradeoffs. There is no simple win-win. We need good disclosures, but it is all a series of tradeoffs. So, I yield back. Thank you.

Chairwoman WATERS. Thank you very much. The gentlewoman from New York, Ms. Velazquez, who is also the Chair of the House Committee on Small Business, is now recognized for 5 minutes.

Ms. VELAZQUEZ. Thank you, Madam Chairwoman. Mr. Kelleher, Robinhood seems to have perfected the gamification of trading, providing the user with the perception that investing through the app offers recreational game playing with little or no downside risk. First, are you concerned with the gamification of the Robinhood app, and second, do you believe Robinhood's disclosures are properly balancing the potential downside risk of investing, including the risk of substantial loss, and the more enticing claims of profitability, and the ease of trading?

Mr. KELLEHER. Thank you for your question, and, yes, we should all be concerned about the gamification of the Robinhood app. Its primary function is not to get people to invest; it is to get people to trade. And it wants people to trade because the more people trade, the more payment for order flow it receives, the more revenue it gets, the richer they get, and the bigger the IPO that they have in the pipeline coming. That is what gamification is about. And Professor Bogan has very well stated the academic literature about so many aspects of the app driving people to thoughtlessly engage in trading rather than thoughtfully engage in trading.

One of the big problems we have here is, unlike Mr. Piwowar, we do not have Ph.D. economists applying economic principles here. We have a game-like mechanism that is meant to actually cause people to drop their defenses, to not think at all about losses and risks, and to only think about gains and trading, and everybody should worry about that.

Ms. VELAZQUEZ. As we consider issues associated with gamification, what type of reforms would you recommend?

Mr. KELLEHER. I think one thing that should be done, and Professor Bogan, again, has talked about this, is the aspects of these apps that actually are scientifically designed to hit the endorphins of the trader, which is to say, to short circuit and cut off thoughtful processes that people engage in, balancing risks and rewards, balancing the need to do something versus the reflex to do something because something unconscious has been engaged.

And indeed, as Sal Arnuk showed in his testimony, if you look at the other platforms, they actually thoughtfully present material on, for example, options and the risks of options. You don't see that on the Robinhood app. And indeed, on the Robinhood app, one of the most often-asked questions, according to an article I read on the app, is, "What is a stock?" Another frequently asked question is, "What is the S&P 500?" So, you have a base of customers with extremely low knowledge, who are being intentionally activated unconsciously to trade more and more often for the sole purpose of enriching Robinhood.

Ms. VELAZQUEZ. Thank you. Mr. Kelleher, during last month's hearing, I also brought up the important issue of short selling. While I said at the time, and continue to understand that short selling has legitimate purposes, I also said that too often, I have seen the strategy used against working individuals and families, first, against Puerto Rico, and now here with the GameStop craze. Currently, large investors, including hedge funds, must disclose their long positions when they own 5 percent or more of a company's share, but no such disclosure is required for short positions. As we consider reform, is this type of disclosure for short position something you will support?

Mr. KELLEHER. There absolutely should be greater disclosure for short positions, both on the institutional investor side and on the broker-dealer side, and that disclosure should be increased in terms of frequency and particularly in terms of content. There is a great deal of synthetic shorting happening in these markets with total return swaps and other synthetic products that actually disguise and understate what we even now publicly know. So, across-the-board, in terms of the actual entities, in terms of the timing, and in terms of the content, disclosure should be increased, and it should actually be pretty well-studied. But regardless of the outcome of that study, we need more information to the market so that people can act in a more informed manner.

Ms. VELAZQUEZ. Thank you, Mr. Kelleher. And thank you, Madam Chairwoman. I yield back.

Chairwoman WATERS. The gentlewoman from Missouri, Mrs. Wagner, is now recognized for 5 minutes.

Mrs. WAGNER. Thank you, Madam Chairwoman. This is a question for both Mr. Grujic and Mr. Piwowar. Just briefly, are there any regulatory barriers to help facilitate increased access for everyday investors that you see, that we in Congress could work on removing? Mr. Grujic?

Mr. GRUJIC. Yes, there certainly are. As I stated in my opening statement, I think we always have tradeoffs, and so there are always ongoing frictions where regulations exist, and sometimes the benefit exceeds the cost. In particular, the ones that trouble me are the credit investor rules we just touched on. While not my area of professional expertise, I really feel that that is highly limiting to the opportunity set for retail investors. I also think that over the next decade or two, expansion in private markets is going to be a greater opportunity for retail investors than public markets, and I emphasize that that is an area that perhaps is the most important.

Mrs. WAGNER. Great. Mr. Piwowar?

Mr. PIWOWAR. Thank you, Congresswoman Wagner. I agree with Mr. Grujic about revisiting the accredited investor definition. That is the most direct way that the SEC could deal with it. There are a couple of indirect ways also, if people are still uncomfortable with investors investing in [inaudible] in a private company, there is a way to address this indirectly.

Congressman Anthony Gonzalez had a bill last Congress that would open up the ability of closed-end funds to invest in private funds that invest in private companies. I think closed-end funds—a particular type of them are called interval funds—would be a particularly useful investment vehicle, and then people would have comfort that the investor would be protected through a regulated investment advisor. And there are a number of other things that the Commission could do along those lines, so they could do it directly and indirectly.

Mrs. WAGNER. Thank you. Mr. Grujic, if payment for order flow were to be banned, how would that impact the commission-free trading that millions of Main Street investors, who are currently benefiting from it in order to save for retirement, buy their first home, or pay for their child's education—how would that be impacted?

Mr. GRUJIC. These things are always somewhat indeterminate. It depends on the innovation that occurs around the changes that happen. My expectation is that with brokers needing a return, commissions would return. The problem with commissions in their former implementation is that they also have the same misalignment issues of trying to promote more trading correlated with higher revenues for brokers before there was any payment for order flow. So, this highlighting of payment for order flow is tapping that misalignment issue. It is really not any different from what the State was before payment for order flow in terms of that aspect.

The things that worry me about reinstituting those commissions are that there are two things that are less optimal about fixed commissions. First, they don't reflect the true economic value of the underlying trade, so if a large trade and a small trade both build the same fee, that is not an economically-sound approach.

Second, I believe fractional shares, which haven't gotten a lot of discussion here, are extremely important and valuable to retail investors. We talk about giving smaller investors access to markets, but we have securities that trade at very high prices. How do we expect those investors to be able to buy an Amazon or another high-price stock?

And one way that we can do that is we can offer fractional shares and we do, and as an industry, we have made great strides there. That also allows a retail investor, even with a small portfolio, to rebalance it in ways that are optimal. And so I also worry whether fractional shares would become uneconomical if we removed payment for order flow.

Mrs. WAGNER. Interesting. Mr. Piwowar, is it possible for payment for order flow to be aligned with the SEC's best execution requirements for broker-dealers when routing orders for retail investors?

Mr. PIWOWAR. Yes, absolutely, and Mr. Grujic brings up excellent points about how payment for order flow can't be looked at in isolation. You need to look at unintended effects of banning it. In fact, the SEC enforces its best execution obligations all the time and is continually looking at these issues. And, in fact, as I pointed out in my opening remarks, one of the exam priorities for the Division of Examinations at the SEC is going to be looking to make sure that brokers are fulfilling their best execution requirements. And as Mr. Grujic points out, in the commission-based world, you just have a different type of time.

Mrs. WAGNER. Thank you. My time has expired, and I yield back, Madam Chairwoman.

Chairwoman WATERS. Thank you. The gentleman from California, Mr. Sherman, who is also the Chair of our Subcommittee on Investor Protection, Entrepreneurship, and Capital Markets, is now recognized for 5 minutes.

Mr. SHERMAN. American wages are too low. Those opposed to unionization, progressive taxation, and other efforts to put money in the hands of working families have a solution: Tell working families to go play the stock market every day, every hour, and if you don't get rich, if you can't get by, don't demand higher wages because it is really your fault. You are a bad day trader, which is the same as being a bad person. Casinos and lotteries pay high taxes. Real investment in equities finances our economy. It is hard to see how day trading has any ascertainable social benefit.

I want to commend Dr. Bogan for pointing out that zero commissions does not mean zero cost to investors. It is correct that it just means zero disclosed costs. The main cost is the spread, the difference between the bid and the ask. And the gamification drives you to this, but also the illusion that Robinhood is able to create that there is no cost to you because there is no commission, and Dr. Bogan points out the gamification, the nudges, the confetti. And I just want to say that if you want an exciting video interface, go to GameStop and buy a video game. It is not a reason to go to Robinhood and buy GameStop.

Mr. Kelleher, thank you for pointing out that just saying investors have never had it so good is hardly an answer. I am not going to send a love letter to T-Mobile because my phone is cheaper and better than it was 20 years ago. I expect to get the lion's share of the benefits of technology. During the last hearing we had on this subject, I asked the CEO of Citadel, Ken Griffin, whether the customers of Robinhood get the same trade execution quality as customers of Fidelity, a broker that does not accept payment for order flow. Mr. Griffin twisted, turned, filibustered, and did everything to avoid giving me a straight answer.

That is why I want to commend the CEO of perhaps his number-one competitor, Virtu Financial, who went on CNBC and said, "Overall, though, during the course of a month, we will provide more price improvement to Fidelity than we do to Robinhood. Now, of course, Fidelity charges zero commissions for online trades, but Fidelity does not accept payment for order flow, so clearly we could have no payment for order flow and zero commissions. Further, payment for order flow offered by market makers was banned in the U.K. almost a decade ago, and their markets continue to function well."

Is there any reason the U.S. shouldn't take a similar step of banning any payment to brokers when they are acting as an agent for directing their order flow? Mr. Kelleher?

Mr. KELLEHER. No, Congressman Sherman. Thank you for your question. It can be banned and it should be banned. It does not mean that the intermediaries will not be well-compensated. They will still be well-compensated because they compensate it as a spread, and what it would do is if you banned payment for order flow, it would have the additional benefit of driving a lot more trading to the public markets, which now are less liquid and have less trading because so much of it is being skimmed off, about 47 percent.

We detail this in Appendix C of my testimony. Forty-seven percent of all the trading is flowing into dark, unregulated, low-investor-protection, non-disclosure markets by these internalizers, who are using legalized kickbacks and payment for order flow to retail brokers like Robinhood. And everybody is getting rich, but that money is coming from somewhere, and where it is coming from is the pockets of retail investors.

Mr. SHERMAN. And I will point out that even if I get a good execution of my trade in one of these dark pools, the country is deprived of information about that trade that would be available if we traded on a market.

Mr. KELLEHER. Exactly.

Mr. SHERMAN. I will just also point out that we live in a strange world where some people get best execution and some get price improved excess. And I yield back.

Chairwoman WATERS. The gentleman from Oklahoma, Mr. Lucas, is now recognized for 5 minutes.

Mr. LUCAS. Thank you, Madam Chairwoman, and I appreciate the opportunity to hear from our witnesses today. Mr. Piwowar, the payment for order flow process was in use when you were a Commissioner at the SEC and well before then. You suggest in your testimony that the SEC should hold a roundtable to discuss payment for order flow and its possible effect on order routing and best execution obligations. Could you explain to us what factors the SEC might weigh in evaluating if any changes should be made to the practice of payment for order flow, based on your experiences?

Mr. PIWOWAR. Yes, thank you, Congressman, for the question. What the SEC would do in that case would be to open up a public forum and to ask for public comment on it. As much as we think that the agency is staffed with experts, and they certainly are, the best available information they have is oftentimes given from market participants and investors. And through that process, what they would do is lay out all of the alternatives, ranging from keeping payment for order flow the same, to, on the other end, banning it and anything in between, either maybe changing the regulations around it, or improving disclosure around it.

And then what they would do is, once they have all of those alternatives on the table, explicitly look through the costs and benefits of each, and then choose the appropriate regulatory path forward based upon that. It may end up on one extreme or the other, it may end up somewhere in the middle, or it may end up—things have changed as they are. One of the reasons why I suggested they looked at it now is because the SEC has not done a deep dive on it since we have entered into a zero-commission environment. And so, of course, they should be looking at this in terms of how the market technologies change.

Mr. LUCAS. Mr. Grujic, you explained in your testimony that separating retail and institutional investment flows largely benefits the retail investor. Could you elaborate on why the retail investor would be worse off if both retail and institutional investors receive the same average price?

Mr. GRUJIC. Yes, I would be happy to. On the one hand, retail flow is much more benign to market makers because of its characteristics. It tends to be smaller orders. They tend to be more dispersed. They tend to be less correlated. There have been some experiences with social media, and gamification, and Reddit that have caused the behavior to be more clumpy. But generally speaking, market makers love payment for overflow, on the one hand, because of how it is unsystematic and small. On the other hand, it has been stated, and I want to speak to this, that it is dump flow, and that is why they make more money on it.

The reality is that investors do need to be educated and do need to make better and better investment decisions, but their orders will still be smaller, and because they are a larger constituent of people, there will be more diversity amongst that order flow, and institutional flow is very different. Institutional flow is often sliced up, and big flows that happen in small pieces are very adversarial to a market maker.

When I ran high-frequency trading, we could not get access to market makers. We had to go directly to the exchanges. They did not want our flow because they knew that it had certain characteristics to it that were undesirable. Those undesirable characteristics are sometimes just size. Very, very large institutional orders will continue to move markets, and it is very hard for a market maker who needs to buy and sell to be able to handle those sorts of risks.

Finally, one thing that payment for order flow does, and it works very well in a retail context, is it decreases the amount of time that a market maker is holding risk in their inventory. So when a market maker tries to make a bid-offer spread, one of the things that is not appreciated about why a market maker wants to pay for order flow is they want to find a larger chance that an order will offset one they have already put into their books. And so for all of these reasons, when you take a look at and run mathematical models, you find that the retail flow is easier to make money on than the institutional flow. And if we combine them by definition, mathematically, the average price will get worse for retail and better for institution?

Mr. LUCAS. Mr. Blaugrund, in your testimony, you advocate for the SEC to develop a system for publishing the quantity, duration, and other terms for each stock loan. Could you explain how this would benefit the securities lending market?

Mr. BLAUGRUND. Thank you for the question. The concerns that are raised around short selling need to go upstream further and understand that short positions are established with a stock loan, and right now, it is an entirely opaque part of the ecosystem. The Dodd-Frank Act asked the SEC to promulgate rules in this space. We think they have the authority to do so, and it would benefit investors and issuers.

Mr. LUCAS. I yield back, Madam Chairwoman. Thank you for the indulgence.

Chairwoman WATERS. Thank you very much. The gentleman from Georgia, Mr. Scott, who is also the Chair of the House Agriculture Committee, is now recognized for 5 minutes.

Mr. SCOTT. Thank you very much, Madam Chairwoman. Ladies and gentlemen, there are great dangers to our financial services system when non-financial, non-verified information posted on social media platforms has more market influence than what is disclosed through our regulated process. And we on this Financial Services Committee have spent years debating the standard of care for financial advisors, for broker-dealers, and for investment advisors. It was a suitability standard for the financial advisors, and then there was a movement for a fiduciary standard, and then the SEC came out with the best interest standard.

Now, regardless of where any of us on this Financial Services Committee stand, Democrats or Republicans, with regard to best interest versus fiduciary, we all agree that there should be some sort of standard, which leads me to this current situation we are in today. Where is the standard of care as it applies to Robinhood? This is not the first time that Robinhood, a broker-dealer, whose stated mission is to democratize our financial system, has failed to provide critical protection to its investors, who have suffered greatly as a result. For example, what standard of care is present when an inexperienced trader can take out $30,000 in a home equity loan to make a very speculative trade?

How, under standards of care, is this allowed? Should Robinhood question the source of funds when consumers are borrowing money on their credit cards to speculate on risky trades? Should those who post on Reddit or other social media sites be required to close when they stand to benefit from encouraging others to buy stock and drive up the price? Should the social media sites themselves be held to some kind of standard when investment advice is posted on their platforms?

Obviously, Dr. Bogan, these are rhetorical questions, and I don't expect everybody on the panel to have time to answer, but here is my point. My point remains that there is a huge hole in our regulatory structure when we are dealing with individual investors using platforms like Robinhood to trade stocks and options, and are relying on sites like Reddit for investment advice and ideas. Is it simply because the platform is considered high-tech that traditional rules put in place to protect the investors do not apply? I think, absolutely not. Dr. Bogan, please give me your thoughts on this predicament that we are in?

Ms. BOGAN. I will say that you make a very interesting point about the need for thinking about consumer protections, and I think a primary issue that we need to think about is the utilization of these behavioral science techniques to encourage users to trade in a particular direction, and these are new. This is kind of cutting-edge behavioral economics and behavioral finance, and we are just now understanding the power of it. So, I think that it is critically important to regulate and understand these user interfaces where behavioral biases are being exploited.

And I want to make a couple of points. I want to say that even knowledge of a bias is insufficient for it to mitigate the behavior of a particular user, and mistakes are made even when it is a large dollar type of transaction.

Mr. SCOTT. Thank you so much.

Chairwoman WATERS. Thank you. The gentleman from Florida, Mr. Posey, is now recognized for 5 minutes.

Mr. POSEY. Thank you, Chairwoman Waters and Ranking Member McHenry, for holding this hearing today. As many of my colleagues said at our first hearing on GameStop, our focus should be on an equity market that efficiently allocates corporate capital investment to the best-performing sectors of the economy and provides a powerful framework for risk management to those who take the entrepreneurial risk that makes our economy the best in the world.

By and large, our stock markets do achieve these goals. With due credit to the financial regulation that followed the Great Depression, we need to keep in mind that regulation, like any activity, can eventually lead to diminishing returns. We captured the big benefits from rounds of regulation after the Depression, and more modestly since then, but with the exception of maintaining vigilance over the ever-present incentives that the market has to innovate, we should be restrained in our recourse to regulation. The next round of regulation could have far fewer benefits than costs. Common sense must prevail, and trying not to be too redundant, but bottom line, Mr. Piwowar and Mr. Grujic, what lessons have you learned so far from GameStop's short squeeze, and what lessons, if any, should this committee learn?

Mr. PIWOWAR. Thank you, Congressman, for that question. This is just another example of lessons that I have learned throughout my career both in government and in the private sector is that when anything happens in the market, whether it is a flash crash on a global finance basis, or the trading activity here, or the volatility that occurred last March, is that, to use your words, we need constant vigilance in terms of innovation in the markets. The SEC has those tools, and those tools are what is called retrospective review of existing rules.

So, as you pointed out, there were statutes that gave the SEC the authority to promulgate rules. The SEC promulgates rules that work at a particular time, for a particular state of markets and technologies, and as markets and technologies change, and as innovators innovate, the SEC, of course, has to revisit those rules. That is why in the majority of my recommendations in my testimony, I suggest that the SEC go back and re-evaluate. When it comes to markets of technologies, it is particularly [inaudible] all the time. So, that is why the SEC has to go back and look at their regulations under the current market.

Mr. POSEY. Thank you. And, Mr. Grujic, do you want to weigh in?

Mr. GRUJIC. Yes, I would like to add to that that I think, exactly as we just heard, we have to try to innovate in a regulatory environment to a changing world, and this isn't just a social media effect on finance. Social media, the effect on news, the effect on politics, and the effect on finance is both, I think, empowering in that it delivers a lot more ability for people to be heard, and ability for people to hear alternative views, and for data to be synthesized for their benefit. There is a tremendous potential data benefit for people, but we have also seen some real problems. And I think that is inherent in a societal change that has not yet settled into some sort of an equilibrium.

It has been on my mind a lot. The Reddit discussions are in many ways quite worrisome. They create volatility in the markets, and volatility is generally bad. It creates all kinds of dislocations. Some of the behaviors are, probably unintentionally, actually market manipulation. When groups of people take action just to move a market price, whether it is a large player or small players, that is undesirable. There isn't a fundamental reason for doing that. At the same time, these are people that, 30 years ago, would have had to have gone to their broker and accepted that the broker knew better, and they would pay a whole bunch of money talking to that person on the phone and had no right to execute their own trades.

So the real tradeoff is that to empower people, it also creates situations where that empowerment can lead to actions we didn't anticipate. We really need to think this through, but I believe we need to move forward. I believe the changes we are seeing are in the right direction. I think we do need to start to have a balanced view on which of these are bad for markets, and bad for individuals. The game is cost-benefit. Everything we do to restrict things always has costs, and we just have to carefully weigh that against the benefits of how we are going to handle this new rule.

Mr. POSEY. Okay. My time is going to expire in 10 seconds, so I yield back. Thank you.

Chairwoman WATERS. Thank you very much. The gentleman from Texas, Mr. Green, who is also the Chair of our Subcommittee on Oversight and Investigations, is now recognized for 5 minutes.

Mr. GREEN. Thank you very much, Madam Chairwoman, and thank you ever so much for the hearing. Madam Chairwoman, I would like to submit for the record an article styled, "Trading hot stocks like GameStop seems fun until you look beneath the surface." This can be found at NBCNews.com on their website.

Chairwoman WATERS. Without objection, it is so ordered.

Mr. GREEN. Thank you. I would like to just read some excerpts, if I may. "Payments for order flow are banned in other countries, and some of those countries would include the United Kingdom, Australia, and Canada." I would also like to call to the attention of Ms. Goldstein the following: "When a firm like Citadel executes orders, it also receives valuable information on the direction of stock it is likely to take. Market maker firms handling flow get to see unfulfilled orders from customers at specified prices the market hasn't hit yet. These include a type of sell order known as a stop-loss that is triggered at a price below the prevailing market price. Knowing how many stop-loss orders are awaiting execution and at what prices signals where the floor is in a stock. It is information any professional trader would cut." And it also goes on to indicate in this article, "It is not trade by trade that matters. It is the aggregate of them all that allows you to figure out which way the market is going."

With this said, and understanding that Citadel has a disciplinary history totaling up fines of $124 million in recent years for misconduct over a 3-year period, including trading ahead of customers who were forced to pay $34 million more for their trades, and over the same period of time, Citadel realized revenues totaling $13.2 billion—$124 million paid in disciplinary fines, but Citadel had revenues of $13.2 billion. So, Ms. Goldstein, it looks to me like we can have a circumstance where taking the risk of getting caught can be built into your cost of doing business, such that you are willing to take that risk because of the possibility of having such great gains. Would you care to comment on this, please, ma'am?

Ms. GOLDSTEIN. Congressman Green, thank you for the question. I agree with you completely that too often, I think, violations of the law are treated merely as the cost of doing business, and I think that there are a number of things that we could do to avoid that in the future. One of the things that the regulators could do, for example, is to eliminate no-fault/no-penalty settlements where they don't require the firm that they have taken the enforcement action against to admit any wrongdoing. Another thing, and this is something I believe that you yourself have looked into in some of your legislation, is to go after not just firms, but individuals.

One thing you could do, for example, is create an attestation, either for the CEO or other executives or the board of directors, that there is some particular wrongdoing that they are also responsible for and they may face criminal penalties. And I would just flag that there are two other things that the regulators could look at, and that would be implementing Dodd-Frank Section 954 or 956. Section 956 had a rule proposed that was never implemented, prohibiting incentive-based arrangements that the agencies determine encourage risk taking. So, I think there are a lot of things that the regulators could do to help prevent recidivism by firms.

Mr. GREEN. Thank you. A quick follow up, it seems to me that knowing the direction the market is moving in, having the ability in high-frequency, high-speed trade to enter the market, take advantage of that, knowing that you have clients that are following you that are going to buy into it, gives you the opportunity to literally commit what I see as a fraudulent act, because you know what you are going to be able to pay for it, and you also know by going ahead of your clients, which is not permitted under these circumstances, you now get to buy and sell in such a way as to defraud your clients. Your thoughts?

Ms. GOLDSTEIN. Congressman, I think it is a good question. Citadel and other market makers undoubtedly have huge amounts of data as a result of the orders that they receive, both the ones that are executed and the ones that are canceled, and I think regulators should look very closely if there have been subsequent violations like the one that you identified where Citadel was, in fact, found to be trading ahead of its customers. I hope they continue to scrutinize them.

Mr. GREEN. Is this a form of self-dealing? You can say yes or no.

Ms. GOLDSTEIN. I think that is a question for the regulators.

Mr. GREEN. Thank you.

Chairwoman WATERS. Thank you. The gentleman's time has expired. The gentleman from Missouri, Mr. Luetkemeyer, is now recognized for 5 minutes.

Mr. LUETKEMEYER. Thank you, Madam Chairwoman. My first question is for Mr. Blaugrund. In my opinion, the market self-corrected itself on multiple occasions throughout the events in January surrounding GameStop. I asked this question of the last witnesses in the last hearing, and I have since talked to lots of folks involved in the financial services world with regards to these issues, and they seem to agree with that. Institutional investors overly shorted GameStop, and retail investors were able to take advantage of those extreme short positions. In addition, Melvin Capital and Robinhood were both in need of capital infusions and found it through the private markets. Mr. Blaugrund, from your seat at the New York Stock Exchange, do you believe the market was largely able to correct itself throughout the events in late January?

Mr. BLAUGRUND. Thank you for the question, Congressman. Certainly, the market infrastructure performed in a very resilient, very stable, very predictable fashion, which I think is critical for investor confidence, and I would agree that there were no systemic issues that were presented. I do think, however, and I think the existence of multiple hearings on the topic suggest, that there was a fascination with what happened with these particular stocks, and that in and of itself is a cause for concern if it erodes investor confidence. So while we have the best markets in the world, there is always an opportunity to further perfect them.

Mr. LUETKEMEYER. In response to that, yes, it is an unusual situation, but I think my question is, because it wasn't a usual situation, we are having these hearings to see if there was a problem here, if there is something we need to do, was there fraud, was there somebody else doing something illegal or wrong? And yet, the system appeared to work in that the retail investor saw an opportunity to see an overly-shorted stock to bring the pendulum back, so to speak, and the companies that had overly shorted were able then to find money in the markets to shore themselves up. I think it shows that there is some resilience there.

And to that point, SEC Commissioner Allison Lee recently wrote in a letter in response to Senator Warren, "It does appear that our core market infrastructure has proven resilient through these recent events", as my colleagues and I have noted, "To date, the Commission staff are not aware of any structural issues resulting from the recent significant volatility in price of certain stocks that indicate a disruption of core market infrastructure." So, Mr. Piwowar, would you agree with the statement that the market infrastructure remains resilient?

Mr. PIWOWAR. I would, but I definitely have not seen any problems with the market infrastructure. But as this pointed out, that doesn't mean we can rest and assume that it is going to continue to work in the future. And so, one of the things I put forward is that we should look at whether we want to think about shortening the trade settlement cycle.

Mr. LUETKEMEYER. I have some questions on that, but to me, as an outsider looking in, when you have a stock shorted 140 percent, to me, that is a problem. You have more stock shorted than there is stock available. Do you think we need to limit the number of shares that can be shorted, or do we limit the number of times a share can be lent to allow this rollover to be able to get to 140 percent to stop this? To me, this will be a way to fix the problem versus other extraneous things. To me, the market actually worked here. People saw an advantage, that somebody was doing something wrong and jumped in and took advantage of it. Now, we have some guys who literally got taken to the market on it. So, would you like to respond to that?

Mr. PIWOWAR. Sure, thank you. I think well before the SEC looks at either limiting short selling or looking at potential limitations there, I agree with Mr. Blaugrund, we need to start to upstream. The short-selling market relies on securities lending. And to your point, the same shares can be lent out multiple times, and you can end up with the odd situation where the short interest exceeds the number of shares that are outstanding. Right now, with that securities lending market, the SEC could go in and gather up information on an ad hoc basis and try to piece together what it looked like in the past, but it doesn't have real-time information. It doesn't have consolidated information.

And so, before we start directly looking at limitations on short selling, I think we need to address the opacity issues in the securities lending market, and the SEC does have authority to do that. And so my suggestion would be, first, let's gather the data, and then, based on data, we can make additional policy decisions going forward.

Mr. LUETKEMEYER. To me, with the number of times that you can lend a share, it seems like you have a situation that is ripe for musical chairs with your money there. My time is up, so I yield back, Madam Chairwoman.

Chairwoman WATERS. Thank you. The gentleman from Missouri, Mr. Cleaver, who is also the Chair of our Subcommittee on Housing, Community Development, and Insurance, is now recognized for 5 minutes.

Mr. CLEAVER. Thank you, Madam Chairwoman. I apologize. I am medically indisposed, but I didn't want to miss this hearing, so thank you. Let me associate myself with the comments of the gentleman from Missouri, Mr. Luetkemeyer—the chairwoman has titled this committee hearing today, "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide?" And so, let me ask this to Ms. Goldstein. In that whole scenario of short sellers, retail investors, and social media, when there is a collision, when there is some congestion, who wins and who loses, and is that predetermined?

Ms. GOLDSTEIN. Congressman Cleaver, thank you for the question. I am also sorry to hear you are indisposed. I hope you feel better soon. I think when all of these forces clash, generally, the largest Wall Street players are typically the ones who come out on top. I used to work at Morgan Stanley. They had incredibly profitable days when there was volatility. The same was true at Merrill Lynch. They just have these certain inherent structural advantages, not just over retail traders, but even over smaller Wall Street players. And I think Citadel Securities, in particular, is becoming a larger and larger force in the marketplace, so it is not just the large banks. But I think Citadel Securities, in this particular situation, has profited quite well because they take up such a large portion of the retail order flow.

And I think one of the things that the CEO of Citadel, Ken Griffin, said the last time he came before this committee was that when no one else could provide liquidity, Citadel was there, and I think he was very proud of that. But I think that actually raises questions about Citadel's systemic significance to the financial system.

Mr. CLEAVER. Okay. Thank you for your response. And this is for any of our panelists, shouldn't Congress be irreversibly committed to ensuring strong investor protections and making sure that we maintain a fair financial system? Are any of the panel members in disagreement with that?

Mr. KELLEHER. I think you have hit on a bipartisan unanimous view.

Mr. CLEAVER. Yes, because I agree with every question, every statement that Mr. Luetkemeyer just made, not just because he is from Missouri, but because I think he is right on target. So you understand or you would agree, I believe, that we need to do something, that there is some legislative cure to prevent this from becoming an unfair financial trading system, that we have to protect investors? And if you agree with that, put yourself in my seat. What do you do think we ought to do?

Mr. GRUJIC. I would like to add my thoughts here, if I could. I absolutely agree that we need a framework and regulations that protect society and individuals. I also think there are a couple of things to carefully consider with my theme of feeling, my experience of there being tradeoffs here, is that financial markets are more than just the activities within those markets. They are an information signaling and capital allocation mechanism. We have to be very careful about any frictions we put into the markets. Even if they achieve certain positive results within the context of the structure of the markets, they will decrease information signaling, and they will decrease some of their efficiencies to the wider economy if we are not careful. So, those are some of the costs and benefits.

The other side is that technology is very empowering. We should, in our approach to financial markets, look for all kinds of different ways that technology can deliver information, analysis, and empowerment for retail investors. There is a tremendous opportunity here to dig into that to level the playing field, because the last thing I just want to say is, an individual has a very hard time having the same capabilities as an institution, but technology can bring them closer to having those capabilities.

Mr. CLEAVER. Thank you very much. Thank you, Madam Chairwoman. I yield back the balance of my time.

Chairwoman WATERS. Thank you. The gentleman from Michigan, Mr. Huizenga, is now recognized for 5 minutes.

Mr. HUIZENGA. Thank you, Madam Chairwoman. And first, without objection, I would like to submit the following articles for the record: A Wall Street Journal article from March 16, 2021, titled, "Instant Settlement May Not be Gratifying for All"; a Greenwich Associates report titled, "The Impact of Zero Commissions on Retail Trading and Execution"; and a February 16, 2021, Cadwalader Cabinet memorandum: "GameStop: Regulators Should Focus Less on 'Solving the Problem'; More on 'Improving the Situation.'"

Chairwoman WATERS. Without objection, it is so ordered.

Mr. HUIZENGA. Thank you. I appreciate that. Let me start there. It seems like some of my colleagues would maybe like to return to a pension system where someone else controls the investments, and you get a guaranteed outcome no matter what, versus sort of the more individual responsibility that we now see. Well, that is just not reality.

And the "accredited investor" definition has been touched on. I have to tell you, I know some accredited investors whom I wouldn't have invest $10 of mine, because these people—I would never call them "dumb", but they are "un-smart." And they may have just fallen into it from a family or from whatever else, but these are not people who should be investing their own money, much less my money. And I know some people who are not accredited investors who are wise, who are smart, who are temperate, and to whom I would give my money, and I think they ought to have that ability.

And what it seems like we are having here is this debate about whether we are going to have access, and that really is part of it, and gamification has been pointed to and blamed in many ways. I am here watching the Business Channel while we are in the middle of this hearing, and I have to tell you, I counted—there were seven different moving parts on that screen at one point, seven. Ten years ago, that would have given us all a headache. Now, we expect that kind of thing.

I have kids who are millennials, and I love movies. I think they ought to go see some of the classics, and 30 minutes into it, they will be saying, "This is boring. You thought this was exciting, right?" Expectations have changed. The same is happening with their own investments. We shouldn't be looking at investing as something that only grandma and grandpa do. It should be approachable, and accessible, and safe, and we have to make sure that we are distinguishing between eye candy and malicious intent. And what I am hearing a number of folks talk about is that eye candy equals malicious intent, and that simply isn't the case.

So, Mr. Piwowar, I do have a question for you on sort of that subject. While you were at the SEC, and to your knowledge, has the SEC ever regulated advertising style or product delivery platforms?

Mr. PIWOWAR. Thank you, Congressman, for that question. There are certain advertising rules that the SEC has with respect to things like past returns and investment performance, say, in mutual funds and things like that. But to your question directly on one platform itself, no.

Mr. HUIZENGA. Advertisement, right, not too many blinking lights, not too much movement, no confetti. That is not something that has to do with materiality, correct?

Mr. PIWOWAR. That is not something that we looked at when I was at the Commission.

Mr. HUIZENGA. Okay. I have a couple of things I want to hit on. The financial transaction tax (FTT), the payment for order flow versus a rebate system, that maker/taker system, and then also the T+3 going to T+2 to T+1, so let's see if we can get to those. Mr. Grujic, what would be the effect of a financial transaction tax?

Mr. GRUJIC. The benefits would have to be defined. The cost would be that it would increase, obviously, the cost of transacting. That would decrease the number of transactions and the liquidity in the market. That is just an effect of having any kind of a friction. So, you would get some amount of decreased liquidity, some amount of decreased transactions, and some amount of loss of signaling of optimal prices because there would be certain price points at which people wouldn't participate because the tax would price them out. The size of the tax matters.

Mr. HUIZENGA. Okay. Mr. Piwowar, while you were at the SEC, did they ever do a study on this?

Mr. PIWOWAR. On financial transaction taxes? No, but when I was in the White House during the Obama Administration, I was asked to do a memo to some senior advisors, and based upon that memo and some other information, they decided not to pursue a financial transaction tax for the reasons that Mr. Grujic pointed out.

Mr. HUIZENGA. I suggest you trot that back out. With that, I yield back. Thank you.

Chairwoman WATERS. Thank you. The gentleman from Colorado, Mr. Perlmutter, who is also the Chair of our Subcommittee on Consumer Protection and Financial Institutions, is now recognized for 5 minutes.

Mr. PERLMUTTER. Thank you, Madam Chairwoman. Mr. Huizenga was talking about classic movies, and this whole GameStop thing reminds me of two classics. One is, "The Sting", and the other is, "The Producers." In, "The Sting", somebody had a little information earlier than the rest of the folks and was able to parlay that into some wins, and, "The Producers" was about overselling a position.

So, I want to start with overselling a position. Mr. Kelleher, in the previous hearing—and I think Mr. Luetkemeyer was right on point, and I really want to understand this area—I asked Mr. Plotkin of Melvin Capital whether his firm was ever naked short selling on GameStop stock, and he said, "No, the systems won't even allow that. That would be impossible for us to do." And according to a report from Bloomberg Government, which analyzed the SEC data, $359 million of GameStop shares failed to deliver or be covered, suggesting many of the shares had been borrowed more than once. I think Mr. Plotkin's testimony was truthful, but can you explain what is happening when so many shares fail to deliver?

Mr. KELLEHER. Sure. Thank you for your question. The current regulation only requires broker-dealers to have a reasonable, or institutions to have a reasonable ground to believe the security can be borrowed so that it can be delivered on the delivery date, so it is a reasonable belief. Now, I don't know about Mr. Plotkin's system, although it sounded like a pretty good system when he said it, which is, he says, unless his firm has identified, in fact, the security and to have a deliverable, it doesn't even allow them to short a position, but that is not actually the law as I understand it. As I understand it, it is a reasonable belief that people can have a lot of reasonable beliefs. And we had massive failures to deliver GameStop stock in January, so not only do we have a short position that exceeds about 140 percent of the available float at the time, but then subsequently, we have a massive failure to deliver those securities at the time of delivery.

And I am sure, as Mr. Piwowar said earlier, that the SEC is looking carefully at this, and I would expect their report to provide us with a lot more information. But as of right now, the publicly-available information certainly indicates that there is a very high likelihood of some abusive short selling by somebody.

Mr. PERLMUTTER. Okay. So, let me ask you this. Mr. Luetkemeyer talked about sales, 140 percent of existing shares, how does that happen?

Mr. KELLEHER. In the securities lending business, it happens because somebody lends a security to somebody, who lends it to somebody else, who lends it to somebody else. It goes by the technical name of, "rehypothecation." And what it does is, you have this cascade effect where you, in fact, have the same security lent out multiple, multiple times, and then, arguably, you have short sellers having a reasonable belief at a period in time that that is the security they could reasonably deliver at the delivery date. The problem is that security has now moved to somebody else, who also has a reasonable belief that the very same security is the one that he or she can deliver. The way the system works now, it is almost a house of cards.

I agree with several of the witnesses who said one of the things that needs to be understood and disclosed at a much more granular level is not only the activities of the short sellers, but we need to have greater disclosure and granular knowledge of what is happening in the securities lending market.

Mr. PERLMUTTER. Thank you for that answer. Let me go to something else that is kind of old time. In Colorado, years ago, we faced dealing with penny stocks and manipulation of the market with penny stocks. And what we are dealing with here in GameStop and some of these others is very low-dollar value, initially, kinds of stocks. Is there any limit to when something is delisted? Mr. Piwowar, I don't know. Should GameStop have been on the pink slips at some point?

Mr. PIWOWAR. Thank you, Congressman, for that question. I may also defer to Mr. Blaugrund for this because the choice of listing standards and delisting of stocks, as long as they meet all of the SEC disclosure requirements, based on the price, is up to the exchanges themselves. And they have very nice parent rules on those sorts of things, so I would leave that up to the exchanges to comment on that.

Mr. PERLMUTTER. Thank you, Madam Chairwoman. My time has expired. I yield back.

Chairwoman WATERS. The gentleman from Ohio, Mr. Stivers, is now recognized for 5 minutes.

Mr. STIVERS. Thank you, Madam Chairwoman. I appreciate this hearing and a chance to ask some questions. My first question is for Mr. Piwowar. Let's kind of set the table, Mr. Piwowar. Can you sort of help us understand—everybody is talking about protecting consumers and retail investors. In this GameStop example, didn't the retail investors win?

Mr. PIWOWAR. Thank you, Congressman, for that question. We know there was a lot of trading in the security. We know there was a lot of retail-sized orders in the security. We know that for every transaction, it is a zero-sum game, so there is a winner and a loser. I am not sure we have data in terms of who the net winners and losers were. We certainly had a situation where retail investors were empowered with full information about the risks of the securities and full information about the price of the securities at any point in time. And some were probably winners and some were probably losers.

Mr. STIVERS. Sure, so let's dig in a little more. There are some legitimate issues around this, including settlement time, and T+2 forces some of the broker-dealers, including the folks like Robinhood who have an app, to put up collateral and capital based on the time to settlement. If we were to shorten the settlement to T+1 or not quite instantaneous, but T+ something less than a day, would that have resulted in less capital required by Robinhood, and would it have then resulted in allowing some of those retail investors, whose opportunities to have a buy order were cut off, to keep buying the stock?

Mr. PIWOWAR. In a short answer, yes, and, more importantly, it would have taken additional risks out of the system. The longer the settlement cycle, the more market risk, counterparty risk, liquidity risk that you have from failures to deliver. So, one side of the trade doesn't get the securities or the cash delivered, and maybe the market has moved against them, and there is an adverse selection problem that is there. And then also, systemic risk is taken out of the system to the extent that you have a large number of delivery failures within the clearinghouse across a number of brokers.

But as you shorten the trading and settlement cycle, I think, as Mr. Grujic pointed out, you also run the risk of, if you try to get too close to real-time settlement, you potentially have the operational risk. And the reason for that is you have to have multiple systems that have to be operating at exactly the same way. In terms of why are we at T+2, well, I will raise my hand. It was me. When I was acting Chairman of the SEC, I brought us from T+3 to T+2. At that time, 4 years ago, going from 3 to 2 based on cost-benefit analysis was the easy regulatory lay up or slam dunk, whatever analogy you want to use. But we also recognized in our final rule that technologies change, markets change, and it would probably get to the point where we should probably move to T+1, potentially consider real-time settlement, although I think that it is probably a bridge too far.

So in the final rule, we directed the staff to conduct a study of potentially moving to T+1, also looking backwards and seeing what were the benefits exactly of T+2, and do an updated cost-benefit analysis to see if it was time to move forward. That study was due to the Commission back in September. I have publicly called for them to release that study. Congressman McHenry and Senator Toomey sent a letter to the SEC to release that study. So, I think this is definitely something they should put out in the public domain and we should have a debate about.

Mr. STIVERS. And for sure, we are closer to being T+1, maybe not real-time settlement because there are some issues around that, but T+1 would have helped solve this problem. Let's take another step backward, Mr. Piwowar, about retail investors and the fact with some of these new apps and with zero-commission trading and partial-share trading, you are seeing more retail investors have an opportunity to get into the markets. Isn't that a good thing?

Mr. PIWOWAR. Yes, to the extent that their brokers are complying with all of the Federal securities laws, absolutely it is a good thing. And there is often a comparison made to the fact that retail investors, on average, when they trade on their own, maybe overtrade a little bit, or maybe do not do as well as if they were to put their money into passive index funds.

Remember, first off, that is an average. There are some investors that do quite well and some that don't do so well. There is also the opportunity for younger Americans to learn that maybe they have an aptitude for trading, or maybe this is a career for them, that they otherwise would not have expected. Maybe 10 years from now, we will be seeing somebody interviewing the top hedge fund manager on CNBC, and they ask, "Well, how did you learn to trade?", and the answer is, "I learned to trade from one of these trading apps and found out I had an aptitude for it."

So, there are a lot of benefits, and then also, obviously, for saving for retirement. People learn over time from their mistakes and then maybe move into more [inaudible] investments that are better for them. But there is no substitute for learning.

Mr. STIVERS. I yield back.

Chairwoman WATERS. Thank you.

The gentleman from Connecticut, Mr. Himes, who is also the Chair of our Subcommittee on National Security, International Development and Monetary Policy, is now recognized for 5 minutes.

Mr. HIMES. Thank you, Madam Chairwoman, and thanks very much to our witnesses. This is a very interesting conversation. And I am really excited to follow up on Mr. Stivers' line of questioning. He asked, "Didn't retail investors win?", and Mr. Piwowar had a view of that, and I want to explore that a little bit, because I really think an education here is important, so I want to devote a couple of minutes to that.

Are retail investors winning when they trade on any platform? And let me be very clear so that nobody lights themselves on fire right now. I certainly support the right of people to do what they want with their money. I can go to the window behind me and peel out $10 bills and throw them out the window. I can drive 20 minutes and be in a casino where I know I will lose money, a little bit more slowly than throwing it out a window, but assuredly, I will lose money. So, look. We are a free country. People have a right to do what they want. But that is not what we are talking about here. What we are talking about is investing in savings. I keep hearing people say that this is about building wealth and saving for education. So, I want to figure out whether what we are talking about here is saving and investing or whether it is gambling, which was a word that was sort of—somebody cacheted on that word.

By the way, I think we may be a little complicit in this. We were all excited—let them trade, let them trade, we said, and we featured Mr. Keith Gill, a retail trader known as, "Roaring Kitty", or something, who apparently made some money.

But I have reviewed the literature here. There is no ambiguity. I have looked at the academic studies. I won't list them all but DALBAR has one out there, and Barber and Odean. It is very, very clear what happens when retail investors trade a lot.

Mr. Kelleher, in terms that the folks watching at home can understand, what happens when retail investors trade a lot?

Mr. KELLEHER. They lose, and they lose consistently, and they lose because they are paying more for every single one of their orders because we have an order-routing system that is intentionally complex and designed to extract the maximum amount of wealth from the retail investor.

Mr. HIMES. I get that, Mr. Kelleher—sorry, let me interrupt. Thank you. That is what I thought you would say. But it is not just the structure of the system, right? When you look at the literature, retail investors lose because of a whole series of human biases, because they do not have teams of Ph.D.'s studying the stock that they are buying, right?

Mr. KELLEHER. Absolutely. It is like saying, let's send the local Little League team up against the New York Yankees or the Boston Red Sox or the L.A. Dodgers. Frankly, you have these institutions that have maximum informational advantage, maximum technological advantage, maximum sophistication. They get to use all of that that they have paid billions for, for the purposes of extracting wealth.

Mr. HIMES. Right. And Mr. Piwowar is not wrong, correct? There is going to be a distribution curve here. There will be some people who get lucky or who are at the narrow end of the curve or who do win. But on average, retail—again, for the folks at home, the more a retail investor trades, the less well they are going to do, from an investment and savings standpoint, right? There is no ambiguity in the literature about that, is there?

Mr. KELLEHER. None at all.

Mr. HIMES. Okay. So this leads me to my second question. Mr. Tenev, who runs Robinhood, annoyed me a little bit, because he told this committee that his customers made $35 billion. Mr. Arnuk, you are a trader. If I told you that last year my portfolio made $3,500, would you be impressed?

Mr. ARNUK. No, I wouldn't, and what is really interesting about the individual anecdotes is that everyone has an anecdote. I have a young man who is very close to my family, who called me up saying that on Robinhood, he bought a certain stock much higher, and he asked for my advice on what he should do. And he asked me specifically, "Should I put out a put?" And I said, "Do you even know what a put is? Do you know how to trade options?" And he said, "Yes, I am able to trade options." I said, "What is a put?" He said, "It is when you put out stock for sale."

So, the very problem here is that we have a broker-dealer that has abandoned its education and its suitability requirements, and it has done so because it has this massive incentive to do so.

Mr. HIMES. Thank you. I appreciate that. By the way, do any of the witnesses quibble with the conclusion that I think I have been able to tease out here, that the literature shows that lots of trading by retail investors is really not going to be a wise investment strategy in the aggregate? Do any of the witnesses dispute that?

Okay, hearing none, look, let me be clear again here. I believe that Americans should have the right to do with their money what they will, but—and let me close, Mr. Arnuk, since you are an investor, what is a smart strategy for a retail investors who actually want to make money and save and invest successfully?

Mr. ARNUK. I don't know if I should answer that. They should add a dollar cost average monthly into Vanguard index funds, and buy and hold.

Mr. HIMES. Thank you. I yield back the balance of my time.

Mr. SHERMAN. [presiding]. The gentleman's time has expired. I now recognize Mr. Barr from Kentucky.

Mr. BARR. Thank you, Mr. Chairman. I have to say, this is an interesting conversation, and what I hear in some of the testimony is, I do detect a paternalistic hostility to what I consider to be the foundation of our free markets, and that foundation is the freedom to take risk. It is paternalistic, because I hear an elitist sentiment that only sophisticated, highly educated, or institutional investors know what they are doing, and governments should intervene to restrict commission-free trading to protect retail investors from themselves, that government knows best and retail investors are simply not smart enough to allocate their own capital for themselves. I think there is hostility, because it sounds like some of the witnesses want to pull risk-taking completely out of the system. Let's be honest, that is code for doing away with free market capitalism.

Now, this is the second of what is expected to be a three-hearing episode on this topic. The Majority has concocted a series of villains in this saga. First, it was the hedge funds, who supposedly collaborated and colluded with Robinhood. Then, it was the practice of short selling. Then, it was payment for order flow. Now, it is the so-called gamification of investing, as if creating user-friendly platforms that attract wider swaths of investors is a bad thing. Provided that no securities laws are broken or consumer protections are compromised, it is not the role of Congress or regulators to dictate the constructs of a user experience. If investors like the platform, it will succeed. If they don't, it won't.

Mr. Piwowar, how might additional poorly tailored regulations on financial technologies like app-based investment platforms slow the expansion of retail investor participation in the capital markets?

Mr. PIWOWAR. Thank you, Congressman Barr, for that question. One of the concerns about slowing down access for retail investors is the equitable access. What impact will it have on low-income households who are already put at a disadvantage from the accredited investor definition?

And if I may just address—I think it was the straw man argument brought up by Congressman Himes, there is not this world where people are putting all of their money into a Robinhood app and trading all of their portfolio all the time, or they are putting all of their money into a Vanguard index fund. What we see is that a lot of investors are very sophisticated. They put some of their money into passive index funds, low cost, and then take a little bit of it and try to create a little bit of [inaudible] and see how good they are at it. And some—

Mr. BARR. Mr. Piwowar, that is a very good point, and I think we shortchange the intelligence of some of these retail investors when we just assume that they are not diversified.

Let me ask you another question about payment for order flow. Would restrictions on payment for order flow or an outright ban on payment for order flow impact price improvement for retail investors, and if so, what would that impact be?

Mr. PIWOWAR. The first likely event we are going to see is that we are going to return to commission-based trading. Free-commission trading would go away, again a [inaudible] impact. And to the second point, we are back in a world where there is another conflict of interest, and that is the turning of accounts in order to generate commissions. It has been said that there is an incentive to generate revenue by more trading for payment for order flow. That same incentive exists in a world where you have commission-based trading. And in a prior part of my career, I actually worked as an expert witness on behalf of plaintiffs who were arbitrating against—broker customers [inaudible] arbitration for turning accounts. And so, again, that is another thing that just has to be monitored for compliance.

Mr. BARR. I don't have time to ask the question to Mr. Grujic again, but I think his point about forcing a combination of retail and institutional flow will have a negative impact on price improvement for retail investors, and I think that stands repeating, and an unintentional consequence of excessive restrictions on PFOF.

Final question, Mr. Piwowar. Mr. Kelleher and some of the other witnesses have argued today that existing best execution requirements do not sufficiently address what they consider to be conflicts of interest associated with payment for order flow. Do you agree, and has payment for order flow in any way cancelled broker-dealers' duties to route customer orders to achieve best execution?

Mr. PIWOWAR. The answer to your last question is no, they have not cancelled that. What I have said in my testimony is that of course the SEC should revisit its best execution rules in light of zero-commission trading. Best execution is a multifactor, multidimensional thing that the SEC looks at, and so markets evolve, technology evolves. Of course, the SEC has to consider that.

But there has been no diminishing of it. In fact, the SEC vigorously enforced its best execution rules.

Mr. BARR. Thank you. My time has expired. I yield back.

Mr. SHERMAN. Thank you. I ask unanimous consent to put in the record a 2016 report from the Charter Financial Analyst Institute which found that following the UK's ban on payment for order flow in 2012, the portion of retail site trades executing at the best quoted price went up substantially.

Without objection, it is so ordered.

And I now recognize Mr. Vargas, my colleague from California.

Mr. VARGAS. Thank you very much, Mr. Chairman, and again, I want to thank all of the witnesses for being here. I heard a speech toward the beginning of this hearing that we Democrats want to, "enhance inequalities." I always find that an amazing and staggering quote when my good friends on the other side of the aisle give a $1.9 trillion tax giveaway to the wealthiest Americans. I always find that interesting, and the other notion that somehow we are paternalistic and we should allow people to trade and be able to do all of these things, which I agree with, but, here we have a defined benefit plan in Congress, where we can't make those decisions. So, I always find that interesting.

Now, there seems to be an inherent conflict in this payment for order flow that the retail investors get the worst execution, and I will quote some of the statements made here today: "It is really a wealth extractor for the few." "Legalized kickbacks coming from retail investors."

So, Mr. Arnuk, should we prohibit payment for order flow? We just heard something put into the record by my good friend, Congressman Brad Sherman. Should we prohibit it?

Mr. ARNUK. Thank you for the question, Congressman. I absolutely believe we should ban payment for order flow in all of its forms. It distorts order routing. It distorts order routing on exchanges. It distorts order routing and best execution in the off-exchange markets as well.

Consider this: Robinhood, with its carrot of payment for order flow, has a duty to get best execution, as well as the suitability I referred to earlier. But to get that best execution, they would need to access the 20 percent of New York Stock Exchange midpoint orders that are the 50 percent of the orders and trades that take place in the market that are odd lots, which are predominantly what so many of the Robinhood traders are trading due to their small account size.

Yet, why can't Robinhood do that? Because they aren't even connected to any of the exchanges. The only relationships that they have developed are wholesaler relationships where they receive payment for directing orders to high-speed market makers uniquely tooled to profit over those orders.

Mr. VARGAS. Thank you. Mr. Kelleher, do you disagree with anything that you just heard from Mr. Arnuk?

Mr. KELLEHER. No. He is exactly right. And, in fact, I would go a little bit further. The Congress doesn't have to ban payment for order flow. The SEC should take the position right now that payment for order flow violates, or facilitates the violation of the best execution duty. We know, for a fact, that today about 47 percent of all trading is happening off exchange, in dark, unregulated markets. None of that flow goes to the public exchanges. And we also know that the trading in those exchanges gets worse execution than they do on the public exchanges. And what has happened over time is this artificial construct of best execution based on what is called the National Best Bid and Offer (NBBO), on the exchanges.

So they are claiming, and Mr. Tenev said in the last hearing, "We got price improvement. We do great for our customers." According to what? It is according to the NBBO, but the NBBO only reflects about 40 percent of total orders, in the least liquid market that there is at the time right now, which is the LIT markets. And Mr. Arnuk is right. It doesn't include odd lot and it doesn't include, by the way, hidden trades, also 20 percent of the market.

So what they are saying is, we do great things. You can look at this. We do price improvement. We do better than the NBBO. But both of those benchmarks are misleading, if not intentionally false, and the SEC should take the position that that violates the duty of best execution today.

Mr. VARGAS. Let me ask Ms. Goldstein, would you agree?

Ms. GOLDSTEIN. Congressman, it is a great question. I think that there are a number of ways to approach this problem. I think you could prohibit payment for order flow. I also think that you could ask that brokers have to pass on payment for order flow to their customers, or allow their customers to opt out of payment for order flow.

I don't know that there is a single solution for how we address this, but I do think that it needs to be addressed, in some way.

Mr. VARGAS. Let me go to Mr. Blaugrund. You represent an exchange. Should we prohibit it?

Mr. BLAUGRUND. I think there is a real public interest in having the broadest set of market participants interact with one another from an order flow perspective. That being said, I think the SEC has announced their plans to study the question of whether payment for order flow is consistent with best execution obligations, and we look forward to reviewing their findings.

Mr. VARGAS. I yield back.

Mr. SHERMAN. I see our chairwoman has returned, and I am happy to return the gavel to her. Madam Chairwoman?

Chairwoman WATERS. One moment please.

Who is up next, Mr. Chairman?

Mr. SHERMAN. It has been suggested to me, at the request of one of our witnesses, that we take a 5-minute break. We can do that or we can move on.

Chairwoman WATERS. Without objection, let us take a 5-minute break. Thank you.

[brief recess]

Mr. SHERMAN. [presiding]. The Chair has asked me to continue to preside, and I believe our break is over. I now recognize Mr. Williams from Texas.

Mr. WILLIAMS OF TEXAS. Thank you, Mr. Chairman. I am very concerned that there is going to be a Federal overreaction to this whole GameStop saga. CBOE's Volatility Index, better known as the VIX, has historically been used to gauge fear in our capital markets. When this number is approaching record highs, people are uncertain on the direction of how that market will move, and investors, quite frankly, get nervous.

Just one year ago, in March 2020, the VIX reached an all-time high of 82, and the Dow Jones proceeded to crash by 26 percent.

On January 28th, the day that we have now dedicated two full committee hearings towards, and with more plans in the coming months, the VIX was in the 30s and the change in the overall market barely even registered.

So, while a few stocks such as GameStop may have seen some historic individual metrics in January, none of these individual securities appear to have posed a systemic risk to the markets as a whole. Rather than pursuing radical changes to our capital market structure, we should be looking at the very tailored issue that prevented retail investors from placing trades on securities that day, when they wanted to.

Mr. Piwowar, can you discuss your views about how changes to market structure should be done, and if it makes sense for Congress to step in now instead of waiting for the SEC to study that issue and go through a thorough rulemaking process with a cost-benefit analysis?

Mr. PIWOWAR. Thank you, Congressman, for that question. Having served both on the staff of the Senate Banking Committee, and at the Commission, I feel like I can address this question.

Because markets and technologies change all the time, I believe the SEC is better-positioned to look at these changes and put it through their cost-benefit analysis. The SEC is bound by statute, by a number of statutes, to take into account the costs and benefits of various alternatives that are out there, including the baseline scenario of what the existing situation is, for example, shortening the trade settlement cycle. The current situation is T+1, and they could evaluate that through the lens of cost-benefit analysis and say, well, what would be the relative cost and benefits of going to—we are at T+2, what would be the relative cost and benefit of going to T+1 or T-zero, and explicitly look at this.

It's the same thing in payment for order flow. They could look at likely effects. They can get the benefit from market participants, investors, and academics, and take all of that information and address their regulations accordingly, within the broad context of the Federal securities laws. That does not mean Congress doesn't have a role here. I think you all have a very important role here. To the extent that you think any of these market structure or market infrastructure policy changes should be prioritized by the Commission, I believe that would be an important role for this committee to try to come together and find consensus on what are the two, three, or four most important areas for the SEC to focus on. Because, as you know, you have given them a broad mission, with broad authorities, sometimes, for prioritizing those.

Mr. WILLIAMS OF TEXAS. Okay. Thank you for that. [Inaudible] Americans be able to put some of their hard-earned paychecks in the stock market and have the same ability to succeed as any large institutional investor. Unfortunately, many Americans believe that the system will always be rigged against them and they have no way to compete against the big players, after watching this situation play out. Whether that view is warranted or not, we need to be working to continue to empower the retail investors.

So, Mr. Blaugrund, I know there have been a lot of conversations around access to market data. Can you talk about the New York Stock Exchange and what it is doing to get better market data into the hands of the average American looking to make more informed investment decisions?

Mr. BLAUGRUND. Thank you for the question, Congressman. NYSE publishes market data through the Consolidated Tape, which is an industrywide utility, and also through proprietary market data products. All of these products are filed with the SEC, available broadly, and according to a standard rate card.

In general, the retail community consumes market data through the Consolidated Tape, which has largely kept prices steady for many years. The retail investor typically has their market data paid for by the broker, and it costs about $1 a month. Market data is now consolidated in a matter of about a dozen microseconds by NYSE and NASDAQ systems, and then rebroadcast to the retail community.

Mr. WILLIAMS OF TEXAS. Thank you for that answer, and, Mr. Chairman, I yield back.

Mr. SHERMAN. Thank you. Mr. Lawson of Florida is now recognized.

Mr. LAWSON. Thank you, Mr. Chairman, and Chairwoman Waters, and I welcome all of the members to this panel today. This question I have is for the whole panel. Citadel Securities reportedly handles almost as much trading volume as NASDAQ. Further, Citadel [inaudible] traded along with the market maker were two financial account products, more of the overall equity market than the New York Stock Exchange. With respect to Citadel, some have raised concerns about a single market maker managing such a large volume of retail order flow, and what that means in terms of pricing. Why does Citadel have such dominance in financial markets that it imposes a systemic risk to our entire U.S. financial system?

Can you all speak more on these concerns?

Mr. PIWOWAR. Congressman, this is Mike Piwowar. Having served as acting Chairman and sat on the Financial Stability Oversight Council and met with the other principals and the deputies and looked at sources of systemic risk, I don't have any concerns that the Citadel market-making business poses any systemic risk to the system, and the reason for that is even though they are a dominant player right now, we have to look at what would be the scenario if they failed. And the concerns that we have for systemic risk ultimately go to cascading failures, and what we really ultimately worry about is whether the banks fail, because they are [inaudible].

In the case of Citadel Securities, if their market-making function were to cease, let's say, tomorrow, what would we see? Well, we would see that there is an incredible amount of competition within that industry among market makers. And we would see that those market makers would come in and compete very quickly to capture that market share, and due to technology, they would be able to scale up very quickly at low cost in order to do that.

So, I don't see any systemic problems with the Citadel—

Ms. GOLDSTEIN. Congressman Lawson, may I offer a differing view?

Mr. LAWSON. Go ahead.

Ms. GOLDSTEIN. I believe that there are a lot of questions about systemic risk of Citadel overall and Citadel Securities. One thing that is important to do would be to look back a decade. Citadel Securities actually tried to become an investment bank in 2008, and one of the things that reports and analysts said at the time is that they had certain regulatory advantages over the large U.S. banks, because as a hedge fund and a market maker, they are not overseen by the Federal Reserve, and so there was no one looking at the holistic risk across all of Citadel's firms.

They gave up on their dream of becoming an investment bank in 2011, and they shifted to retail trading, which people on Wall Street widely see as easier to profit from, quite frankly. Whether that is right or wrong, that is the perception on Wall Street. And Mr. Griffin, the CEO of Citadel, said, in his written testimony to this committee that, "When no one else was able to provide liquidity, Citadel was there", and he has really talked up their dominance in the marketplace.

And so, I don't know that it is an open-and-shut case. I do think that there are risks of interconnection. I think there are questions about liquidity, and I do think that the FSOC should investigate it.

Mr. GRUJIC. I would like to add that as a market participant, I see the market makers as highly competitive and there is excess capacity, and I think the removal of Citadel, even though the largest, would have very little impact as someone looking to execute in the financial markets. And also, liquidity is not a point in time; it is a continuum. So when Citadel makes statements like, they were the only ones there, perhaps they were the only ones there at the very, very best price, but an incrementally worse price was available from other market makers.

So, I would concur with Mr. Piwowar that the impact of Citadel stopping trading tomorrow would be minimal to the execution quality we receive.

Mr. KELLEHER. I don't think there is any circumstance under which Citadel Securities is not a systemically significant firm, and FSOC should investigate it. In addition, the SEC should not exclude companies like Citadel from Regulation SCI (Systems Compliance and Integrity), which is supposed to have resilient infrastructure. And the SEC inexplicably excluded broker-dealers like Citadel from that regulation and those requirements.

So, there is a risk on the infrastructure side, and there is a risk on the systemic institution side. For anybody to say that if Citadel shut down today, even for a day, that means 26 percent of all U.S. equities volume, in 8,900 listed securities, would stop. It executes 47 percent of all U.S. listed retail volume. It represents 99 percent of the traded volume of 3,000 listed options. To say that the system would work perfectly fine if all that evaporated today and competitors came into the market, that may ultimately happen, but until it ultimately happens, you are going to have a systemic event, and to deny that is to deny reality.

Mr. LAWSON. Thank you.

Mr. SHERMAN. The gentleman's time has expired. I now happily return the gavel to our chairwoman.

Chairwoman WATERS. The gentleman from Arkansas, Mr. Hill, is now recognized for 5 minutes.

Mr. HILL. Thank you, Madam Chairwoman, and let me say that both of the hearings that you have convened on this important topic have had excellent witnesses, and the hearing discussions are among the best I have seen in my service in Congress.

I would first like to ask unanimous consent to insert two letters for the record. The first is a March 19, 2021, letter from a coalition of organizations interested in our tax system, in opposition to the imposition of a financial transaction tax. And the second letter is dated March 17th, from the Security Traders Association, also in opposition to a securities transaction tax.

Chairwoman WATERS. Without objection, it is so ordered.

Mr. HILL. Thank you, Madam Chairwoman. This has been, as I said, such a very interesting discussion. I really appreciate the extensive discussion we had on securities lending. I think the committee took away good information there that we can ask the Commission to follow up on. And I think we have had a lot of discussion about best execution and the obligations under best execution, that it is a mandate on the part of all market participants, and that the SEC, in their exam process in this current period, will be looking at that as a special exam focus. Those are helpful points.

Dr. Piwowar, there were a couple of points made that I thought I would get your comments on. Mr. Sherman asked about the ultimate cost, which, of course, in a retail trade is the spread between the bid and the ask. There is no doubt about that in a non-commission world. Does the competition among market makers, under payment for order flow or not, really improve that spread and thus lower the cost to retail investors?

Mr. PIWOWAR. Thank you, Congressman, for that question. We do have some insight into that. As some people have mentioned, there is some transparency on this issue, so the SEC requires each of the market makers to file an execution quality report in the language of the SEC Rule 605 reports.

So we can see, for example, Citadel is the one that comes up—we can see for them, or any other market maker has to put out their statistics, and we can look at things like the speed of execution for various order types and what is called price improvement for those various order types. But we can actually see, measured against the NASDAQ offer whether, in fact, they are offering net price improvement, whether they are executing at the spread or whether they are executing outside the spread.

Mr. HILL. Yes, that is helpful. And also, Mr. Sherman talked about the LIT market, those quotes that go across an exchange, but as noted by our friend from the New York Stock Exchange this morning, all quotes are presented at retail in milliseconds, whether they took place off the exchange or on the exchange. Is that correct?

Mr. PIWOWAR. That is correct.

Mr. HILL. Yes. Thank you. I also was concerned—my friend, Mr. Green, from Texas, made some comments about Citadel, and had obviously some discussion just a moment ago about Citadel Securities. And I was curious as to your views about the separation of businesses owned by Citadel. Mr. Green's allegation—and I do not want to put words in his mouth—is that somehow, Citadel could use the information that they garner from being a market maker, payment for order flow, understanding the stop-loss position, and a number of names, and somehow prey on that information over at Citadel's hedge fund. Really, I found that shocking. That is against the law, is it not, Dr. Piwowar?

Mr. PIWOWAR. Absolutely, it is against the law. The SEC has put in place a number of restrictions, and so, effectively, the hedge funds and securities market making divisions at Citadel have to operate separately. The SEC regularly examines to make sure that they have put in place proper protections in there, and if they find that any firm is violating those, they will vigorously enforce them.

Mr. HILL. Yes. Thank you. Mr. Grujic, I really appreciated your testimony. I really enjoyed learning about your company today. We had a lot of discussion about the sales practices of Robinhood in the previous hearing. Quickly, could you address your policies on low-dollar stocks, not penny stocks, but even if they are exchange-listed, what your position is there and how you qualify your investors for either options or margin on your platform.

Mr. GRUJIC. We don't yet offer options on our platform. I have a lot of experience trading options and we are thinking through how to best do that. We have taken note of the issues that have occurred at Robinhood and general [inaudible] with retail investors accessing options.

Mr. HILL. Thank you, Madam Chairwoman. I may submit some additional questions for the record. I want to thank the panel for their participation, and I yield back.

Chairwoman WATERS. Thank you. The gentlewoman from Iowa, Mrs. Axne, is now recognized for 5 minutes.

Mrs. AXNE. Thank you, Madam Chairwoman, and thank you, witnesses, for being here today. My husband and I have a digital design firm, so one of the areas that I have been focused on in regard to this is some of the newer brokers having designed their platforms and how they have done that.

Dr. Bogan, you have done some tremendous research in behavioral finance. Just a quick question to start, can app design influence what decisions people using that app make?

Ms. BOGAN. Thank you for the question. Absolutely. App design and the way the platform is designed and the user interface can influence the type of decisions that a retail investor makes, almost on an unconscious level. And I want to make a clear point, there is a difference between retail investor access, which is great and provided by appropriations; retail investor environment, which kind of is ease of use; and retail investor manipulation, in that there are certain behavioral science techniques that are used to trigger investors to behave in a particular way that may not be in their best interest.

Mrs. AXNE. And that is why Robinhood has behavioral researchers, correct?

Ms. BOGAN. I can't speak to why they have behavioral researchers, but I can say that some of the features of their platform have been shown in research to elicit particular behaviors, like more trading. For example, they have a list of kind of the most popularly traded stocks. That brings attention to particular types of stocks, and we know from the research that just having attention to particular stocks increases trading in those stocks, whether or not it is in the best interest of the investor to do so.

Mrs. AXNE. So as you mentioned, it increases trading, and do you think that encourages savings and investment or do you think that just encourages greater tendency towards more trades?

Ms. BOGAN. Yes, there is a difference between investment and trading. Just trading multiple times a day for trading's sake, the research is very clear that is never in the best interest of a household. Buy and hold is the conventional wisdom. And so, buying is fine, but this multiple trading and turning portfolios has never been shown to be beneficial to a retail investor.

Mrs. AXNE. I appreciate that. I am especially concerned about this given the fact that Robinhood's incentives are so heavily weighted on making sure that their users trade more, because that is what puts money in their pocket.

Mr. Arnuk, Robinhood has said that if its payment for market makers like Citadel is based on a percentage of bid-ask spread, can you explain why that is different from other firms and how that incentivizes Robinhood to have their users trade wider stocks or even riskier products, like options?

Mr. ARNUK. Thank you for the question. I really appreciate it. The first thing we should notice is that 92 percent of Robinhood users' trades are outside of the S&P 500, which is to say that they are in stocks where the spreads are 5 times as wide as they are for the S&P 500. These are wide-spread stocks.

At some point, in late 2019, Robinhood understood this and renegotiated the way they collect payment for order flow from the other market makers. It has always been a fixed mil per share, in other words, 15 mils per share, or 20 mils per share. That is how it has always been done. But presumably because Robinhood noticed the trading patterns of its users, they negotiated to instead receive a percentage of the spread. So, this is an amazing misalignment of interest.

The Robinhood trader wants the stocks they trade to have the smallest spread as possible, the market maker who is buying the orders wants the spreads to be as wide as possible, and Robinhood, their agent, the broker, wants their spreads to be as wide as possible. I think that is fantastic in a negative way.

Mrs. AXNE. Massachusetts found that 68 percent of Robinhood's options-approved users in the Commonwealth had limited or no user experience. When you talk about the options and the risk of the spread there, what do you think is going to be the outcome for 99 percent of these users who don't have the experience and getting into this type of market?

Mr. ARNUK. It is going to be unfavorable, and in the end, if you look at the average account size across different retail trading platforms, the average account size at E*TRADE may be $250,000. At TD Ameritrade, it is $150,000 or $110,000. At Robinhood, it is $5,000. And they are outsized trading options. And while spreads in stocks are wide—I yield back.

Mrs. AXNE. Thank you so much.

Chairwoman WATERS. Thank you. The gentleman from New York, Mr. Zeldin, is now recognized for 5 minutes.

Mr. ZELDIN. Thank you to the witnesses for being here, and to Chairwoman Waters and Ranking Member McHenry for holding today's hearing. I represent the First Congressional District of New York, which encompasses much of Suffolk County on Long Island. My home district is full of people from all walks of life, and industries, so having access to cost-efficient investing is crucial.

Mr. Piwowar, a lot of my constituents were concerned with the inability to buy certain stocks when some broker-dealers placed limits on trading those stocks. And the main reason why this happened is because many broker-dealers had to post additional collateral to comply with capital requirements at clearinghouses. You have written about shortening the trade settlement period to both increase efficiency and lower the cost of investing. Can you speak a little bit more to how using technology to shorten the trade settlement period could benefit retail investors and limit the potential for broker-dealers to have to impose restrictions on certain trades?

Mr. PIWOWAR. Thank you, Congressman, for that question. Yes, the shorter the trade settlement cycle—a couple of things. One, investors get access to their cash sooner, or their securities; and two, the less margin that brokers have to post at the Depository Trust & Clearing Corporation (DTCC) in order to guard against failures to deliver. So, it takes a number of risks out of the system, as I mentioned, counterparty risk, market risk, credit risk, and liquidity risk, as well as systemic risk of cascading list of failure.

Shortening the settlement cycle would provide those benefits. Again, going to real time, it possibly increases operational risk to make sure everything works correctly. So, what we need to do is find the right balance.

Mr. ZELDIN. Thank you. It is also important that the data privacy for these investors is protected against any potential vulnerabilities. At the first hearing in this series, back in February, I asked Ms. Schulp from the Cato Institute whether we should be concerned with companies with ties to the Chinese Communist Party (CCP) investing in broker-dealers operating in the United States. She responded that it is a potential national security concern and that the rules that the broker-dealers have to comply with regarding user data should be applied equally to broker-dealers, no matter whether the parent company is a U.S. or foreign company.

I have been concerned for some time, in general, with the sharing of U.S. individual user data with the Chinese Communist Party. I sent a letter, for example, to the Treasury Department in October 2019, expressing concern with the potential sharing of U.S. user information by TikTok to its parent company, ByteDance, and asked for a CFIUS review.

Additionally, yesterday I urged Treasury and Commerce to take immediate regulatory action against companies with ties to the CCP, that have the capability to acquire Americans' biodata, specifically by sending letters to Treasury Secretary Yellen, urging her to direct the Committee on Foreign Investment in the United States (CFIUS) to reassess the Chinese company BGI's acquisition of Complete Genomics, and to acting Secretary of Commerce Wynn Coggins, urging her to place all of BGI's subsidiaries on the Department's entity list.

Chinese companies are required by law to regulate online behavior that deviates from the political goals of the CCP, obey the CCP's censorship directives, and participate in China's espionage. These policies regulate companies like TikTok in the China market, and increasingly, their overseas business.

I remain concerned that broker-dealer trading appropriations that are subsidiaries of Chinese companies with ties to the CCP like Weibo, which has significant investment from Xiaomi, have not received enough regulatory scrutiny, and cause data privacy concerns for U.S. retail investors.

Mr. Piwowar, I think these issues are particularly timely to discuss in light of the upcoming U.S.-China meeting in Alaska. This isn't the first time Chinese investors have tried to buy into our capital markets. You were an SEC Commissioner in 2018, when the Commission rejected the proposed acquisition of the Chicago Stock Exchange by a Chinese-led group of investors. Can you speak a little to the concerns the SEC had at that time?

Mr. PIWOWAR. Yes. Thank you, Congressman. As you mentioned, there was a Chinese-led investor group that wanted to buy the Chicago Stock Exchange. It had passed CFIUS review and it came to the Commission, and under our State, there are certain prohibitions and limitations in terms of ownership of the exchanges, to make sure that we are protecting investors and that they are fulfilling all of their obligations.

All we did was simply ask questions about who their investors were, and very quickly, some of those investors fell away, and in other cases, they were not able to provide us with answers that made us comfortable that they would, in fact, be able to fulfill their duties under the Federal securities laws. So, that was the basis for us rejecting that application.

Mr. ZELDIN. Thank you. I yield back.

Chairwoman WATERS. Thank you. The gentleman from Illinois, Mr. Casten, is now recognized for 5 minutes.

Mr. CASTEN. Thank you, Madam Chairwoman, and to all of our witnesses, I want to echo what my friend, Mr. Hill, said. This has really been an exceptional hearing. I have been learning a ton.

Mr. Arnuk, you made a comment in your opening remarks that really struck me, and I want to make sure I understood this right, if I scribbled it down right. You said the spreads become narrower when Robinhood's servers go down. That is a heck of a statement. Can you explain that in a little more detail, and to the degree you have any confidence on whether that is a correlation or a causality?

Mr. ARNUK. Thank you for the question, Congressman. When Robinhood would have a technology outage, those retail orders would not go to off-exchange venues and would come back to the exchanges. And when those orders came to the exchanges, not surprisingly, more order flow migrating to the exchanges with narrow spreads.

First of all, that meant that the retail investors who are trading through any other app are getting narrower spreads and better price improvement and an improved experience and less cost, but it also means that the rest of the market—the institutions, the pension funds, the mutual funds—that really represent 90 percent of the long-term investors, are able to interact with that order flow on the exchanges, and that order flow, for the same reasons that the market makers want to monopolize it just for themselves, when it is participating in a diverse environment on a public sunlit exchange, the best outcome accrues to everybody, with those narrower spreads and less toxicity on the exchange.

Mr. CASTEN. That is really helpful, and as I am sure you saw, last month when Robinhood's CEO Vlad Tenev testified before us, he said that Robinhood customers received more than $1 billion in price improvement in the first half of 2020. Can you just tell us briefly, is price improvement a proxy for best execution?

Mr. ARNUK. No, not at all. Thank you, again. Price improvement is an arbitrary calculation. It is based on a construct that we created, the National Best Bid and Offer (NBBO). It does not include odd lots; 50 percent of the orders and trades on the exchanges are odd lots, and the NBBO does not include those, and those odd lots are in between the spreads. It doesn't take into account hidden orders on the exchange. Exchanges have hidden midpoint orders. It doesn't take into account dark-pool midpoint orders.

There is a whole mess of liquidity that demonstrates that the best available price is certainly not the NBBO. So to say that, I price-improved the NBBO by X, I don't care—$1 billion, $2 billion, $3 billion in aggregate, it rings false. It is not the truth.

Mr. CASTEN. I want to then get to a more general question, and it is not just about Robinhood, but again, that is why we are here. As you mentioned in your exchange with Mrs. Axne, it was really remarkable, about the trajectory of Robinhood shifting from flat rates to a percent of the spread payments for their payment for order flow.

But in his testimony, Mr. Tenev not only acknowledged that point but said that in their options market—this may be true in equities as well—but he said in their options business, they categorically do not route trades to anyone with whom they do not have a payment for order flow agreement.

So without speaking to Robinhood generally, if you are a brokerage that is earning your revenue as a percent of the spread, and you are only routing trades to people with whom you earn payment for order flow, is there any universe where that is consistent with actually fulfilling your best execution obligations?

Mr. ARNUK. Absolutely not. They have no mechanisms to trade directly on any of the numerous venues that exist to trade. Dark pools exchanges, these cost money, and apparently Robinhood is more interested in the revenue side of their business model than actually incurring costs where they can fulfill their duties to seek best execution, the best prices everywhere.

Mr. CASTEN. Mr. Kelleher, I have 30 seconds left. Is there anything you would like to add to what Mr. Arnuk has said?

Mr. KELLEHER. No. He is exactly right. Frankly, the SEC could consider taking fraudulent action for people who claim price improvement off of NBBO, because it is, at best, misleading, if not a fraudulent claim, and knowingly so.

Mr. CASTEN. Thank you, and I yield back.

Chairwoman WATERS. Thank you. The gentleman from Georgia. Mr. Loudermilk, is now recognized for 5 minutes.

Mr. LOUDERMILK. Thank you, Madam Chairwoman. I appreciate all of the witnesses being here. And I want to associate myself with Mr. Hill's comment earlier, which was regarding the content and the discussion that we have been having in these two hearings. I think it has been very informative. It has been very interesting, the content, and I think these are discussions that we should be having.

Now, with that said, in the first hearing on this topic I raised concerns about the fact that some of my colleagues on the other side of the aisle were using this situation with GameStop as an opportunity to push for more regulations, even before we had all the information in. Now it is ironic, because regulation is exactly what paused the trading with Robinhood in the first place.

As I mentioned that, the chairwoman responded and said that no one is calling for more regulations at that time, but I had already known at the time that some had been asking for regulations, and obviously we live in a political era to where a crisis can't go without using it to do something. And as we know, Elizabeth Warren and others are using this issue to demand a laundry list of new regulations on options trading, payment for order flow, short selling, even a devastating financial transaction tax that would require the average person to work 2½ years longer so they can recover.

We all know in a free market system, which truly investing is within that free market, especially when you bring in the average consumer, they know that there is a risk involved. The greater the potential profit that you can make, or the return, the greater the risk you are going to have. That is just the basis of the market, any free market system. And so we have to be very cautious as we are going forward in trying to make a risk-free environment with high returns. It just doesn't work in that environment.

In fact, I know of several people who have never been involved in the stock market, but they took their stimulus money, as several were working, and they said, "Look, I don't need the stimulus money, but I know that eventually the government is going to tax it back from me, so I will, at least, start making some money. I can't make any money by investing in a savings account because interest rates are so low. Money markets are useless." So they have opened these trading accounts, and they are actually using some of the stimulus money to invest. And they are concerned about some of what is going on.

These calls for more regulation, I think are ill-advised and premature, for multiple reasons. The witnesses at the first hearing said the markets are not broken, and the SEC Chair and SEC Commissioners have said that core market infrastructure has been resilient through all of this. What's more, the SEC is looking into these events, and so far has not indicated that there was market manipulation. Adding more regulations would now be like a judge handing down a sentence before any charges are actually filed.

Mr. Piwowar, can you describe how options trading, payment for order flow, and short selling are already regulated by the SEC and other agencies?

Mr. PIWOWAR. Yes. No, they are highly regulated. Short selling, there are a number of requirements that—I will take them one at a time. Short selling—the SEC has done a number of things to prohibit what is called abusive short selling, the illegal short selling, things like naked short selling, not locating or borrowing the securities before short selling. Regulation SHO, which was passed in 2004, and putting on not only obligations to make sure you deliver those shares but actually putting on the penalties for those, to the brokers themselves, not to the individual. So, it was an interesting way they dealt with that, and the number of fails to deliver went way down.

Now again, that was 17 years ago. Is that a rule that the SEC should possibly revisit? Absolutely, they should be doing that.

Options trading also is highly regulated by the SEC. There is a dedicated team within the Division of Trading and Markets that oversees just the options market, and the Examinations and Enforcement teams also have individuals who monitor for noncompliance and wrongdoing in those markets.

And I apologize. Was there a third one that you asked about?

Mr. LOUDERMILK. It was the short selling and order flow, payment for order flow.

Mr. PIWOWAR. Payment for order flow. Yes, that is another one where the SEC has regulations on that. We talked extensively about the best execution obligations. Of course, they should revisit whether they are working well in here. Of course, they should revisit the transparency of payment for order flow. Some of the witnesses have talked about the fact that some of the measures of price improvement in the 605 statistics are not perfect. Rather than just throw them out and say we can't use them, I would take a different approach. Why don't we make them more transparent and more useful for investors so that we can actually see how much improvement is actually being given in the markets?

Mr. LOUDERMILK. My time is up. I will submit the other questions for the record, and I yield back.

Chairwoman WATERS. Thank you very much. The gentlewoman from Massachusetts, Ms. Pressley, is now recognized for 5 minutes.

Ms. PRESSLEY. Thank you, Madam Chairwoman, for convening this hearing, and I thank all of the witnesses for joining us here today. I represent the Massachusetts Seventh Congressional District, which, like all districts across the country, is reeling from the economic impacts of this pandemic. In Massachusetts, since February 2020, over 200,000 fewer people are employed, children in 12 percent of households do not have enough food to eat, and many of the smallest businesses have permanently shuttered their doors. Research shows that following the 2008 recession, gambling in cheap lottery tickets increased among those who continued struggling financially.

In this economic recovery, I am concerned that Robinhood has positioned itself well to take advantage of this trend but with much higher stakes from my lowest-income constituents. Robinhood boasted the platform is democratizing finance for the benefit of everyday Americans, positioning itself as the great equalizer of capitalism. Meanwhile, it is running targeted advertisements on social media that say, "Millions of people will soon begin receiving stimulus checks. As you consider whether to spend, pay down debt, or save, we want you to be prepared," with a link back to their own blog, which says that, “Never investing at all is a missed opportunity.”

Many of my constituents now just have a $1,400 stimulus, or what I call survival check, in their bank account to get them through months of expenses, and are positioned to lose hundreds of thousands of dollars in options trading if they take that gamble.

Ms. Goldstein, what do you make of these targeted advertisements under the guise of promoting financial literacy? Is Robinhood really increasing its own profits by attracting new users after many existing users left the platform due to the trading halt in GameStop?

Ms. GOLDSTEIN. Congresswoman, I have seen the same advertisements you are talking about. I keep getting them over and over again, in fact. And I do think that Robinhood—there was a survey that was done by Fortune in the wake of Robinhood freezing trading in GameStop and other main stock names, and they found that about half of their users were considering leaving Robinhood for another brokerage in the wake of that. So, I absolutely think that Robinhood is looking to attract a new user base that hasn’t previously perhaps participated in the financial markets, to account for what I suspect is a large amount of users that they lost as a result of freezing trading in GameStop.

And I should just flag that I disagree with the assessment that regulation is the reason that Robinhood froze trading or that the clearinghouse capital requirements are the reason. Most major brokerages have very serious, dedicated teams that evaluate the risk and the capital that they need to put forward every day, and I suspect it may be Robinhood’s inability to manage its own risk and not the fault of any regulation.

Ms. PRESSLEY. Okay. Providing an opportunity for people to make informed investments in part of their financial planning is not a bad thing. However, targeting the vulnerable Americans who are receiving Federal relief during a pandemic suddenly is. And this is not the solution to their hardship.

Ms. Goldstein, Robinhood proposes that turning everyday Americans into day traders is democratizing finance, but you have written that the real solution to breaking the power of finance is to rebalance the recession-wracked economy. What does democratizing the economy really look like?

Ms. GOLDSTEIN. Congresswoman, I think it means that we need to rebalance our economy so everybody isn’t struggling or looking for the next gold rush scheme in order to pay their rent if they are facing eviction. I think you have been a real leader in this space, and so has the chairwoman and so has Representative Adams and many others who have called on the President to cancel student debts through executive authority. I think there are a lot of different ways that we can tackle this problem.

But I think one thing that we should think about, and you all, as policymakers, can think about, is there is no way to save for retirement right now that doesn’t give a cut to Wall Street. Unless you buy a savings bond or unless you are rich enough to purchase a municipal bond, we always have to give a cut to Wall Street if we want to save for our future. And 47 percent of Americans have no exposure whatsoever to the stock market, and so they are not going to be able to use Robinhood to try and make some wealth for themselves. And I think we need to come up with other solutions in order to figure out how we can build wealth, and there are a lot of potential solutions. The American Rescue Plan is a part of it, but I think we need to do much more, and I thank you for your leadership on the resolution on cancelling student debt.

Ms. PRESSLEY. Thank you. I have tons of ideas: canceling student debt; Federal job guarantee; baby bonds. One thing is for sure, we need to be investing in people and in jobs, and thinking about transformational, bold policies, and that is what I will continue to push for to close the wealth gap and to create opportunities in our communities.

Thank you for being here today.

Chairwoman WATERS. Thank you very much. The gentlelady yields back. The gentleman from West Virginia, Mr. Mooney, is now recognized for 5 minutes.

Mr. MOONEY. Thank you, Madam Chairwoman. In the aftermath of the market volatility in January, acting Chair of the SEC, Allison Herren Lee, released a statement saying that the SEC would, "act to protect retail investors when the facts demonstrate abusive or manipulative trading activity that is prohibited by Federal securities laws."

So my question is for Mr. Piwowar. Will you discuss the types of fraud that are currently prohibited and detail the breadth of securities laws that govern manipulation and false statements?

Mr. PIWOWAR. Thank you, Congressman, for that. I am not sure I can address all of them in 5 minutes but I will maybe give you an overview of some of them.

One is you cannot trade on material nonpublic information in the breach of a fiduciary duty. So, that would be insiders having information that they are using to disadvantage retail investors. You cannot engage in manipulative trading activity, and that can take the place of doing, for example, the typical pump-and-dump schemes, where people put out into the marketplace and the internet, wherever, false and misleading information that would paint a rosy picture of a particular company, trying to increase the share price after they have already bought the security. So, they pump up the securities and then dump their shares at the high price, leaving retail investors holding the bag afterwards.

You cannot engage in other manipulative trading activity, in the case of very high frequency trading. You cannot do spoofing and those sorts of things to give the appearance that you are providing liquidity and pull that away in order to induce traders to trade in those sorts of things.

There are all kinds of different securities laws that protect investors. I will also note that the SEC's Enforcement Division has a specific enforcement group dedicated to market abuses, and it is one of, actually, the most effective and most productive enforcement teams at the SEC in rooting out these abuses.

Mr. MOONEY. Quick follow-up, Mr. Piwowar, you indicated in your testimony that you had confidence that the SEC is well-equipped to identify and act upon market manipulation as it relates to the GameStop case. Is that correct?

Mr. PIWOWAR. Absolutely correct. One, they have the authority to do it, and two, they have an incredible enforcement staff, particularly the market abuse team is very good at looking at these. There is not only the enforcement staff in Washington, D.C., but also 10 different regional offices across the States are looking into this.

Mr. MOONEY. Okay. I just want to say, listening to the interviews from some on the left, you might not realize that the SEC already has the tools to go after market manipulation. Instead, you hear accusations, like those from Senator Elizabeth Warren, that our capital markets are rigged for the rich and powerful. If anything, the GameStop case is an example of how lots of small retail investors can bet against a large hedge fund and win. It is not a rigged market. It is a free market.

So when I hear some of the so-called solutions offered by my friends, my Democratic colleagues, that they put forward, I am reminded of the quote from the great Milton Friedman: "Many people want the government to protect the consumer. A much more urgent problem is to protect the consumer from the government."

As we hear these proposals from Democrats on these panels, I just think we should ask ourselves, will this actually help retail investors? A couple of questions, like, would restricting or banning payment for order flow really help retail investors that benefit from no-commission trading? Would a financial transaction tax benefit the retail investors that would be forced to pay it? The answer to both of those questions is no.

So, instead of using January's market volatility to advocate [inaudible] protect investors from these attempted, failed, so-called solutions that will do more harm than good.

Thank you, Madam Chairwoman, and I yield back.

Chairwoman WATERS. Thank you. The gentleman from New York, Mr. Torres, is now recognized for 5 minutes.

Is Mr. Torres on the platform?

[No response.]

We are going to move on to Ms. Adams. The gentlewoman from North Carolina is now recognized for 5 minutes.

Ms. ADAMS. Thank you, Madam Chairwoman. Thank you very much. And thank you to all of the witnesses as well.

Mr. Blaugrund, did the markets operate the way they were supposed to, or are there some fundamental vulnerabilities that have been exposed? From the vantage point of the stock exchanges, where, if any, are the existing weaknesses within the system?

Mr. BLAUGRUND. Thank you very much for the question. I think, as the SEC reported and as a number of the panelists have noted, the core market infrastructure operated very well. It is very resilient. It is very available. From the exchange's perspective, our job is really to do four things: ensure continuous price discovery; facilitate risk transfer; regulate our members' activity in the market according to exchange rules and securities laws; and ensure compliance of listed companies with their continued listing standard obligations. All of those functions operated well.

However, it certainly is the case that the retail investor experience was uneven across retail brokerages, and it is the case that for a listed company like GameStop, you are left with a lot of confusion about how a modern market structure could result in your stock having such volatility in such a short period of time.

I think when we look at potential reforms for the marketplace, there are a couple of relatively low-hanging fruits that we can focus on that would have significant benefits and reasonably low impacts in terms of unintended consequences.

Ms. ADAMS. Okay. Thank you, sir. Let me move on. Ms. Goldstein, I would like to bring up the problematic use of forced arbitration by both financial institutions and tech companies. Section 921 of the Dodd-Frank Act gives the SEC the authority to limit or restrict forced arbitration, which currently is overseen by FINRA. Should the SEC use this authority under Dodd-Frank to examine whether it makes sense to curtail forced arbitration for gamified investment companies?

Ms. GOLDSTEIN. Congresswoman, thank you for the question. Absolutely, I do think the SEC should take a long-overdue action to restore investor choice and make sure that we are prohibiting forced arbitration and prohibiting class action bans. There is a lot of talk in the discourse right now about cancel culture, but I like to think about forced arbitration as cancel culture for companies who try to cancel the victims of crimes by silencing them and putting them in arbitration and not letting them speak their voice in a court law and tell their truth. They don't have a right to appeal, and it is this secretive process that, in my opinion, tries to cancel their own customers.

So I absolutely think that the SEC should do whatever it can to restore investor choice and prohibit forced arbitration.

Ms. ADAMS. Thank you, ma'am. Do you believe the current arbitration process works, or should the SEC step in and exercise its authority under the Dodd-Frank Act when it comes to FinTechs, in particular?

Ms. GOLDSTEIN. Congresswoman, I think that arbitration can work for some people, but it is by no means a guarantee, and I do not think that companies should be forcing their customers into arbitration without having the choice of going to argue their case in a public court of law if they choose to do so. I think it should be up to the customer, and I don't think that companies should be forcing them into arbitration.

Ms. ADAMS. Thank you very much. Madam Chairwoman, I yield back.

Mr. SHERMAN. [presiding]. Thank you. Our Chair is voting now and has asked me to take over and recognize Mr. Davidson of Ohio.

Mr. DAVIDSON. Mr. Sherman, I thank you, and I thank our witnesses for your explanations. We are all reading through your comments and drawing our own conclusions. I don't know if we will have moved any closer to consensus, but I hope that we will look at some important work done about blockchain.

On the day of our first GameStop hearing, I sent a letter to the Depository Trust & Clearing Corporation (DTCC) to request a status update on two of their internal projects, Project Ion and Project Whitney. These projects explore the potential future use of blockchain technology within our capital market infrastructure. Last week, I received a response from them, and I would just like to take a second to thank DTCC for their ongoing transparency with me and with my staff. Between their response to my letter and their February 24th White Paper, I am optimistic that we will find a solution to improve upon our current capital market infrastructure. I look forward to continuing our ongoing conversations with the issue and hope to expand that with colleagues.

When you talk about market structure, Mr. Piwowar, you are clearly an expert on the cycle, and as we talk about the clear feasibility of moving from T+2 to T+1, even to T-zero, could you differentiate between, say, T-zero and same-day settlement as an example versus real time, and basically focus on netting. Why is that something people focus on? You could be same-day and do it real-time or you could be same-day and do it in a netted effect. Could you explain that?

Mr. PIWOWAR. Thank you, Congressman. And I think some people refer to that as same-day, but allowing meeting would be like T+1/2, or something like that, as I think people are talking about it.

What happens is you have multiple market participants bringing a number of transactions to the clearinghouse, and they can clear those on a gross basis, which means they have to clear every transactions that is there. And that would be hundreds of billions of dollars.

But what the clearinghouse can do to improve the efficiency of doing this is to net some of these trades. So, for example, if you and I are two market participants, maybe we are algorithmic traders and we have two orders that are of the same size and happen to be the same price, we can net those out and not even have to clear—I am on one side and you are on the other. And there are ways to do partial netting and those things, and it introduces a lot of great efficiencies to the system.

Mr. DAVIDSON. Thank you for that, and I understand some of those efficiencies are similar to a sweep account; there is no benefit beyond the one day, in terms of intraday for a lot of things. But there are times where it does make a difference. One of the key things is custody, and part of the challenge is, how do you prevent multiple claims to the same shares? As Mr. Perlmutter highlighted, clearly, when you have that gap you had people promising the same shares to multiple parties, and that is what you can clearly do with real time. Do you think you can get there if you settle for anything less than real time?

Mr. PIWOWAR. There are a couple of points there. One is, we talked about the rehypothecation situation in securities lending, and I think that is where there is consensus among the panel members here to getting greater transparency into that market and to look at whether there are any regulatory actions that need to be taken there.

In terms of T+1/2 or T+1, this is where the SEC should put this out for comment. There are competing costs and benefits on both sides of this. One issue that has not come up in this hearing, that I have pointed out in my Wall Street Journal op-ed and in other places is that the SEC, once you get the T+1 or same-day, the SEC can't do this alone. You also have to get the bank regulators involved, because we need to make sure the cash gets there, and now you are bringing in the bank-regulated payment system, PCH. Add to that, what about foreign currency transactions for cross-border trades? That has to be settled.

So it's not something that you can't overcome, but this is one where the SEC is going to have to coordinate with the bank regulators to make sure that all of these pieces fit together.

Mr. DAVIDSON. I thank you for that, and I will say that the blockchain coupled with the payment system, smart contracts, could settle all that without an intermediary. And I think that, at scale, is the question, and we may be a ways out from that.

I want to highlight just the SEC suspending trading for certain shares based off of essentially social media posts. You talked about stocks that are not paid much attention to. With the democratic access to capital that is happening because of FinTech, because of technology broadly, and because more people are looking at doing it, essentially the SEC is saying, well, we are going to intervene, and just because a stock gets more attention, we can suspend that. I think that is a dangerous thing for them to filter. Just because a stock starts getting attention, they are going to close off the market access.

I wish I had time to explore this, but the ramifications for the SEC doing that are really big. It essentially says they are going to impose a value range, and when you deviate from that, it is a problem.

Thank you, and I yield back.

Mr. SHERMAN. Now, I yield 5 minutes to Ms. Tlaib of Michigan.

Ms. TLAIB. Thank you so much, Mr. Chairman, and thank you all so much for being here.

Mr. Kelleher, I know that earlier, you had testified that our markets are the envy of the world, and I think, to quote you, you said they are, "transparent, well-regulated and policed." We have heard a lot from my colleagues across the aisle that retail investors should have more access to markets, like private equity. So, Mr. Kelleher, did you know that the private equity industry controls more than 8,000 companies in the United States? That is more than double the number of companies publicly traded on the U.S. stock market.

Mr. KELLEHER. Right. The premise of much of the discussion so far has been that—

Ms. TLAIB. I have questions related to that.

Mr. KELLEHER. Sorry.

Ms. TLAIB. I have questions related to that. I just wanted you to be aware, as I am asking some of the questions. But across the country [inaudible].

Mr. KELLEHER. I am not actually able to hear what the Congresswoman is saying.

Mr. PIWOWAR. I can't hear it either.

Mr. SHERMAN. Yes. We will try to deal with the technical difficulties. We will suspend the clock on the gentlelady's time.

Mr. KELLEHER. Congresswoman, nobody was able to hear what you just said.

Ms. TLAIB. Sorry. Can you hear me now?

Mr. KELLEHER. I can.

Mr. SHERMAN. We can hear you, Ms. Tlaib, so why don't you proceed?

Ms. TLAIB. Thank you so much, Mr. Chairman. I apologize for that, Mr. Kelleher. One of the things that I would like to hear from you is, do you think the current regulation of private equity meets your standard of, "transparent, well-regulated, and policed?" Yes or no?

Mr. KELLEHER. Absolutely not.

Ms. TLAIB. Is it true that private equity firms don't have to share data on their climate risks?

Mr. KELLEHER. Correct.

Ms. TLAIB. How about how they treat their workers in their portfolio company?

Mr. KELLEHER. Not that I am aware of.

Ms. TLAIB. Is it true they do not have to share data on whether they are promoting racial equity and diversity?

Mr. KELLEHER. They do not. They are private companies. The disclosure is almost zero.

Ms. TLAIB. That is right. And even though they, again, control more than double the number of companies publicly traded on the U.S.—it is double. It is 8,000 companies in the United States. So, I thank you for that, Mr. Kelleher.

Ms. Goldstein, would you agree that private equity firms use this lack of transparency to shield themselves from harm they do to our workers and our communities?

Ms. GOLDSTEIN. Yes, Congresswoman, I agree.

Ms. TLAIB. Ms. Goldstein, we know that pension funds are some of the largest investors in private equity. That is where it impacts my residents. Many of my residents in my district are relying on their pensions to retire with human dignity. Aren't their retirements at a higher risk because we don't require private equity firms to make the same disclosures as publicly traded companies?

Ms. GOLDSTEIN. Congresswoman, yes, I think that is a risk of private equity. I think it is also a risk with hedge funds, which also lack many of the disclosure standards that other types of firms have to submit. So yes, I would agree with you.

Ms. TLAIB. I am asking many of my colleagues, and I think this is something that we can work together on, in a bipartisan way, and I am really grateful for the committee to be focused on making public markets fairer and more transparent for retail investors. But we truly do owe it to our working people, our neighbors around the country, to hold private equity firms to the same standard, rather than allow them to continue looting businesses across the country.

I yield back.

Chairwoman WATERS. Thank you. I now recognize Mr. Budd from North Carolina.

Mr. BUDD. Thank you, Madam Chairwoman. This is the second committee hearing on this topic, and once again, I am appalled by some of the comments I have heard from my colleagues on the other side of the aisle. The notion that retail investors are even being referred to as, "dumb money", I think it is absolutely insulting. Let's remember that retail investors are smart and they are a force to reckoned with, and that revolutionizing the market in any legislative or regulatory changes to interfere with their ability to trade and have access, I think that would be an absolute tragedy.

Mr. Piwowar, do you believe that the SEC is well-equipped to make value judgments as to what constitutes a good or a bad game-like feature, and in your opinion, do you believe that gamification is actually this grave systemic danger that my friends on the other side of the aisle make it sound like?

Mr. PIWOWAR. Thank you, Congressman, for that question. In terms of the gamification that Robinhood is apparently using, I am not a customer, I don't have the app, so I can't comment on that. Certainly, the SEC is well-equipped to look at whether certain gamification features violate existing standards under the law, and they will prosecute accordingly to that.

One point I want to mention is that gamification, as a term as is being used here, very narrowly, is to point out that there are types of games that are out there, simulations, that are very valid ways for people to learn. In fact, business schools, MBA programs are abandoning many of the traditional case method and lecture-type classes and encouraging the students to learn through gamification, simplification. Cybersecurity classes are being taught through gamification. You can't teach it out of a textbook, and those sorts of things.

So, this is part of our society that is going forward. It is obviously something the SEC has to look at. But to paint a broad brush and to say that gamification is necessarily bad or a systemic issue, I think would be too broad of a brush.

Mr. BUDD. My view is this makes the SEC take their eye off the ball. Do you think the SEC should instead focus on the traditional role of determining when investment advice has been provided by a brokerage?

Mr. PIWOWAR. Yes, in fact they are well-equipped to do that and they, in fact, just updated the regulations on that. The SEC just recently promulgated Regulation Best Interest, which was on the broker-dealer side, what was the old suitability standard has now been enhanced to be called the Regulation Best Interest, making it very close to, if not higher than the fiduciary standard on the investment advisor side. And also, the SEC doesn't do it alone. They also have FINRA, the self-regulatory organization, that has its standards and polices those standards.

Mr. BUDD. Thank you. There has been a lot of attention given to the clearance and the settlement process. In your former capacity as acting Chairman of the SEC, you led the effort to move officially from T+3 to T+2. So following up on my friend and colleague from Ohio, I look at the blockchain and I see a potential avenue for innovation in this area. Is it possible for clearinghouses, in addition to real-time settlements on a blockchain, to coexist while pursuing something like T+1 or T-zero?

Mr. PIWOWAR. Yes. I think there are a couple of ways that we could do this. When we move from 3 to 2 we put in the final rule that the SEC should continue to study and look at what the industry enhancements were in terms of technologies to facilitate moving to 1 or real-time settlement. I think real-time is further off, and the question is, do they want to put all their eggs in one basket and try to pursue real-time, which could take a long time, or the SEC could do a dual-track approach, which is, let's look at potentially moving to T+1 in the short term but also signal to the industry that in the long term, they are thinking about moving to same-day settlement, to the extent that things like blockchain evolve to that point, and again, having to coordinate with the banking regulators to make sure that the cash actually gets there through the bank payment systems. Their systems are outdated too.

Mr. BUDD. Thank you. As technology evolves, we still want to have the position that we are the financial envy of the world, the financial markets are the envy of the world. So, what sort of regulatory requirements should the SEC update in their review in order to remain and continue to grow in our strength?

Mr. PIWOWAR. Thank you, Congressman. I think as a general matter, the SEC should be in the habit of periodically reviewing all of the rules. I think, to your point, in the markets, in particular, because markets and technologies evolve so quickly, things like payment for order flow, things like transparency in that market, things like making the securities lending market more transparent, are all fruitful areas for the SEC. And to your point, we are the envy of the world, but everybody is gunning for us, so we need to make sure that we maintain our leadership.

Mr. SHERMAN. The time of the gentleman has expired, and I now recognize Mr. Torres from New York for 5 minutes.

Mr. TORRES. Thank you, Mr. Chairman. I have concerns that payment for order flow perversely incentivizes the highest payment for the broker rather than the best execution for the customer. There is a reason we call it payment for order flow. No one calls is best execution order flow.

My first question is for Ms. Goldstein. Should payment for order flow be permitted?

Ms. GOLDSTEIN. Congressman, thank you for the question. I always refer back to the 2016 SEC memo where they asked this question. I think that is one approach we could take. We could just outright prohibit it. Another thing the SEC could do would be to require the brokers to pass on the payments for order flows to their customers. And another approach could be requiring that customers be able to opt out. I think there are multiple approaches that they could take, but I do think that we do need to do something, yes.

Mr. TORRES. I am concerned about the conflict of interest. About a week ago there was a hearing in the Senate, and according to Duke University School of Law Professor Gina-Gail Fletcher, who testified at a Senate hearing, the racial gap in retail investing has been cut in half in 5 years.

And so, here is what I am struggling with, how do we address the conflict of interest? How do ban the worst of payment for order flow without losing the gains that appear to have been made in market access?

Ms. GOLDSTEIN. Congressman, I think it is a great question. I think we need to just ensure that the SEC can take all of the enforcement actions that it needs to take. I have been very enthusiastically listening to all of the Republican Members, in particular, giving the SEC lots of work to do, and I would encourage those Members to make sure that the SEC is adequately funded so it can pursue all of these investigations into whether or not best execution is being upheld by brokerages, and whether or not there are any particular conflicts of interest. And so, I would encourage them to make sure that there are the right appropriations.

And I think we just need to make sure that the markets are fair, and that doesn't just mean funding our agencies, but that means looking into whether there are regulatory blind spots. I personally think that there is a big regulatory blind spot in hedge funds and in private equity funds. For example, we don't know what amount of stock hedge funds are shorting, because the Form PF that they have to disclose their positions on does not include shorts of stocks.

So, I think we have a combination of, we need to make sure that we are enforcing the law and have the resources to do it, but also make sure that, perhaps we need more legislation to address regulatory gaps, and then we won't have to choose between those two things that you outlined.

Mr. TORRES. And I strongly support greater transparency. I have a question about brokers. The controversy surrounding the GameStop short squeeze arose from Robinhood's decision to restrict trading. Setting aside Robinhood for a moment, it seems to me that brokers, in general, have almost absolute power to restrict whatever retail trading they want, whenever it wants. Should there be any legal limits on the ability of a broker to impose trading restrictions? Should we limit trading restrictions to conditions of market volatility? What are your thoughts on that?

Ms. GOLDSTEIN. Congressman, I think it is a good question for the committee to consider. I do think brokerages need to make sure that they don't go belly-up, and I do think that Robinhood, in particular, perhaps was facing a period where perhaps they didn't manage their own internal risk sufficiently. Perhaps they didn't predict what their capital requirements would need to be to the clearinghouse, and so I think that might have been a failure of their own business. But if the choice is between prohibiting trading in a stock that they might not be able to handle, because perhaps they haven't managed their business well, or just going under, I kind of understand that you might want to take the less drastic approach.

Mr. TORRES. I want to interject, because my time is running out. I have a question on market makers. Suppose there was a company named Goliath, with a market-making arm and a trading arm. And suppose the market-making arm collects vast quantities of retail and real-time information about vast numbers of retail investments. Could the market-making arm legally share that information with the trading arm?

Ms. GOLDSTEIN. No. No, they need to have a firewall between. If they have a prop trading desk and their market makers, there must be a firewall.

Mr. TORRES. That is great. That takes care of my questions, so thank you.

Chairwoman WATERS. Thank you very much. The gentleman from Tennessee, Mr. Kustoff, is now recognized for 5 minutes.

Mr. KUSTOFF. Thank you. I would like to thank the chairwoman and the ranking member for convening today's hearing. I would also like to thank all of the witnesses this morning and this afternoon.

Director Piwowar, if I could, with you, I think one thing that—or at least I would think everybody could agree on, regardless of what side of the aisle you are on, is going back to GameStop, that day in late January, we don't want any investor or any trader being shut out, if you will, not being able to make a trade, to buy or to sell.

When we had our hearing last month with GameStop, I questioned the CEO about his arguments that the settlement time, T+2, T+3. What I got out of it was that he essentially thought that if it were same-day settlement or even T+1, that they may not have been in the situation that they were in, having to deny people access to their app.

My first question to you is, would you agree, if it were T+1 or same-day settlement, would we have seen the scenario that we did in late January, with GameStop?

Mr. PIWOWAR. Thank you, Congressman. I don't know the exact numbers but I do know that if there was a shorter trade settlement cycle, Robinhood's margin calls would have been a lot less. Now, I don't know how much they would have been relative to their financial resources, but it would have been a lower likelihood certainly.

And if I may, a point that Ms. Goldstein is bringing up is that the situation was uneven across broker-dealers here, right? So, one of the things the SEC is looking at is not only across the industry, whether to shorten the trade settlement cycle, but also whether or not Robinhood's risk management policies and compliance procedures were actually adequate. And that is something they are looking at in here too.

So, when I say we should look at shortening the trade settlement cycle it is not because of the particular performance of one broker. They happened to bring the issue up and it is something that I felt very passionately about when I was at the Commission and started a path on, and they continue to do that. But I don't think we should overlook the fact that we had different impacts across different brokers.

Mr. KUSTOFF. Thank you. I may have said, "CEO of GameStop." I did mean, "CEO of Robinhood", and I appreciate you interpreting that and correcting it.

You went through this exercise when you were with the SEC and helped to lead the effort to shorten the settlement time. Can you take the other side of the argument, if you would? Why would people advocate against going from T+2 to T+1? What are the arguments against that?

Mr. PIWOWAR. Sure. So, one is cost. The industry is going to have to incur some costs in order to do that. Now, what the SEC has to do is weigh those costs against the benefits from shortening the trade settlement cycle. Again, the benefits are, you are lowering market liquidity, credit, and systemic risk in the system. Once you start approaching real-time, you are actually increasing operational risk, because everything has to work perfectly together at the same time—the cash has to get there, the securities have to get there, if you have a foreign currency settlement that has to happen at the same time. And so, the arguments against are just based solely on a cost-benefit framework.

Now, 4 years ago, cost-benefit analysis showed that T+2 was the clear winner. Four years have passed and we have changes in technology, we have changes in markets. It is time for them to reevaluate, and I wouldn't be surprised if T+1 were the clear choice, but maybe not. That is why I believe the SEC should at least go through the exercise.

Mr. KUSTOFF. And if you were to project—let's assume that the SEC does make the decision to go to T+1, what is a realistic framework or time period?

Mr. PIWOWAR. Thank you, Congressman. Again, the SEC can't do this in isolation. Once you go down to 1, they are going to now have to get the bank regulators involved, because you have to make sure that the cash payment systems align with the security settlement system. The SEC could put itself on a timeline, but you have to also get all the bank regulators.

So, that is why I was advocating that Secretary Yellen should start a workstream at the Financial Stability Oversight Council, which is the coordinating body among all of the regulators. And so, using her power as Chair of the FSOC, she can actually help shorten that time period by getting the regulators to all row in the same direction.

Mr. KUSTOFF. Thank you, sir, and I yield back.

Chairwoman WATERS. Ms. Dean is now recognized for 5 minutes. Is Ms. Dean on the platform?

If not, we will move to Mr. Garcia. The gentleman from Illinois, Mr. Garcia, is now recognized for 5 minutes.

Mr. GARCIA OF ILLINOIS. Thank you, Madam Chairwoman, and Mr. Ranking Member, for the discussion today, and, of course, all of our witnesses.

Last month's GameStop hearing revealed a lot of different viewpoints about what happened, who was responsible, and what we can do about it. As always, there are a lot of technical details, but when people in my neighborhood think about finance, they aren't thinking about these details. They are thinking about losing their house, as many did in 2008. They think about the stock market at record highs during this pandemic while unemployment soars. In short, they think about a game rigged against them. And if you ask me, what happened to GameStop earlier this year proves them right.

I have some questions for a couple of our witnesses. Mr. Kelleher, people talk a lot about how retail trading is democratizing finance and helping the little guy, but from your testimony it seems like the current system of retail trading does the opposite. It rewards huge firms that can handle lots of trades and it rewards high-frequency trading. Do you think that payment for order flow model of retail trading actually entrenches big players?

Mr. KELLEHER. It does, and the fact that those big players have almost no disclosure obligations and very few regulations makes it even worse. The one thing that hasn't been brought up that is a major problem, is that the Citadels of the world are a big part of the shadow banking system. There is a lack of transparency. There is a lack of regulation. There is a lack of oversight. There is a lack of accountability. All of that enables secret wealth extraction by the big dogs in finance, all at the expense of the retail investor and the retail trader, and that all needs to be looked at and changed.

But the one thing we know for sure, and Sal talked about this earlier, is the retail investor ends up getting, time and time and time again, the worst deal. That doesn't mean we are not in favor of more retail investors. We would love to see more retail investors. We just think it should be a level playing field. We think they should be treated fairly. Right now, they are discriminated against dramatically. They are in a terrible position and being picked off, and they shouldn't be.

So, we are not against democratization. What we are for is a level playing field, transparency, accountability, and fairness, and that will increase confidence and that will increase retail investors.

Mr. GARCIA OF ILLINOIS. Thank you for that. Ms. Goldstein, in your testimony, you mentioned that the GameStop incident revealed more than just volatile stock prices. You mentioned that the rise of retail trading and the dominance of certain hedge funds like Citadel could threaten the stability of our financial system. What do you think that regulators such as FSOC should do to keep the volatility that we saw in January from affecting our whole financial system, and what can Congress do to help our regulators do their job?

Ms. GOLDSTEIN. Thank you for the question, Congressman Garcia. I think there used to be a hedge fund working group at the FSOC, that was shut down under the Trump Administration. And before they created it, one of the things that they noted in a report was that there was no single regulator that had all of the information that they needed to look at a complete risk profile of hedge funds.

And so, I think an easy thing for Secretary Yellen to do would be to restart the hedge fund working group, to look at risks to the system that hedge funds possibly contribute.

I also think that Citadel Securities is a particular thing that they should look at closely. I want to flag that almost 10 years ago, when Citadel tried to start an investment bank, there was a lot of reporting at the time that people were confused about how they were going to have success in investment banking, because they were known as a business partner who charged their clients more than most funds did. And I feel like that reputation perhaps may have followed them into electronic trading.

But Citadel has talked a lot about their importance in the marketplace. My question is, are they systemically important? Congressman, you, I think, have an important bill, to make sure the FSOC has the tools that they need to identify systemic risk, and I think Congress should continue to ask the question, is there more legislation that is required to make sure that we do have the tools we need to identify systemic risks in the system? And I think the regulators should ask themselves the same question.

Mr. GARCIA OF ILLINOIS. Thank you very much, and given that I have to go vote, Madam Chairwoman, I yield back.

Chairwoman WATERS. Mr. Rose is now recognized for 5 minutes.

Mr. ROSE. Thank you. Thank you, Madam Chairwoman, and thank you to Ranking Member McHenry, and thanks to our witnesses for your testimony and participation today.

One month later, the committee investigation is barely underway, and I view any policy proposals so far as premature. At the core of market regulation is transparency, providing investors information and giving them the opportunity to make informed choices. We should not be adding regulatory barriers to keep people from participating in our capital markets. Instead, we should be opening up our markets to everyday investors and providing them with the information and transparency to participate in an informed way.

Despite the intense volume and exposures presented in the market, the broader infrastructure of our financial markets has performed well. My concern, like many of my colleagues, is that forging ahead with new regulations or ideas like the financial transaction tax, at this point, would be harmful and would have unforeseen consequences.

Dr. Piwowar, you highlight the importance of a comprehensive economic analysis as part of the rulemaking process, as it allows us to evaluate tradeoffs. I agree with you. Will you detail the implications of a knee-jerk reaction to the events that occurred in January?

Mr. PIWOWAR. Thank you, Congressman, for that question. Yes, the SEC is well-equipped to do economic analysis, and, in fact, is required by law to do so. When it comes to market structure issues, as I said in my written testimony, there are no solutions; there are only tradeoffs. And the reason for that is multidimensional. One is that our market structure is very complicated. It is a consequence of dozens, if not hundreds of decisions that have been made over the course of decades.

And so, any change in one area will necessarily have likely effects in another area. That doesn't mean we shouldn't go forward and make changes. What that means is that when we do think about making changes, we need to think about what the likely effects are. What are the tradeoffs? What are the costs? What are the benefits? What are the expected changes in behavior? And then evaluate all of those, but also explicitly look at alternatives to the possibility that is there.

For example, payment for order flow, we could look at the existing situation. One alternative is to ban it and look at that, and Ms. Goldstein has brought up a couple of other sort of in-between steps in there, and explicitly look at all of those, and then based upon that analysis, you can do a reasoned, rational approach to come out with which of these is the best path forward.

Mr. ROSE. So if we were to review and reform payment for order flow, Dr. Piwowar, what reforms do you think the SEC could implement to increase transparency for retail investors?

Mr. PIWOWAR. Thank you, Congressman. I think, as I mentioned, there are these things called 605 reports, which is just a fancy SEC rule on that, and they give a little bit of information in terms of execution quality for retail investors. And the SEC has revised them over time, and some of my fellow witnesses have pointed out some of the problems and holes in it. The National Best Bid or

Offer doesn't necessarily include all of the odd lots, and there are some other things that we should do to that.

I think what the SEC should do is consider looking at those 605 reports that firms like Citadel have to do, so we get a better sense of what the execution quality is, not just price improvement, but speed of execution, what is the real MBBO.

Separately, there are different types of reports that firms like Robinhood have to do, which are called 606 reports. They are not very granular at all, and I think that we could do a lot to provide some more transparency into the 606 reports and the 605 reports so that we can find out, for particular customers, at particular brokers, that send their trades in particular stocks, to particular wholesalers, how well are they doing. I think that would help shed a lot of light in terms of public transparency of best execution.

Mr. ROSE. Thank you. In the challenging global economy, the strength of our capital markets is vital to long-term economic growth, yet regulatory burdens and increasing amounts of red tape prevents small businesses from thriving, and stifles American innovation. The advances we have seen over the last decade in technology have improved the way Americans and our businesses perform financial activities. Due to these advancements, we are seeing more investors, who have historically been left out, active in the markets, and we should not stand in their way.

With that, Madam Chairwoman, I yield back.

Chairwoman WATERS. Thank you. The gentlewoman from Pennsylvania, Ms. Dean, is now recognized for 5 minutes.

Ms. DEAN. Thank you, Madam Chairwoman, and I thank all of our witnesses today for shedding light on these important questions and issues.

I am thinking back, Madam Chairwoman, to our hearing a month ago. At that hearing, I questioned, and we all did, Mr. Tenev of Robinhood, and he acknowledged mistakes or failures by his company about actions that the company took to inform customers, but he struggled to tell us what he was acknowledging or what he was apologizing for. We did not receive a clear, direct answer about when and how customers were notified, and whether customers had the ability to contact a customer service representative with any concerns about their positions and holdings. He was simply unable or unwilling to express what he was apologizing for.

Ms. Goldstein, I have had the chance, my office has had the chance to discuss with you servicing failures in other industries. What failures—and I am a former professor of English, and I just want plain English here—what servicing failures or failures or mistakes by Robinhood on January 28th would you observe?

Ms. GOLDSTEIN. Congresswoman, thank you for the question. I think that they probably—I don't have a crystal ball and I don't have insight, but I think they may have failed to manager their internal risk. My understanding, anecdotally, is that major brokerages typically have very large teams of people who model the capital requirements that they will likely need to give to their clearinghouse on any given day. I would be very curious to know how many employees at Robinhood were dedicated to that task. Was it 10? Was it 20? Was it 5? Was it 0?

I also think that, at least historically, they have not done a great job of disclosing to their customers how they make their money, although I don't think—to speak to your question—that was true on that day in January.

Ms. DEAN. I am wondering, what should we now consider new best practices or best practices going forward, to avoid what we saw on January 28th?

Ms. GOLDSTEIN. Congresswoman, I think we need the regulators to do an investigation, and get all of the information. I think we need to make sure that there aren't data gaps. One of the big questions I have is not what was the retail footprint, but what was the footprint of institutional players, and were institutional plays exacerbating the volatility because they were watching what was happening on Reddit and deciding to go along for the ride and maybe make GameStop shoot up higher or come back down lower in the days that followed?

And I think one of the questions that I have is, are there regulatory gaps in the reporting of what are called over-the-counter options, which are options that are not traded on exchanges but are traded between big Wall Street players, between themselves, and could that kind of trading, which is often counterbalanced or hedged with stock, have contributed to the volatility? And that is one of the questions that I have.

Ms. DEAN. That is really interesting.

Dr. Bogan, I know I have very limited time, but could you tackle the same question? What were the failures? And I would also like to hear more about how these servicing practices nudge user behavior.

Ms. BOGAN. I will start with the last one first. I think when we think about these online brokers that use gamification, I think, just to be clear, access is a great thing for users to have. But developing techniques that push retail investors to trade a particular way or elicit particular behaviors, is not beneficial for retail investors.

Some of the practices they have that have been mentioned, that are encouraging trading behavior to the detriment of the investor, are things like having lists of 100 popular stocks, which draw attention to particular stocks, which causes people to trade even though it may or may not be in their best interest, and there are push notifications which elicit this kind of response of fear of missing out, which encourages people to trade, because it is triggering a particular behavioral bias.

Additionally, I know people have talked about kind of the confetti and it looks like a game. Yes, that does make it fun, but it does belie the real risks that investors are taking on.

Another important point, too, that I don't think has been brought up, is that some of these investors are targeting the younger market, which is great to encourage new people into the markets, but they are specifically targeting a segment that is less financially literate, according to every survey, and less likely to be sophisticated. And so, I think those are concerns as well.

Ms. DEAN. Certainly, those are concerns. And quickly, with the time remaining, Dr. Bogan, you talked about clear, concise disclosures about customer risk. Can you point to any examples of those?

Ms. BOGAN. I'm sorry.

Ms. DEAN. I will yield back. I will submit questions.

Chairwoman WATERS. Thank you. Thank you so very much. The gentleman from South Carolina, Mr. Timmons, is now recognized for 5 minutes.

Mr. TIMMONS. Thank you, Madam Chairwoman, and Ranking Member McHenry, for convening this hearing today, and to our witnesses for their time and expertise.

Since the first hearing in the series, I have continued to research and attempt to understand the root causes of trading halts, retail investors, the dynamics of trade settlement, and the other issues in this hearing. While these topics can be overly technical, it remains imperative that our financial markets continue to function effectively while not limiting the increased market participation of investors of all income levels. We also should not rush to any rash decisions that could have unintended consequences further down the line.

My first question is for Mr. Piwowar. As you have stated, you were involved in the transition from settlement going from T+3 to T+2. In your opinion, what roadblocks will market makers and participants face in the transition from T+2 to T+1, and do you believe that this can be achieved earlier than the initial timeline?

Mr. PIWOWAR. Thank you, Congressman. I don't think there are any roadblocks from the market participant side. In fact, when we went from T+3 to T+2, we worked very closely with—there was an industry coalition that came together called the T+2 Coalition, that was buy-side/sell-side exchanges, the clearing agencies, even a group representing retail investors. And what they did was they were able to tell us what a reasonable timeline was for all of them across the industry. And I think, similarly, they could start that group again, call themselves the T+1 Coalition, and talk about particular challenges.

One of the things I will note is that 4 years ago, when we went through this, the big challenge of 2 versus 1 was that, with few exceptions, going from 3 to 2 was just taking existing back office processes, which are very complicated, and for many of the firms, it was just effectively speeding those up. They didn't have to retool and set up new systems. Once you start going to 1 or 0, the costs go up, because you are going to have to retool some of the systems.

Now, the benefits may outweigh those costs, and so that is what the SEC should go through, from a public policy perspective, and look at those.

I wouldn't say those are roadblocks but those are the challenges that they would face.

Mr. TIMMONS. Sure. Thank you. Do you believe this can be done by the industry without any government or limited government involvement beyond cheerleading the effort?

Mr. PIWOWAR. The SEC has to make it real. The industry came to us and said, "Could you please make this real, and here is why." So yes, they could do it, but what would happen is, it is a collective action problem. If you get one holdout or a couple of holdouts, then you can't do it as a voluntary effort.

So what they did was they did a lot of the work in terms of how they were going to get it done. They went out and got third-party thoughts and did timeframes and all of this sort of stuff. This is the one thing I think government can be very helpful in doing, is solving the collective action problem, and then explicitly looking through the costs and benefits.

The other thing I will note, as I have mentioned before, is the SEC can't do this alone. Once you go to 1 or 0, because you have to get the bank regulators involved to make sure that the bank payment systems, the cash gets there too. So, it is a little bit more difficult going to 1 or 0 than it is going to 2.

Mr. TIMMONS. Sure. Thank you. Mr. Grujic, what would be the tradeoffs if we were to eliminate the credit investor standard?

Mr. GRUJIC. There is an obvious benefit to allowing more investors to access private markets, and as I previously said, I think this is a very important part of where investors should put their money. So, there are a lot of benefits on the side of concern about education and understanding. We have to see where we want to land on those, if we want to explore qualifications as a substitute for wealth, in terms of access is appropriate.

I just want to say, I think we have to take the lessons of history. About 20 years ago, when we talked about electronic communication networks (ECNs) and the fragmentation of the dominant few market exchanges, there were these sorts of similar concerns. What we wound up with is a far better marketplace. We had to enact regulations to solve the issues of fragmentation, but where we landed was something much better. The post-ECN world is vastly better than what it was before.

We should take the same approach here now with private markets, with PFOF, with gamification, where we recognize that innovation is good, and innovation and regulation are yin and yang. And so, when you look at gamification, building habits like regular savings, regularly looking at education, rewards for things that are healthy are clearly good. How to regulate that is challenging, but that is on a natural path forward. We should open up the private markets. We should open up gamification in healthy ways. We should innovate and regulate in lockstep.

Chairwoman WATERS. Thank you very much.

Mr. TIMMONS. Thank you for that answer. I yield back, Madam Chairwoman. Thank you.

Chairwoman WATERS. Thank you. The gentleman from Massachusetts, Mr. Auchincloss, is now recognized for 5 minutes.

Is Mr. Auchincloss on the platform?

If not, the gentleman from Guam, Mr. San Nicolas, is now recognized for 5 minutes.

If not, the gentleman from Indiana, Mr. Hollingsworth, is now recognized for 5 minutes.

Mr. HOLLINGSWORTH. Good afternoon, and I appreciate all of our witnesses being here today, and I certainly appreciate the dialogue that we have had.

I have touched on this several times in previous hearings but wanted to touch on it yet again. Again, none of my comments should be construed as being in favor of or opposed to dark pools or LIT trading or exchanges. I certainly believe in an even playing field where all competitors can compete for flow, but I wanted to really specifically dial in on some of this.

[Pause.]

Chairwoman WATERS. Mr. Hollingsworth?

Mr. HOLLINGSWORTH. Can you hear me?

Chairwoman WATERS. Yes, I can hear you.

Mr. HOLLINGSWORTH. Okay, great. Sorry. I think it cut out there for a second. Sorry about that.

Mr. Blaugrund, you mentioned in your testimony that 30 percent of market volume is artificially constrained by this, "penny-wide regulatory requirement" on exchanges. Can you expand on that a little bit? What are some examples of how tick size restrictions can affect liquidity in the nearly 8,000 stocks that trade above $1.

Mr. BLAUGRUND. Thank you very much for the question.

As I mentioned in my testimony, there are effectively two regimes functioning in parallel. On exchange, there is a rule, Rule 612, that requires that exchanges accept and display orders only in penny increments in stocks priced above a dollar.

Mr. HOLLINGSWORTH. Right. And this doesn't apply in dark pools, correct?

Mr. BLAUGRUND. Correct. Off exchange, they can trade at 100th of a cent increments. The implication is that price discovery, particularly in very active, low-priced names should occur within that penny-wide spread. As a result, public investors on exchanges are restricted. They can only narrow the spread to 1 cent wide when, in fact, there might be millions of shares that trade in some of these names in that sub-penny increment.

As a result, if you haven't been invited into that particular dark pool or single dealer platform, that liquidity is simply inaccessible.

Mr. HOLLINGSWORTH. Right. And there are some implications here for both price discovery, as you said, right? The ability for investors to be able to trade inside that increment, but also challenges from a competitive footing between the two. Can you talk a little bit about how volumes might be shifting to dark pools versus exchanges on account of the current disparity in regulatory regime?

Mr. BLAUGRUND. Yes. Thanks for the question.

So, as a number of the panelists have noted, in aggregate, on-exchange trading is now its lowest proportion of the overall market than it has ever been. And there were some days at the end of last year where actually most trading happened in the dark.

In retail names, and particularly in these lower-priced, very active securities, 60, 70, sometimes 80 percent of trading activity will occur off exchange in sort of private pools. So, I think it is in the public interest in trying to ensure that, one, the price discovery process is efficient, which goes to questions we have been discussing previously about having good benchmarks for measuring things like price improvement, and also to encourage the broadest set of investors possible to compete and offer one another the opportunity to interact with their liquidity.

Mr. HOLLINGSWORTH. Certainly, there has been an abundance of evidence that has shown the amount of savings retail investors are achieving by virtue of payment for order flow and other market makers that might lead to dark pools. However, there might be some hidden costs associated with the increase in volume on dark pools versus exchanges in price discovery or price movement. Can you talk a little bit about that?

Mr. BLAUGRUND. I think you have two different regulatory regimes. You have a regime with dark pools, which doesn't have a fair access requirement, allows for privately negotiated commercial terms, allows for customer accommodation should there be some sort of dispute, and generally doesn't have any sort of Reg SCI or sort of stability regulation.

We are not asking for those regulatory burdens to be shifted to dark pools as well. We are simply hoping for a level playing field. Let public investors who participate on exchanges trade at the same price points.

Mr. HOLLINGSWORTH. And it certainly stands to reason that retail investors and investors writ large would benefit from a competitive platform that was agnostic between players?

Mr. BLAUGRUND. Correct. To the extent that there is another public investor that is going to offer a more competitive price, that accrues to the benefit of the investor.

Chairwoman WATERS. Thank you very much.

The gentleman from Guam, Mr. San Nicolas, is now recognized for 5 minutes.

Mr. SAN NICOLAS. Thank you, Madam Chairwoman, and thank you to our witnesses for being here today.

This hearing has been very, very informative, and your background and expertise are very well-noted. And I am absolutely interested in considering policy options as a result [inaudible].

I wanted to circle back on the purpose of why we have markets. I think we get so caught up on the trading aspect of it and the volatility of it. But really, Mr. Kelleher, you, I think in your opening statement, really captured the fact that markets exist for us to be able to grow our commerce, grow our private sector, and it is supposed to be providing environments for those kind of activities to take place.

And when I dug deeper into the whole GameStop trade that kind of precipitated all of these inquiries, one of the things that really jumped out at me was the fact that at least on what I was able to find as a layperson, the information on the short interest on the GameStop stock was indicating that it was at 150 percent, and that really just kind of jumped out at me for a number of reasons.

And Mr. Blaugrund, your testimony about the opacity of short selling data really, really captured my attention as well. And I wanted to kind of tie it all together before I get into my questions by stating this.

When we have short selling in the market, it is intended to kind of be a balancing component. But when you have 150 percent of a stock's float short sold and the price compressed as a result of that, you are inhibiting businesses from being able to go out and raise equity at a higher price point.

And so, Mr. Blaugrund, can you expand on your testimony on the opacity of the short selling that is going on and how that potentially could be inhibiting businesses from being able to go out and raise equity capital at a rate that would be more, I think, reflective of the fair market value of the stock?

Mr. BLAUGRUND. Thank you very much for the question.

With respect to raising capital, you are certainly right that if a stock price is depressed, then the cost of capital for the company would be higher than it would otherwise be.

With respect to the short positions, that data is now reported twice a month, and it certainly provides a lens into the relative activity, but it is really not actionable. It doesn't allow a market participant, whether they are hoping to borrow the stock or whether they are considering lending their securities, regulators or the insurers themselves, to understand if there is risk developing, if there is this potential for rehypothecation to introduce some significant problem.

And so, our view, after discussing this issue with issuers and investors, is that you really need to go one step upstream. You have to look at the securities lending market itself, which currently is relatively anachronistic. And there is an opportunity for the SEC to promulgate rules that they were directed to promulgate under the Dodd-Frank Act.

They have the authority today to bring transparency to this marketplace, and we would urge that the SEC consider doing that as a high priority.

Mr. SAN NICOLAS. Mr. Kelleher, would you be interested in offering some comments on this discussion?

Mr. KELLEHER. Yes, I agree that kind of the upstream disclosure increase for the securities lending part of these activities needs to be addressed either through legislation or through regulation. That is clear. But we also need increased disclosure of the short activity that we currently have, separate and apart from what we need for the securities lending.

But for the short activity, we need greater disclosure on the timing and frequency—increased disclosure on timing and frequency of that disclosure. We need to expand the firms that are subject to the disclosure. It needs to cover hedge funds, broker-dealers, and everybody else engaged in those activities. And it has to expand to cover all of the products that are being used. It is not just puts and calls. You get equity derivatives, total return swaps, synthetic exposure of all sorts of ways.

So, multilayered increased disclosure and transparency will benefit everybody in the market.

Mr. SAN NICOLAS. Thank you, Madam Chairwoman, and I yield back.

Chairwoman WATERS. You are welcome. Mr. Steil is now recognized for 5 minutes.

Mr. STEIL. Thank you, Madam Chairwoman.

I also look forward to the day when we can be back in person and not on Zoom. I know we have had some broadband issues here in the House. It will be good to all be together soon.

If I can dive in, in particular as it relates to settlement times, Mr. Piwowar, you originally wrote an op-ed—we have talked about it a little bit here today—supporting a move to faster settlement. In the op-ed, you wrote that U.S. securities markets may now be ready to really benefit from some of the technology and operational advances in back office administrative functions and a move to shorter settlement cycles.

You oversaw the process of the SEC, in particular from T+3 to T+2, and during that process, the Commission looked at the possibility to move to T+1. I know Mr. Davidson earlier brought up the ability of blockchain and possibly being a solution. Can we look back a little bit, in particular at what has been changing since 2017 that may make the move to T+1 settlement feasible as you kind of look at a broader picture?

Mr. PIWOWAR. Yes, thank you, Congressman.

One, technology costs decrease over time, and market participants find greater efficiencies in their operations over time. There is new innovators in this space. There are new third-party providers that do a lot of things in the back office things.

And you mentioned blockchain. So, 4 years ago, when we were going through this, and we started the process 2 years before that—so between 4 and 6 years ago—the advocates of a real-time settlement, we would say, well, how do you get there? And they would say, blockchain. And then we would say, well, explain to us how exactly that happens. And they would just say the word, "blockchain" louder.

And so, there was no—

Mr. STEIL. We have some of that in Congress.

Mr. PIWOWAR. —thought process as to exactly how this would work. What was that?

Mr. STEIL. I said, we have some of that in Congress that occurs when people—with lack of depth, they will just go louder.

Mr. PIWOWAR. Yes, no comment. And what I learned in the regulatory process is if somebody explains something back to you louder and makes it imply that you don't understand what they are saying, it really means they don't understand what they are saying.

So, blockchain has a lot of promise to it. I really believe that it can be transformative in the future. We weren't there yet 4 years ago.

Now 4 years have passed, and there has been a lot of cool innovation in this space. Again, some people just say, "blockchain" louder, but other people have actually come forth with some interesting ideas. So, it is time for the SEC to talk to those people and understand how feasible it is.

Mr. STEIL. So to build on this, what do you see going forward are the biggest obstacles we have to overcome to get from where we are today to T+1, if we look at it from the other direction?

Mr. PIWOWAR. Yes, thank you.

Again, I don't think they are really obstacles. I think the biggest challenge that we didn't have to face going to T+2 is the coordination with the bank regulators. Again, the cash has to get there, not only securities.

I am not an expert in this, but some of my colleagues at some of the other think tanks, for example, Aaron Klein at Brookings, has written a lot about this, the antiquated bank payment systems. And he has been doing it in the context of the stimulus payments being so slow to get out there.

There is kind of a fight going on between the Fed and the industry as to who gets to control that payment system. I hope they figure out that fight, because that is actually probably the biggest sticking point, and so that is why the SEC, shortening it even further, has to coordinate with the bank regulators.

Mr. STEIL. Thank you very much. I know this is an important topic for both myself and my colleague, Anthony Gonzalez, as well.

Shifting gears to Mr. Blaugrund, if I can for a minute, I think you really touched on the unequal footing between trades that are placed on and off exchanges. You commented and we have discussed a little about the limited price increments to a penny on the exchange. Could you just go back and highlight again what you think the attractiveness would be to on-exchange trades if this was adjusted?

Mr. BLAUGRUND. Thank you very much for the question.

The way exchanges and, more specifically, the investors who are trading on exchanges compete for order flow is they display their prices. And in so doing, they signal to the market their intent, they draw in counterparties, and the trade is consummated.

If they are unable to display that interest at a competitive price, one, they don't get the trade. So, they are discouraged from doing so in the first place. And two, the price discovery that ought to have occurred at that sort of intermediate price is impossible.

We think that by permitting a level playing field in terms of the price increments, a broader set of market participants will be encouraged to participate. The price discovery process will be more robust. That will result in equal or better outcomes for the retail investors today, and that there is generally a public interest in having an efficient price discovery process.

Right now, about 30 percent of all market volume occurs with securities that are pegged at 1-cent wide.

Mr. STEIL. Thank you very much, Madam Chairwoman. I yield back.

Chairwoman WATERS. Thank you. Mr. Auchincloss, you are now recognized for 5 minutes.

Mr. AUCHINCLOSS. Thank you, Madam Chairwoman.

I want to raise the issue of the wealth gap in this country as it relates to what we have seen over the last few months. The stock market overwhelmingly benefits higher-income households, and for many middle-income or lower-income households, the interaction they have with the stock market is through retirement accounts, pension plans. Only 10 percent of U.S. households own 87 percent of all stocks and mutual funds. I don't think that is sustainable for us to have a form of capitalism that works for everybody.

I want to tackle this question of wealth inequality from two angles. First, with a question for Dr. Bogan. We have seen, I think, in the last few months, examples of what does not work in terms of FinTech and people psychology. I raised in the last hearing my concerns about inducing people to trade options through gamification on an app.

But I would welcome, Dr. Bogan, any thoughts from you about what types of gamification, what types of FinTech actually promote healthy wealth-building activities that are more inclusive of the American population?

Ms. BOGAN. First of all, thank you for the question, Congressman. I appreciate it.

And I think that it is important to make a distinction when we are talking about gamification between having a platform that is accessible for all households to participate in financial markets. And at the core, I think that is a good and beneficial thing.

What I think we need to carefully think about is the way people access those platforms and the user interface. We have talked a lot about the evolution of technology, and that is how people interface with financial markets. But the research on sort of behavioral cues has advanced quite a lot over the past decade, and there is a lot of information about how to set defaults and push people to use it for good and for bad.

And I think where we need to take a careful look is at these user interfaces. I think access is great, but are the nudges in behavioral techniques being used for good or for bad and to manipulate customers in a particular way? I think that is a key area to investigate.

Mr. AUCHINCLOSS. To be looking at, as Cass Sunstein would say, the nudge factor for default choices in terms of how people save?

Ms. BOGAN. Exactly right. Richard Thaler does a lot of work with that, too, as well for retirement savings.

Mr. AUCHINCLOSS. The second question is for you, Mr. Blaugrund, and it is about IPOs, which might seem like they are not really related to FinTech or to wealth inequality. But my concern is that over the last 20 to 25 years, IPOs have become more rare. And when we have less private companies going public, we have fewer Americans being able to access the value creation that happens.

And increasingly, we have companies raising in the private markets for valuations that are astronomical by the standards of even in the 1990s or early 2000s, and a lot of that value capture is happening for a smaller and smaller pool of investors. Can you talk about things that the New York Stock Exchange and other organizations are doing to make IPOs easier and to democratize the access to the wealth that is being created there?

Mr. BLAUGRUND. Thank you for the question.

It is an issue that we spend a ton of energy thinking about and trying to influence in a positive way. As you know, public companies are now larger and older when they have their IPO, and so we are keenly interested in trying to find more innovative ways to bring younger, faster-growing companies to the public market.

Two of the ways that have been introduced recently or have achieved more sort of interest recently—the first is a direct listing. That is a mechanism that allows any investor to participate in the IPO-ish first trade in a way that democratizes access to the capital markets that we think is ultimately going to be a very effective way for companies that are interested in issues of equality to participate in the market.

The second is the growth in special purpose acquisition companies, or SPACs.

Mr. AUCHINCLOSS. Mr. Blaugrund, I apologize for interrupting you, but our time is limited here. The SPACs are not, though, really going to democratize access to the value creation that is happening pre-IPO because these are still private vessels, and the value is still being captured by a small number of investors in the know. You have to explain to me how that is going to democratize it?

Mr. BLAUGRUND. I think there is more work to do, but SPACs offer in some ways a retail-oriented product that offers exposure similar to private equities.

Chairwoman WATERS. Thank you. The gentleman from Ohio, Mr. Gonzalez, is now recognized for 5 minutes.

Mr. GONZALEZ OF OHIO. Thank you, Madam Chairwoman. Thank you for holding this hearing and for all our participants.

This hearing is supposed to be about GameStop and Robinhood, and I thought it was supposed to be about preventing a halt in trading that we saw that day. It seems to have morphed into something completely different, where many of the ideas, unfortunately, that I am hearing from my colleagues on the other side of the aisle would actually cut off access to the markets for retail investors.

I spend a lot of time thinking about retail investors and how to give them more access, in particular into the highest-performing asset class net of fees, which is private equity. One idea, and this is for Mr. Piwowar, that I have had is to provide that access through closed-end funds.

What safeguards exist inside of the closed-end funds that would help in this regard?

Mr. PIWOWAR. Thank you, Congressman, for that question.

Closed-end funds are regulated much in the same way that mutual funds and other open-end funds like ETFs are regulated by the SEC and are subject to the investment company and the Investment Advisers Act. It is a well-established regulatory framework that has been around since 1940.

I believe that private equity investments, private company investments are particularly—it is particularly appropriate to put them in the closed-end fund structure. The open-end funds, either mutual funds have daily redemption, liquidity, or ETFs have almost instantaneous liquidity. These are less liquid assets, and so the closed-end fund structure, and in particular a subset of them, the interval funds, which allow for periodic redemptions rather than daily redemptions, would provide a nice vehicle for that with all the protections that we just talked about.

Mr. GONZALEZ OF OHIO. Thank you. And moving back to the T+2 versus T+1 debate, so one of the reasons or the reason why Robinhood had to restrict their buys is because they didn't have the capital. We uncovered that last time. They didn't have the capital to make their deposit at the time it came in, and so they stopped the order flow.

If we move from T+2 to T+1, what effect would that have had on the amount that would have been required at that time? It would have gone down, correct, Mr. Piwowar?

Mr. PIWOWAR. That is correct. It certainly would have gone down. Now, I don't know the exact formula that DTCC uses, but it is a function of the amount of days. So, it certainly would have gone down. It would have been more than half or less than half—I don't know—but it would have gone down.

Mr. GONZALEZ OF OHIO. But all else being equal, Robinhood would have had a lower deposit number, and so, in theory, may not have been forced to halt the buy side, which, again, I thought was the point of this hearing. So, hopefully, we can coalesce around a T+2 versus T+1 debate. I am in the T+1 camp.

Additionally, another way that they could have lowered the risk is if they had stronger capital requirements potentially. Do you have any thoughts on that? Because as you probably know, Schwab did not have to halt buy orders. Robinhood did, and they are under two different capital regimes and have two different business models.

So, I am curious if you have any thoughts on the capital side of this requirement as well?

Mr. PIWOWAR. Yes, thank you, Congressman.

I believe Mr. Tenev testified that they met all of their SEC net capital requirements and were in compliance all that time. Net capital requirements are one way that the SEC protects customers. The other is the explicit customer protection rule, where they have to segregate the assets and the firms can't use them.

The SEC's net capital requirements were established in the 1970s. They have been revised over time. One of the areas of concern for me is that those requirements aren't as transparent as they should be, particularly for new entrants. If you are an established entrant, you can hire broker-dealer lawyers who have been around for a long time and know the intricacies of this.

I think one thing the SEC should look at—I don't know whether we have the right levels or whether the right securities are given the proper haircuts and all those sort of things, but at least make it more transparent so that new firms like Robinhood know ahead of time whether they are complying and whether they are safely above the minimum requirements.

Mr. GONZALEZ OF OHIO. Thank you. With my last 30 seconds, what would have happened to Robinhood account holders had Robinhood not been able to make their deposit requirement? What is the downside of this?

Mr. PIWOWAR. Yes, thank you, Congressman.

Unlike banks, where failure is basically not an option, built into the SEC's regime for broker-dealers, there is a special bankruptcy provision called the Securities Investor Protection Act (SIPA), and there is a group of people called the Securities Investor Protection Corporation (SIPC), that would take over—effectively, what would happen is they would appoint a trustee and very quickly try to move those customer assets over to another solvent broker-dealer.

There would be a disruption in trading. It could take days or weeks. It just depends on whether customer assets were segregated properly, all of those certain things, but there is a regime that would have taken over to support that.

Mr. GONZALEZ OF OHIO. A bankruptcy regime. Thank you, and I yield back.

Mr. SHERMAN. [presiding]. Thank you. I now recognize Mr. Taylor from Texas.

Mr. TAYLOR. Thank you, Mr. Chairman.

Good news for everybody, I think I am the last guy. So, I appreciate everybody waiting through this.

Mr. Piwowar, I really appreciated your testimony. I enjoyed reading your editorial in the Wall Street Journal talking about T+1 versus T+2. I think you have really shed a lot of light in your perspective on that and I appreciated your input.

Mr. Grujic, my understanding is, you seem to be—basically, in your written testimony, you seem to be okay with going to T+0. Is that a fair characterization? Am I reading your testimony correctly?

Mr. GRUJIC. I think what Dr. Piwowar said is fair. We have to take a look at the state of the technology.

Mr. TAYLOR. Okay.

Mr. GRUJIC. I think that the technology has evolved a lot. Blockchain has moved from proof of work to proof of stake, things that make it faster. And we are rapidly accelerating, and I think that very soon, T+0 benefits, in my view, will substantially outweigh the costs.

Mr. TAYLOR. Okay. And then, Mr. Blaugrund, just as the COO of the New York Stock Exchange, based on your written testimony, you seem to be fine with going to a T+0 as well. Is that a fair statement? Am I reading your testimony correctly?

Mr. BLAUGRUND. We are certainly comfortable and supportive of moving to T+1. With respect to anything sort of narrower than that, I think we would be hypersensitive to the operational concerns as well as ensuring that netting is preserved.

Mr. TAYLOR. Okay. Your written testimony kind of led to that. But Ms. Goldstein, I think you had the most important and sort of the deepest thoughts on this particular topic, and I know it has been—we have talked a lot about it. And I am just going to read what you wrote. You wrote, "Losing the benefit of netting would create significant new operational costs." Could you expand on that?

Ms. GOLDSTEIN. Sure, Congressman. Thank you for the question.

If you execute a very large trade, say you trade a million shares and perhaps you send it to some algorithm that tries to break it up into chunks, you might have many, many transactions across the million shares you are trying to trade. And if we lose the ability to net those transactions, operationally, we are going to have to look at every single one of those executions instead of being able to combine them together.

And so, I think that this is one of the main challenges to moving to what people call real-time settlement, which would be even faster than T+0, right? I think there is T+0, and then there is real time. I just don't know that the industry is prepared to do that just yet, and I think that is why you hear most folks, I think there is perhaps some consensus about T+1 and some hesitation about anything quicker than that.

Mr. TAYLOR. I appreciate it. Again, I think you, in your written testimony, provided the greatest detail, giving me an insight into what those reservations would be.

If I could shift to just your next written statement where you are talking about, and I will just read what you wrote. You wrote, "The broker capital standards, as they are today, are adequate to withstand periods of extreme market stress."

And I guess my question is—when I was in the previous hearing, when we were talking to the CEO of Robinhood, it struck me, and I think you have heard a lot of my colleagues talk about where it sort of came up over and over, hey, you didn't have enough capital. There was a capital call and you didn't have the money. You had to then shovel in the money, and it wasn't enough. And so, you had to agree not to—you would only buy—I can't remember. You can only do one action, but not the other action with the securities of GameStop in order to reduce this capital call.

I guess my question is, was this statement made with that example in mind? Because at least with that example in mind, I would think this statement is incorrect. But maybe I don't understand it.

Ms. GOLDSTEIN. My belief is that whether it is the SEC net capital rule and tweaking it, or perhaps it is just making sure that brokerages have more capital preemptively than they need to, I think this instance shows it wasn't just Robinhood who had a little bit of trouble generating their capital. Maybe funds are not modeling their own capital risk adequately and should be holding more capital in the event of another big volatile day like this.

That was the spirit in which I made that statement in my written testimony. And to Dr. Piwowar's point, I do think net capital rules by the SEC are important to look at.

Are there ways that we need to tweak them? I don't know that he and I would agree with how we should tweak them. But for example, right now firms are able to sort of use their own internal models to determine their haircuts. I would advocate that that might not be the right approach. But again, this is an ongoing conversation.

Mr. TAYLOR. Sure. I appreciate your input, and I thank all of the witnesses for your time and expertise.

Mr. Chairman, I yield back.

Mr. SHERMAN. Thank you. And Mr. Taylor, it appears as if you were correct. I do not see any other Members who have not had their chance to question the witnesses, who are to be congratulated for their tenacity and endurance.

I would like to thank all of my colleagues who participated, and thank our distinguished witnesses as well. I look forward to exploring with my colleagues, and with experts in the field, how to make our markets fairer for all retail investors.

The Chair notes that some Members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 5 legislative days for Members to submit written questions to these witnesses and to place their responses in the record. Also, without objection, Members will have 5 legislative days to submit extraneous materials to the Chair for inclusion in the record.

This hearing is now adjourned.

[Whereupon, at 2:37 p.m., the hearing was adjourned.]

A P P E N D I X

March 17, 2021

Thank you esteemed members of the House Financial Service Committee for inviting me to participate in this hearing. My name is Sal Arnuk, and I co-founded Themis Trading in 2002 with my partner Joe Saluzzi.

At Themis we trade as agents on behalf of large money managers collectively managing trillions of dollars of funds for long-term investors. The experience we have as actual boots-on-the-ground traders is something I hope you may find useful today.

We believe the most damaging elements of what has come to be called the Meme-Stock craze are playing out because of (A) extremely poor investor education and (B) conflicts of interest in the form of order routing inducements, referred to as "payment for order flow" or PFOF, and a lack of accountability for poor investor education and misaligned incentives (Exhibit A).

Investor/Trader Education.

We believe retail brokers have two very important responsibilities: ensuring suitability (which involves investor education), and best execution of their orders.

Robinhood does something very novel; they combine investing/trading tools with a social media experience targeted to young people – complete with trading addiction, and a herding effect. They have amassed a user base whose orders tend to be small; for example, Robinhood's average account size is about $5000, compared with TD Ameritrade's $110,000.

As such, they have created a unique product –small emotion-driven orders that tend to be predictable, which they can then sell to their real customers - HFT market making firms, at a premium. If you think this claim is bombastic, consider that

1) Prior to starting Robinhood the founders developed HFT platforms for "the largest financial institutions in the world."
2) They recently changed their PFOF method from one giving them a set payment per share to one giving them a percentage of the spread instead. Think about this: A Robinhood trader wants the spread in the stocks he/she is trading to be as narrow as possible. The HFT market maker buying those orders benefit most when that spread is as wide as possible. And now Robinhood benefits most when the spread is as wide as possible as well! This is an amazing misalignment of interests.
3) Robinhood turned down market-maker offers of PI for its App users, opting for a larger payment for its own bottom line instead.[1]
4) Robinhood has garnered a $13–$20 billion valuation with its largest revenue source being PFOF, which means that its founders' personal wealth is driven by more customer trading and more PFOF, even if such trading is potentially not in the best interest of its customers.

[1] https://www.sec.gov/litigation/admin/2020/33-10906.pdf

This tells you Robinhood knows full well the value of its herded and gamified product base; they knew to educate their users just enough to incentivize trading and maximize their own revenue as a result of it. We have included Exhibits B and C as examples of options trading education from Robinhood and TD Ameritrade for you to compare. Draw your own conclusions.

The incentive that has enabled their model is none other than PFOF.

PFOF Presents an Undeniable Conflict of Interest

When investors make a trade, they incur costs both explicit and implicit. PFOF may enable zero commissions, but while that explicit cost is zero, other larger implicit costs dwarf it.

While PFOF is legal, we have long wondered how it possibly could be. How can a broker, charged with the duty of getting its clients the best available prices, possibly do so by selling that client's orders to amazingly sophisticated HFT firms, who in turn will make billions of dollars trading against these orders?

While retail brokers and market making firms, claim that price improvement (PI) accrues to retail investor orders, such price improvement is a flawed calculation:

1) It is based off of a slower price feed (the SIP),
2) It does not take into account odd-lots,
3) And the NBBO reference price it uses is largely set by the very same HFT market makers providing the "PI" in the off-exchange environment.

Regulators know all this. The SEC recently fined Citadel $22 million for mishandling retail orders.[2] They also recently fined Robinhood $65 million failing its best execution responsibilities.[3] They know that the concept of PI is flawed; they approved a huge market structure change which included odd-lots in the SIP, and protected them as a quote.[4] Yet our industry sued the SEC to block this overhaul.[5]

PFOF Increases Overall Costs in the Market – For All Investors, Including Pension Funds

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[2] https://www.sec.gov/litigation/admin/2017/33-10280.pdf

[3] https://www.sec.gov/litigation/admin/2020/33-10906.pdf

[4] https://www.sec.gov/rules/final/2020/34-90610.pdf

[5] https://www.wsj.com/articles/nasdaq-sues-sec-to-block-market-data-overhaul-11612909321

Back in 2012 we wrote a book called Broken Markets[6], in which we asserted that for true price discovery to take place, exchange limit order books need diverse players in them - such as from retail investors/traders, institutional players, index arb players, as well as HFT market makers.

When a few HFT market-makers buy up orders that account for as much as a third of the volume – orders that tend to be less-informed, uncorrelated, and benign, so that they are not represented on exchanges, *what is left on those exchanges is that much more toxic and costly to trade with.* Market impact costs are higher, and spreads are wider as well. Two studies that confirm this are the Babelfish study of transaction costs in "Meme Stocks"[7] and an additional academic study[8], that amazingly points out that when Robinhood experiences technology outages, *spreads in the general market become narrower*. Wider spreads mean that retail investors receive worse prices, even after accounting for PI, and *all other investors see their costs increase as well*.

PFOF Practice Provides a Disincentive for Displayed Limit Orders on Exchanges

These displayed orders are often stepped in front of by HFT market makers who piggy back the price set by them. Those market makers step in and are rewarded with a sale that was only made possible by the displayed order, which narrowed the spread.

Would any of you, when buying a home for example, put a sign out front of said home with the price you would pay, only to help someone else buy the house ahead of you for the same price or a dollar more? Yet that is what happens to displayed orders in the market every day.

PFOF Also Takes the Form of Maker-Taker on Exchanges

This practice creates race conditions to be first in line to get a rebate every time a quote changes in the market place. These race conditions are the goal for the exchanges; after all they sell the tools and speed needed to compete in them. The races are not so good for everyone else as they encourage high costs, games and complexity.

It should surprise no one that investor orders do not dominate these races; HFT Market makers do. Investors' orders typically find themselves further back in the queue. *As a result, investors miss opportunities at buying cheaper stock, and when they do get filled they are subject to outsized adverse selection.* Despite this, brokers representing investors still route largely to these exchanges for that rebate.

[6] https://www.amazon.com/Broken-Markets-Frequency-Destroying-Confidence/dp/0133993507

[7] https://www.babelfishanalytics.com/news/2021/2/4/meme-stocks-inaccessible-trading-share-trading-cost-and-risk

[8] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3776874

Regulators know this behavior is conflicted and distorted. In December 2018, the SEC adopted a Transaction Fee Pilot whose purpose was to test the effect of rebates on market quality. Sadly, the exchanges sued, and succeeded in blocking the pilot. What were the exchanges afraid that the pilot would confirm?

Finally, maker-taker on exchanges has dramatically increased fixed trading costs to trade on the exchanges. *This has resulted in less diverse public markets, which is especially undesirable from a price discovery perspective.*

Which of the following markets will have better price discovery?

A) One where the prices are determined by an oligopoly of four large HFT trading firms
B) One where the prices are determined by diverse participants: retail, institutional, arb players, as well as numerous HFT trading firms.

Conclusion

The Meme Stock phenomenon in the markets today results from the dangerous intersection of poor investor education by some brokers, and the PFOF practices that exist on and off stock exchanges. These practices create a massive incentive for such brokers to sell their clients orders to sophisticated trading firms uniquely tooled to profit off of them. This is a needless conflict that can harm retail investors, and it degrades the integrity of the market ecosystem as a whole.

PFOF is a flawed and conflict-ridden practice. Can it be banned? That's for you to look into. However, at a minimum we believe the SEC's Transaction Fee Pilot should be reinstituted, and that it should include all market centers including exchanges, ATSs and non-ATSs. This pilot would be an elegant way to test the effects of these conflicts of interests on market quality as a whole for all investors.

EXHIBIT A

Potential Conflicts from Payment for Order Flow

- In January 2021, a record 47.19% of US stock-market volume traded "off-exchange and on February 9th we hit an all-time record of 50.47%, with retail representing 1/3rd of total US ADV
- The public is realizing that regardless of which retail brokerage firm they use that their orders are going to a select group of wholesalers who have a structural and informational advantage
- Free isn't "free": Retail broker PFOF sometimes leads investors to pay hidden implicit costs which are more than what they'd pay in a traditional brokerage commission
- Zero commission trading is a commercial decision by a retail broker and does not absolve a broker of its duty of "best execution" to "obtain a resultant price to a customer that is as favorable as possible under the circumstances"
- PFOF isn't necessary and is proven by zero commission retail brokers who do not take PFOF
- PFOF hurts execution quality as proven by retail brokers who do not accept PFOF
- If PFOF is banned, Wholesalers can still trade against retail investors on more highly-regulated exchange markets with more market making competition to offer better retail prices
- "The retail investor has never had it better" <> "The retail investor cannot have it any better"
- Wholesalers are also "market makers on NYSE and NASDAQ," and appear to be adjusting the public market spreads in response to retail, thereby costing all investors more money.
- Wholesalers provide price improvement based on flawed and self-perpetuated measures
- Wholesalers use the press to falsely claim that they can provide retail investors with prices inside the public spread while exchanges can't, but they often set the spread and its widening.
- Highly regulated exchanges can offer low cost and high-quality alternatives to lightly regulated wholesaler models
- Existing retail-oriented exchange market models may not be working simply because the industry doesn't want them to work
- Retail brokers claim that wholesalers provide them with extra services, yet these are multi-billion-dollar corporations that choose not to provide the services themselves
- Retail segmentation away from the market increases market fragility and starves natural investor interaction
- Recent enforcement actions demonstrate that retail routing arrangements can be perilous, including front running
- A ban on PFOF should lead to more competition and better prices for retail, not less
- Wholesalers guaranteed execution only means they guarantee an execution, from somewhere
- Citadel is suing the SEC to stop an exchange from enabling market making competitors that could tighten spreads

- Speed of execution is all relative, but what can and does happen in a second can be harmful and imperceptible to a retail investor
- Wholesalers are not a charity and trade against retail when it is profitable for them
- Some retail brokers claim they don't route to where they get paid the most because wholesalers now conveniently pay them the same amount
- Wall Street's self-regulator, FINRA, and its lack of best execution enforcement is becoming an obvious conflict and burden on investors, legislators, state attorney generals, and courts
- A broker can't receive a gift valued at more than $100 per year, but a wholesaler can give that broker $1b to have first crack at profiting against investor orders
- Just because PFOF and exchange rebates are so pervasive doesn't mean it is acceptable. As the Newton v. Merrill Lynch held, "A practice can violate the standard even if it is widespread or universal. There is no safety in going with the herd."

EXHIBIT B

Robinhood Examples

Updated Feb 23, 2021
Robinhood Learn

What is a Stock Option?

Stock options are like growing fruit. You hope the seeds turn into something that can be picked at harvest. If the fruit is inedible, you lose the cost of the seeds. If the fruit is ripe, you have the option to pull the fruit off the tree.

Updated Mar 11, 2021
Robinhood Learn

What is a Call Option?

Call options, are like a grocery store coupon. They give you the right to buy a specific item, for a certain price, before the coupon expires. However, if you find the same item at another grocery store for cheaper, you probably won't use the coupon.

Updated Mar 11, 2021
Robinhood Learn

What is a Put Option?

Buying a put option means that you have the right, but are not required, to sell a security at a specified price for a set time.

EXHIBIT C

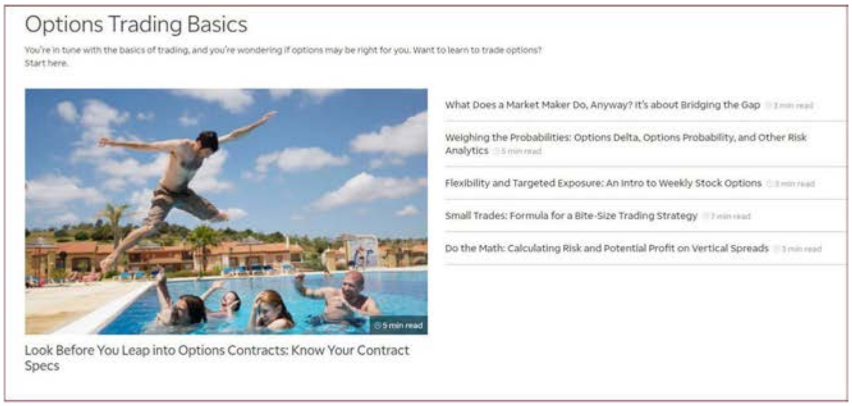
TD Ameritrade Examples

Options Statistics

Refine your options strategy with our Options Statistics tool. Look at the put-call ratio to identify the potential direction of the underlying security. Assess the IV% to determine a buying or selling strategy. And use our Sizzle Index to help identify if option activity is unusually high or low.

Options Probabilities

Weigh the potential risk of your trade against the potential reward using our Option Probabilities tool built right in the option chain.


Options Trading Basics
You're in tune with the basics of trading, and you're wondering if options may be right for you. Want to learn to trade options? Start here.
5 min read
Look Before You Leap into Options Contracts: Know Your Contract Specs
What Does a Market Maker Do, Anyway? It's about Bridging the Gap
Weighing the Probabilities: Options Delta, Options Probability, and Other Risk Analytics
5 min read
Flexibility and Targeted Exposure: An Intro to Weekly Stock Options
Small Trades: Formula for a Bite-Size Trading Strategy
Do the Math: Calculating Risk and Potential Profit on Vertical Spreads

TESTIMONY OF MICHAEL BLAUGRUND, CHIEF OPERATING OFFICER OF THE NEW YORK STOCK EXCHANGE

U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON FINANCIAL SERVICES MARCH 17, 2021

Chairwoman Waters, Ranking Member McHenry and distinguished members of the Committee, thank you for the opportunity to testify today on the evolution of the U.S. capital markets and recent market events. My name is Michael Blaugrund and I am the Chief Operating Officer of the New York Stock Exchange. The New York Stock Exchange is the world's largest exchange, with NYSE-listed companies employing more than 43 million people worldwide and representing roughly 30% of the world's public market value.

The New York Stock Exchange's purpose is to help entrepreneurs raise capital so they can change the world. NYSE-listed companies access the capital markets to create jobs, develop new products, or weather unexpected challenges such as the pandemic. When a company issues shares, we facilitate trading of those securities so public investors can share in the growth of the company and the American economy. To that end, the NYSE's role in operating fair and orderly markets is clear: to promote continuous price discovery, to facilitate risk transfer, to regulate Exchange members' trading and compliance with NYSE rules and the federal securities laws, and to oversee listed companies' compliance with exchange listing standards.

The NYSE plays a central role in U.S. capital markets and we make significant investments in our trading platform technology and regulatory surveillance systems to be prepared for market swings at any time. These investments have been put to the test over the last year, beginning with last March's volatility and peaking this month when NYSE Group processed more than 350 billion order and market data messages on March 4th. At each of these times of stress, market participants have been able to depend on NYSE's infrastructure and well-established volatility controls. In short, the markets worked.

That being said, the events of January 2021 raise valid questions as to what, if anything, policymakers should seek to reform in the equity markets regulatory regime. The Securities and Exchange Commission ("SEC") has announced that it will study these events as it has studied others in the past, and Acting Chair Lee has gone on record to recommend that the Commission will-- prior to the completion of that study -- lead with regulatory action in a few areas, including retail investor suitability, enhanced short selling disclosures, and a review of the relationship between payment for order flow practices and best execution obligations.

Whatever conclusions the regulators reach about what ought (or ought not) be done, a key principle must hold true -- that public policy should build investor confidence in the markets. Investor confidence is built when individuals are armed with accurate information about public companies, when infrastructure operates with stability and resiliency, when markets function according to pre-determined rules, and when regulations are vigorously enforced.

The SEC's study will inform policy development, but NYSE believes at least four areas merit consideration for regulatory reform:

Modernizing Shareholder Disclosures

Section 13(f) was adopted by Congress as part of the Securities Acts Amendments of 1975 to create a central repository of historical and current data about the investment activities of institutional investment managers. Put simply, investment managers with at least $100 million in equity securities holdings must file quarterly reports on Form 13F detailing their long positions in equities and listed options. These reports are due within 45 days of the end of the calendar quarter and are designed to provide the Commission, issuers, and the investing public with information to make more informed decisions about how to regulate, engage with shareholders, and invest in public companies.

At the NYSE, we sit at the nexus of issuers and investors, and both groups have strong feelings about 13F disclosures. Corporate issuers feel that the current limited frequency and lengthy lag time for 13F reporting prevent them from engaging productively and efficiently with their investor base. By contrast, institutional investors are concerned that more frequent or timely disclosures would erode the value of their fundamental research by allowing other investors to free-ride off of their investment decisions, particularly if they have not yet fully established their intended position in a given security at the time of their 13F disclosure.

We have facilitated joint discussions with representatives of both these groups in hopes of identifying a constructive middle ground. Based on this dialogue, we believe the SEC should consider shortening the delay for 13F reporting from 45 days after the quarter. Additionally, because issuers have a special interest in knowing who their owners are, the SEC should consider mechanisms to complement the public 13F filing process that enable direct disclosures to corporate issuers when a reportable position is established or fully divested. Potential information disparities could be addressed by leveraging blackout periods for corporate issuers when they choose to access the information.

Providing Transparency for Securities Lending

Short selling is an essential practice for liquidity, price discovery and risk management, but the securities lending market on which it depends is opaque and inefficient. Indeed, research from the Department of Treasury's Office of Financial Research has identified the potential for systemic stability risks associated with securities lending. FINRA collects equity short position information from its member firms twice a month, but this aggregate data is insufficient for market participants or regulators to understand how supply and demand are changing for stock loans in an actionable fashion.

By contrast, for decades investors have benefited from the real-time reporting of trades and quotes for securities transactions on the Consolidated Tape for the equities market. The Consolidated Tape provides a simple, low-cost mechanism for investors and issuers to understand the prevailing market dynamics for securities trading.

The SEC should consider establishing an analogous Consolidated Tape for securities lending. A system that provided for publishing the quantity, fees and/or rebates, duration and other material terms for each stock loan without attribution would provide issuers, investors and regulators the necessary data to better assess the risk and return of establishing a short position, while protecting the identity and intellectual property of any individual market participant. At a minimum, stock loan information should be collected by the Commission and considered for public dissemination in the future.

Section 984(b) of the Dodd-Frank Act provides a sensible framework for the SEC to tackle the issue of stock lending transparency. Section 984(b) of Dodd-Frank directed the SEC -- not later than 2 years from the date of enactment -- 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. The SEC advanced aspects of Section 984 in crafting requirements for certain investment funds but has yet to address requirements for broker-dealers in this area. Establishing a Consolidated Tape for securities lending is a common sense way to bring more transparency to this dark area of the market.

Eliminating Competitive Barriers for Public Investors

Transparent, public markets are critical to the success of the U.S. equity markets. Exchange quotations drive price discovery, and market participants bid at higher prices and offer to sell at lower prices when they have a reasonable expectation that their displayed price will attract a broad range of investors with different investment time horizons.

Because it is typically uncorrelated with other asset prices and held for the long-term, self-directed retail order flow represents one of the most sought-after classes of trading counterparty. Over the past year, retail flow has also been the fastest growing segment of the market. It is encouraging to see increased and broadening participation in investing, as public markets are a powerful mechanism for democratizing participation in economic growth and reducing economic inequality.

The vast majority of self-directed retail order flow, however, never makes it to the public market. Instead, retail orders are typically routed to a broker-dealer "wholesaler" for internalization, a process that guarantees an execution to the retail customer in exchange for granting the wholesaler an opportunity to trade with the order before other market participants. Internalization is beneficial to the individual retail investor if the execution results in meaningful price improvement relative to the public market, which it often does. However, internalization deprives investors in the public markets the opportunity to interact with those orders, resulting in "inaccessible liquidity" for large institutional investors.

Under today's regulatory framework, the proportion of trading on public exchanges is at an all-time low. In fact, at the end of last year, on some days more shares were executed in private, dark venues than on lit, public exchanges with displayed price discovery. Trading in securities with a higher level of retail participation may have 60-70% of their shares traded in the dark.

Investors trading on public exchanges, including the NYSE, have a limited ability to compete for much of the retail volume executed by wholesalers. In large part, this is due to the difference in the regulatory framework for broker-dealers and exchanges. For example, unlike exchanges, wholesalers can offer privately negotiated terms for price improvement or payment for order flow, choose to interact only with a curated set of market participants, and accommodate clients in cases where there may be a dispute.

However, investors trading on exchanges are also on unequal footing in a more straightforward way: off-exchange trading is permitted at price increments as small as $0.0001, while investors trading on exchanges are limited to price increments of $0.01.

NYSE Research has recently demonstrated that 30% of market volume is artificially constrained by this penny-wide regulatory requirement. This results in inefficient price discovery and makes it more difficult for public, institutional investors to access the full liquidity of the market.

The NYSE believes that it is time to harmonize the on and off-exchange price increment regimes. From a public policy perspective, if sub-penny trading is allowed in private dark trading, we believe similar conventions should also be allowed on public lit exchanges. Reducing the minimum pricing increment on exchanges in active, low-priced securities would lower investor trading costs, improve market transparency, and provide an increased opportunity for investors trading on exchanges to interact with retail orders.

Accelerating Trade Settlement to T+1

NYSE supports the growing consensus to accelerate industry settlement cycles from two days (T+2) to one day (T+1) after the trade. Though a shorter settlement cycle increases the potential for an operational error, the capital efficiency to be achieved by the industry is likely worth the risk.

According to DTCC, netting trades and payments for intra-day activity reduces the value of payments that need to be exchanged by an average of 98% each day. Without intra-day netting, massive capital inefficiencies would reduce and inhibit the liquidity retail and institutional investors depend upon to buy or sell with immediacy. Future innovations, including any possible acceleration to real-time or T+0 settlement, should preserve the benefits of transaction netting currently enjoyed by the industry.

We believe that free enterprise is the greatest force in history to improve the human condition. NYSE-listed companies spur economic growth by investing and innovating, leading to a higher quality of life for Americans and global citizens. Smarter regulation of today's equity market structure will improve investor confidence, encourage entrepreneurs to access the capital markets and allow the U.S. to extend its leadership in the global markets.

We look forward to working with the new Congress, the SEC, the Biden Administration, and all our stakeholders on these matters and thank the Committee for the opportunity to participate today.

U.S. House of Representatives Committee on Financial Services

Virtual Hearing

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

March 17, 2021

Vicki L. Bogan[1]

Cornell University

Chairwoman Waters, Ranking Member McHenry, and distinguished members of the Financial Services Committee, thank you for the opportunity to provide my views on an important matter that has been referred to as the "gamification of investing." In my remarks, I will focus on what research tells us about behavioral influences with regard to retail investing and the ways in which policies could better protect retail investor interests while maintaining individuals' access to financial markets.

I am an Associate Professor in the SC Johnson College of Business at Cornell University. My Ph.D. is in economics and I conduct research in the area of household finance and behavioral finance with a particular focus on household investment decision-making behavior. I have studied individual investor behavior for my entire academic career and have extensively published in this area. I also am the founder and director of Cornell's Institute for Behavioral and Household Finance as well as the vice chair of the Academic Research Council of the Consumer Financial Protection Bureau.

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[1] Geller Family Associate Professor of Applied Economics and Management, SC Johnson College of Business, Cornell University, Ithaca, NY; Director, Institute for Behavioral and Household Finance, Cornell University; Vice Chair – Academic Research Council, Consumer Financial Protection Bureau. The views expressed in this document and the associated oral testimony before the committee are solely those of the author and do not necessarily reflect the views of any institution with which the author is affiliated.

The Importance of Retail Investing for Households

Research in the area of household finance is clear and consistent in finding that participating in financial markets is a pathway to economic mobility and wealth building for households in the U.S.[2] Thus, it is important to remove barriers that hinder individuals accessing and safely participating in equity markets.[3] I strongly believe this, as I have spent more than 20 years studying household finance and individual investment decision-making behavior.

Over the past two decades, we have seen the manner and frequency with which individuals participate in financial markets evolve. From stockbrokers being one of the only means for retail investors to engage the market, to internet trading, to trading on smart phones using a computer application (henceforth referred to as an 'app'), financial market engagement by retail investors is being transformed. The online broker boom, facilitated by trading apps, is the latest stage in the evolution of retail investor market participation. Online brokers that allow retail investors easier access to financial markets are growing and are becoming an increasingly large segment of the market.

My own research has shown the importance of reducing market frictions, like transaction and information costs, to household participation in equity markets.[4, 5] The payment for order flow (PFOF)[6] business model used by Robinhood and other online brokers does in fact reduce a significant market friction that historically inhibited access to financial markets for retail investors. Specifically, the no direct fee per transaction is a beneficial way in which the barriers to participation have been lowered.

The PFOF model, however, does not mean that there are no transaction costs for the retail investor. Transaction costs, due to bid-ask spreads, remain, but the exact amount of these costs are not transparent to the retail investor.[7] While the implicit transaction costs due to the bid-ask spreads are not uncommon

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[2] Bogan, V. L. (2014). "The Stockholding and Household Wealth Connection," The Institute for Behavioral and Household Finance White Paper No. 1-2014.
[3] Bogan, V. L. (2014). "Household Investment Decisions," in Investor Behavior: The Psychology of Financial Planning and Investing, H. Kent Baker and Victor Ricciardi (editors) p. 83-98.
[4] Bogan, V. (2008). "Stock Market Participation and the Internet," *Journal of Financial and Quantitative Analysis*. 43 (1), 191-212.
[5] Seto, S. and Bogan V. L. (2013). "Immigrant Household Investment Behavior and Country of Origin: A Study of Immigrants to the United States," *International Journal of Finance and Economics*. 18 (2), 128-158.
[6] PFOF is the compensation a brokerage firm receives for directing an order to a market maker for the purpose of trade execution (https://www.investopedia.com/terms/p/paymentoforderflow.asp). Accordingly, market makers, like Citadel Securities for example, are customers of the online brokerage firms.
[7] A bid-ask spread is the difference between the price the buyer of a security pays and the amount the seller of the security receives. Within a PFOF business model, this difference is appropriated by the firm (market maker) that clears the transaction, firms like Citadel for example.

and apply to other platforms; requiring increased transparency for retail investors is an important consideration that I will revisit in my concluding comments.

The Gamification of Investing

The recent GameStop incident has highlighted several acute financial market functioning issues related to PFOF conflict of interest concerns and duration of settlement clearing. However, one critical issue resurfaced during this time that is not unique to the GameStop incident, and has the potential for long lasting negative effects on the finances of households – the gamification of investing.

The practice of financial institutions responsibly serving retail investors does not start and end with giving lower cost access to financial markets. Robinhood CEO, Mr. Vladimir Tenev is quoted as testifying that Robinhood works to "Give people what they want in a responsible, accessible way."[8] The gamification of investing, which has been pioneered by Robinhood, is not responsible because it has the demonstrated ability to harm the lives of people by creating financial fragility through wealth erosion.

As a first step, it is important to unpack the term "gamification." Merriam Webster defines gamification as "the process of adding games or game-like elements to something (such as a task) so as to encourage participation."[9] Online brokers that engage in gamification apply this process to the user interface for retail investors. They exploit natural human tendencies for achievement and competition by employing app designs that provide cues, pushes, and rewards to motivate individuals to make more trades, and encourage repetitive use of their trading app. In essence, these online brokers create an environment within the app that makes investors feel as if they are playing a game. It cannot be overstated how much this type of app environment can encourage detrimental trading behavior and belies the real risks that are being taken by the retail investors. Furthermore, Robinhood, in particular, is known to use advertising and marketing techniques that target individuals who are much more likely to be influenced by gamification strategies. Robinhood targets younger individuals who are more likely to have little to no investment experience and less likely to be financially literate.[10]

[8] House Committee on Financial Services Hearing, Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide – Part 1 (February 18, 2021), minute 1:35:50 of hearing video.
[9] https://www.merriam-webster.com/dictionary/gamification
[10] Imani Moise & Medha Singh. (February 2, 2021). Young, Confident, Digitally Connected – Meet America's New Day Traders. Reuters.com.

How Behavioral Science Can Negatively Influence Retail Investor Behavior

Beyond merely developing a user interface to facilitate ease of use for retail investors, online brokers like Robinhood employ powerful behavioral science based techniques to influence investor behavior in a particular direction. This is not solely engaging the user in a fun and interactive way. These online brokers use prompts, push notifications, and other nudges for the purpose of eliciting specific behaviors – increased trading by the investor.

The nudges to increase trading are not based upon a sound investment strategy for the specific investor. So, why are they used? Given the PFOF model, it is in the firm's best interest to have more trading volume. More volume equates to more revenue. Thus, at the core, these practices increase firm profits while potentially harming consumers. The app environment does make it feel like a game from the consumers' perspective, but in truth, the bigger game is the one that online brokers are playing with the retail investors. How much can they get the retail investors to trade even though it may not be beneficial for the investors to do so?

While access to financial markets is important, equally critical is the manner in which retail investors are able to interact with financial markets. Trading mistakes could be more damaging to household wealth accumulation than not accessing the markets at all. Even if financial markets are trending up, it may or may not be in an individual investor's best interest to engage in frequent trading.[11]

The realm of financial planning rarely supports day trading strategies for households. Buy and hold is the conventional wisdom for retail investors. While a special few may have the time, energy, and knowledge to watch the markets with the keen attention required to practice day trading successfully, most households have limited quantities of those resources. With or without direct transaction fees, it is generally not advantageous for the majority of households to trade multiple times per day.[12]

From the perspective of traditional finance theory, one could argue that, if individuals behave rationally, they will not trade more, if it is not in their best interest to do so. However, a key insight from behavioral science research is that nudges have strong and powerful effects. Nudges exploit behavioral biases to

[11] Barber, B. M. & Odean, T. (2001). "Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment." *The Quarterly Journal of Economics,* 116, 261-292.
[12] Seru, A., Shumway, T., & Stoffman, N. (2009). "Learning by Trading." *The Review of Financial Studies,* 23 (2), 705-739.

trigger specific responses.[13] Knowledge of a bias is not sufficient to mitigate its effect on one's behavior and mistakes are made even when the stakes are high.[14] Moreover, experienced traders and well-versed financial investors can get caught up and influenced by bias exploiting nudges applied by online brokers that engage in gamification.[15]

The gamification techniques used by online brokers are a form of consumer manipulation. Legal scholars familiar with behavioral science have discussed behavioral nudges in the frame of manipulation.[16] Manipulation, unlike coercion, does not interfere with an individual's options but interferes with the way an individual reaches a decision by inducing a decision-making process that does not "appeal to, or produce, conscious deliberation."[17] In this context, manipulation "infringes upon the autonomy of the victim by subverting" their decision-making powers.[18] This description could certainly be applied to the gamification techniques used to encourage retail investor trading that ends up being to the investors' detriment.

Of additional concern is that limited investment knowledge could make retail investors more susceptible to trading mistakes and manipulation. In the summer of 2020, there were several articles in the popular press discussing the gamification of investing. The articles reported consumers with little education, limited expertise, and inadequate information, trading exotic financial securities. Unsurprisingly, these individuals reported losing a great deal of money.[19] Additionally, younger investors, with very limited investment experience were particularly vulnerable. One of the saddest Robinhood-related retail investor tragedies was the report that a 20-year old college student died by suicide after seeing a negative balance of over three-quarters of a million dollars.[20] Hence, beyond losing money due to these apps, someone lost his life.

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[13] Behavioral biases are systematic mistakes that are due to what is essentially a psychological blind spot. By definition, blinds spots are hard to recognize and have nothing to do with intelligence.
[14] Choi, J. J., Laibson, D. & Madrian, B. C. (2011). "$100 Bills on the Sidewalk: Suboptimal Investment in 401(K) Plans." *The Review of Economics and Statistics*, 93 (3), 748-763.
[15] Jason Zweig. (December 4, 2020). Started Trading Hot Stocks on Robinhood. Then I Couldn't Stop. The Wall Street Journal.
[16] Sunstein, C. R. (2015). "The Ethics of Nudging," Yale Journal on Regulation, 32, 413-450.
[17] Ibid., p. 444.
[18] Ibid., p. 444.
[19] Nathaniel Popper. (July 8, 2020). Robinhood Has Lured Young Traders, Sometimes With Devastating Results. The New York Times.
[20] Sergei Klebnikov. (June 17, 2020). 20-Year-Old Robinhood Customer Dies by Suicide after Seeing a $730,000 Negative Balance. Forbes.com.

Low levels of financial literacy in the U.S. intensify concerns regarding the gamification of investing. According to surveys by the FINRA Investor Education Foundation, financial literacy is dismally low and there is a declining financial literacy trend. In 2009, only 42 percent of the survey respondents could answer at least four of five basic financial literacy questions on topics such as mortgages, interest rates, inflation, and risk. By 2018, the percentage had dropped to only 34 percent. Further, the decline was most pronounced among younger Americans ages 18 to 34.[21]

What Can Be Done?

Technology is transforming the finance industry in ways that increase access for retail investors. Increased access is beneficial, but the manner in which investors' access financial markets must be carefully managed to avoid deleterious consequences for retail investors. There is a significant opportunity for more consumer safeguards governing online broker app user interfaces and enhanced regulation of the online brokers. In order to mitigate investor manipulation through the gamification of investing, I would recommend the consideration of policy and regulation in four areas.

Regulation of User Interfaces

- Prohibit user interface mechanisms (e.g., push notifications) that have been designed to increase more trading volume without regard to consumer priorities or risks.

Enhancement of Consumer Disclosures

- Provide more accessible disclosure information to consumers with regard to the investing apps.
    - Disclosures should be written in easy to understand language with key points highlighted up front.
    - Disclosures should include language that discusses potential risks.
    - Require the inclusion of attention checks after disclosures to ensure individuals understand the key points related to the disclosures.

Enhancement of Transparency

- Consumers should be made aware of the firm's PFOF business model with the relationship between trading volume and firm revenue made salient.

[21] Lin, J.T. et al. (2019). The State of the U.S. Financial Capability Study. FINRA Investor Education Foundation. https://www.finra.org/investors/insights/finra-foundation-national-study-financial-prosperity-eludes-many-americans-despite-economy

- Consumers should be made aware that they may or may not get the best price for their trades.

Protection of Young Consumers

- Regulate and limit younger consumers' access.[22]

Online brokers can be important vehicles for retail investors to access financial markets. For the past few years, Robinhood and similar online platforms have marketed themselves as working to "democratize finance for all." However, this narrative does not ring true. This rhetoric distracts from the reality that these firms are reinforcing a status quo, established by Bernie Madoff, by converting customer orders into the actual products that are being sold.[23] The customers of these PFOF online brokers are in fact market makers, like Citadel Securities.[24] Hence, it is imperative that the retail investors be provided more protection through regulation. Improving and strengthening consumer financial protection laws and regulations is as critical to facilitating economic mobility as accessing the markets themselves.

Thank you for your time and for allowing me to participate in these proceedings.

[22] This could be developed similarly to *Title 3 of the 2009 Credit Card Accountability Responsibility and Disclosure Act.* https://www.ftc.gov/sites/default/files/documents/statutes/credit-card-accountability-responsibility-and-disclosure-act-2009-credit-card-act/credit-card-pub-l-111-24_0.pdf
[23] TD. (May 17, 1993). Madoff and NYSE 'Mix It Up' at Hearing on Payment for Order Flow. Securities Week. https://advance-lexis-com.proxy.library.cornell.edu/api/document?collection=news&id=urn:contentItem:3SJB-0K50-0010-74WV-00000-00&context=1516831.
[24] Edward Ongweso, Jr. (January 28, 2021). Robinhood's Customers are Hedge Funds Like Citadel. Its Users Are the Product. vice.com.

Written Testimony of
Alexis Goldstein
Senior Policy Analyst, Americans for Financial Reform

Before the United States House Financial Services Committee

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

March 17, 2021 10:00 a.m.

Chairwoman Waters, Ranking Member McHenry, and Members of the Committee:

Thank you for inviting me to testify at this hearing. My name is Alexis Goldstein and I am Senior Policy Analyst at Americans for Financial Reform, where my work focuses on financial regulation and consumer protection. Before working at Americans for Financial Reform, I worked as a programmer at Morgan Stanley in electronic trading, and as a business analyst at Merrill Lynch and Deutsche Bank in equity derivatives. There, I worked primarily as a product manager for the trading and risk management software used by the global equity options flow trading desks.

I want to start by thanking Chairwoman Waters for her leadership in convening the very first Congressional exploration of the issues raised by volatility in GameStop equities.[1] I am encouraged that the Committee is continuing to dig into the larger questions the GameStop phenomenon raises.

Many have framed the GameStop mania as a David vs. Goliath struggle. I believe it is more likely that, when we have full information about this episode, the story will more closely resemble Goliath vs. Goliath. The "Goliaths" in this case are the largest Wall Street institutional players: hedge funds, especially those that employ high-frequency trading algorithms, and the "flow" trading desks at major banks like Goldman Sachs and Morgan Stanley. Retail traders driven by the WallStreetBets subreddit and the exuberance that ensued may end up losing big, notwithstanding the squeeze they put on some institutional players.

These large institutional players have structural advantages over retail traders: superior data; sophisticated, high-frequency trading software; and access to trading venues not available to retail traders. These include "dark pools," private exchanges where they send large orders quietly to avoid moving the market against the trade, and "over the counter" markets, where

[1] Virtual Hearing, "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide," House Financial Services Committee, February 18, 2021, https://financialservices.house.gov/calendar/eventsingle.aspx?EventID=407107.

they trade with one another rather than on public exchanges.[2] These advantages mean that GameStop's 1,700 percent price run was not the end of Wall Street's dominance. In fact, it may also be a source of major Q1 2021 profits at large banks with flow trading desks. When I worked at Merrill Lynch from 2007 to 2009, its equity derivatives trading desks took in the biggest profits on the most volatile days. That's because they're mostly agnostic to price movements; rather they essentially make money on volume and market churn rather than the traditional ways that retail investors make money — by "buying low," holding and "selling high."[3]

My time on Wall Street also showed me that major institutional players guard information about their own positions, while simultaneously spending large sums of time and resources trying to glean the positions of their competitors — whether through market data, news stories, or rumors. Thousands of users of the WallStreetBets subreddit posting their positions and their future plans for those positions is a source of data that major Wall Street players will mine for information. Many will likely have created software to extract and analyze the content of the posts, and made, trading decisions based on it.[4]

It's understandable, however, why a narrative of David vs. Goliath emerged at this moment. Wall Street profits soared during the pandemic,[5] while Main Street endures intense and prolonged suffering, a phenomenon that economists have deemed the "K-shaped" recovery.

In November 2020, 10.7 million workers were officially unemployed, but the Economic Policy Institute estimates the real number of unemployed Americans is closer to 26 million.[6] A disproportionate burden of the impact of the pandemic falls on Black and Brown Americans. Latinx Americans have faced large losses in employment.[7] Black workers are more likely than other workers to be in "front-line" jobs,[8] but are less likely to be rehired if they lost their jobs; white workers are getting hired back twice as fast as Black workers.[9] Given the extreme imbalances in the economy right now, it makes sense that the media and the public would be drawn to a story of the "little guy" taking down a large, moneyed speculator.

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[2] https://www.nytimes.com/2021/02/01/opinion/gamestop-biden-wall-street-reddit.html
[3] *Id.*
[4] Justina Lee, "Quants Scrape Reddit to Help Hedge Funds Dodge More Retail Pain," February 1, 2021, https://www.bloomberg.com/news/articles/2021-02-01/quants-scrape-reddit-to-help-hedge-funds-dodge-more-retail-pain; and Katherine Burton and Hema Parmar, "Melvin Capital Dusts Off From GameStop Fiasco With 22% Gain," Bloomberg, March 3, 2021, https://www.bloomberg.com/news/articles/2021-03-03/melvin-capital-surged-22-in-february-after-gamestop-disaster?sref=f7rH2jWS. ("Plotkin told his team of data scientists to scour social media and message boards to look for shares that retail investors are rallying around.")
[5] https://www.marketwatch.com/story/wall-street-profits-soared-in-first-half-of-2020-amid-the-worst-pandemic-in-a-century-report-says-11603374500
[6] https://www.epi.org/publication/top-charts-of-2020-the-economic-fallout-of-covid-19/
[7] https://www.americanprogress.org/issues/economy/reports/2021/03/05/496733/latinos-face-disproportionate-health-economic-impacts-covid-19/
[8] https://www.epi.org/publication/top-charts-of-2020-the-economic-fallout-of-covid-19/
[9] https://www.huffpost.com/entry/white-workers-rehired-faster-black-workers_n_5f5fa3c0c5b68d1b09c5eabc

The GameStop issue shines a spotlight on issues in the market that long predate this incident. To begin to address them, regulators and lawmakers alike should examine the footprint of large institutional players in the GameStop phenomenon; investigate if large hedge funds are creating undue risks in regulatory blind spots; improve trading disclosures by hedge funds; scrutinize the Payment for Order Flow model; and consider changes to capital requirements at brokerages. Doing so would make the markets fairer and more transparent, better protect retail investors, and help to curb insider advantages.

Regulators Should Examine the Institutional Footprint during GameStop's Volatile Periods

While retail traders have traditionally been a small portion of the market, and thus often ignored by larger institutions, their numbers have shown dramatic growth in the last few years, especially during the pandemic as more and more individuals are unable to leave their homes. Credit Suisse estimates that retail trading has doubled to 30% of the overall market since the beginning of 2020.[10] But even with retail trading volumes at record levels, they are still less than one third of the overall market. Questions remain about the roles the Goliaths of Wall Street — the hedge funds and the flow trading desks of major investment banks — played in the GameStop price dislocation.[11] As *Bloomberg*'s Matt Levine speculated, much of the move in GameStop's price may not have been "caused by retail traders on Robinhood and Reddit, but by professionals, hedge funds and proprietary trading firms and professional day-trading shops."[12]

Major Wall Street institutions may choose to trade equity options "over the counter" — when large broker-dealers trade bespoke options with each other, instead of through the standardized options available on exchanges.[13] But Wall Street firms typically still "hedge" their positions by buying or selling listed stock. "Hedging" is a way to minimize the risk of large losses by trading an offsetting position. While doing so limits profits, it also limits losses.

When trading options, many Wall Street flow trading desks employ a technique known as "delta hedging," where options traders try to insulate their portfolio's value from moves up or down in the price of the stock; they do so by purchasing or selling stock against the options they trade.[14] Having a sense of the volume of over the counter options trades in "memestocks" like GameStop, Nokia, Blackberry, Koss, and AMC from January 21, 2021 - February 4, 2021 would provide a bit of a window into the role large institutions played in GameStop's volatile run up (and down) in price.

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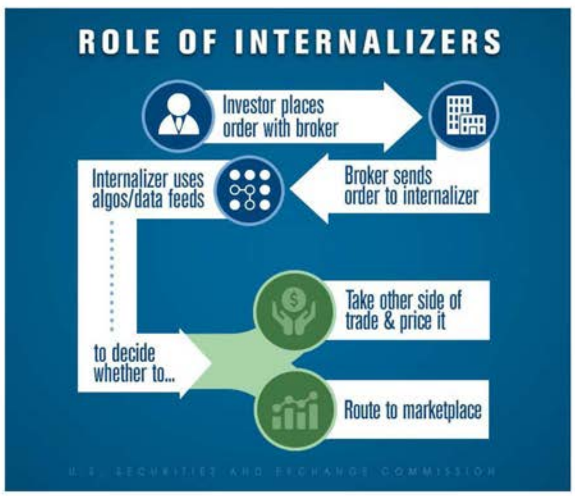
[10] https://www.cnbc.com/2021/02/13/why-retail-investors-are-here-to-stay.html
[11] https://ourfinancialsecurity.org/wp-content/uploads/2021/02/GameStop-Letter-to-HFSC-FINAL.pdf
[12] https://www.bloomberg.com/opinion/articles/2021-01-29/reddit-traders-on-robinhood-are-on-both-sides-of-gamestop
[13] https://www.investopedia.com/terms/o/otcoptions.asp
[14] https://www.investopedia.com/terms/d/deltahedging.asp

Thus, regulators should examine the trading volumes that institutional players made in over the counter equity options markets and dark pools (which are venues unavailable to retail traders) during the period of extreme volatility in GameStop trading. In addition, lawmakers should evaluate if there are data gaps or points of friction in current reporting regimes, and if so, work to bring more transparency and speed of reporting to over the counter options. The SEC should also work to finalize the Consolidated Audit Trail, first proposed after the 2010 "Flash Crash" (where in just ten minutes, the Dow Jones Industrial Average index lost 1,000 points, nearly 9 percent of its value, only to recover shortly thereafter[15]) and now long delayed.[16]

A Growing Dominance of Wholesalers in Retail Trading

As retail trading has become more popular, a large amount of their trades now execute in venues other than the stock exchanges. Rather than sending a clients' order directly to an exchange, market makers (also known as "wholesalers") like Citadel Securities can match an order against either its own inventory, or against other orders — this is a process known as "internalizing."[17]



A visualization of "internalization" by market makers by the Securities and Exchange Commission.[18]

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[15] https://money.cnn.com/2018/02/05/news/companies/dow-800-points-10-minutes/index.html
[16] https://www.washingtonpost.com/business/2021/02/03/gamestop-sec-regulation/
[17] https://www.bloomberg.com/opinion/articles/2021-02-05/robinhood-gamestop-saga-pressures-payment-for-order-flow
[18] https://www.sec.gov/news/pressrelease/2017-11.html.

If you combine the trade executions of Citadel Securities and Virtu Financial, two major market makers for retail trades, they execute a larger volume of U.S. stocks than the New York Stock Exchange.[19] Citadel Securities' is especially significant in listed equities (which include both stocks and exchange-listed equity options): its website proclaims that it executes approximately 47% of all U.S.-listed retail volume each day.[20] This means nearly half of retail equities trading is happening in a venue with less transparency.[21] By contrast, "lit" exchanges like NYSE or NASDAQ publish quotes that allow everyone to see the available liquidity in a given equity product.[22] As Professor Gina-Gail S. Fletcher noted in written testimony to the Senate Banking Committee, orders that execute off-exchange "are not contributing to price discovery," and with so many retail orders trading through wholesalers, retail trades become "inaccessible sources of liquidity." At a minimum, policymakers and regulators should evaluate if there are either data gaps or time lags in the reporting of off-exchange trades. But regulators should also examine the impact of the growth of off-exchange trading on price discovery writ large.

Before Citadel Securities dominated the retail market, it set about in 2008 to build an investment bank to rival the likes of Goldman Sachs.[23] At least one analyst pointed to the fact that, as a hedge fund, Citadel was less regulated, giving it an edge over the U.S. investment banks overseen by the Federal Reserve. "An unregulated company coming into this sector has a real good shot," Richard Bove, a financial-services analyst at Rochdale Securities in Lutz, Florida, said in 2010.[24] Despite its efforts, Citadel was ultimately unable to break into investment banking, and decided to re-focus on electronic trading and market making.[25] But Citadel's regulatory advantages have persisted. Unlike the major U.S. banks, Citadel is neither

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[19] John Detrixhe, "Citadel Securities gets almost as much trading volume as Nasdaq," Quartz. February 5, 2021, https://qz.com/1969196/citadel-securities-gets-almost-as-much-trading-volumeas-nasdaq/. (Citadel Securities accounts for 13.4 percent of stock trading volumes; Virtu Financial accounts for 9.4 percent; the New York Stock Exchange accounts for 19.9 percent of stock trading volumes).

[20] https://www.citadelsecurities.com/products/equities-and-options/; and https://www.citadelsecurities.com/footnotes/

[21] Phil Mackintosh, "Slicing the Liquidity Pie," Nasdaq, Feb 11, 2019, https://www.nasdaq.com/articles/slicing-the-liquidity-pie-2019-02-11 ("It's rare for an off-exchange venue to contribute quotes to the NBBO, but all the trades done still need to report to the SIP for everyone to see. Because these trades are coming from broker dealers directly, they need to first pass through an official Trade Report Facility (TRF). TRF trades don't disclose the venue that handles each trade, but recent reporting enhancements...require brokers to report aggregated trading to FINRA on a two-week lag.")

[22] *Id.*

[23] https://www.bloomberg.com/news/articles/2009-10-29/griffin-rebounding-from-55-percent-loss-builds-bank

[24] ("'An unregulated company coming into this sector has a real good shot,' said [Richard Bove, a financial-services analyst at Rochdale Securities]. Citadel Securities, unlike Goldman and Morgan Stanley, isn't overseen as a bank holding company by the Federal Reserve Board, he said.") https://www.bloomberg.com/news/articles/2010-05-20/rg-citadel-securities-filing-gives-glimpse-of-ken-griffin-s-banking-start

[25] https://www.bloomberg.com/news/articles/2011-08-11/citadel-said-to-be-in-discussions-to-sell-investment-bank-shut-research

supervised by the Fed, nor has it been designated a Systemically Important Financial Institution (SIFI). Thus, no regulator is looking holistically at risks across all of Citadel's firms.

Changing its focus to electronic trading and retail investors appears to have paid off for Citadel. A decade after abandoning its plans to compete in investment banking, Citadel's hedge fund has $33 billion in investment capital as of January 2021. Ken Griffin, Citadel's CEO, owns 85% of Citadel Securities, which had record revenues of $6.7 billion in 2020. From January 25 - January 28, Citadel Securities executed around 30% of GameStop shares.[26] In written testimony, Griffin boasted that "When others were unable or unwilling to handle the heavy volumes," Citadel was there, executing 7.4 billion shares on behalf of retail investors on January 27, which is "more shares for retail investors than the average daily volume of the entire U.S. equities market in 2019."[27]

Regulators, including the Financial Stability Oversight Council (FSOC), may want to consider investigating whether Citadel Securities' outsized presence in retail market making raises concerns about liquidity risk, counterparty risk, and interconnectedness — and thus, may be an emerging overall risk to U.S. financial stability.[28] The FSOC should also revive the interagency Hedge Fund Working Group that was eliminated by the Trump Administration.

Regulators Should Consider Increased Transparency in 13F Reporting

Another issue the GameStop situation has highlighted is the lack of transparency into hedge funds' positions. The SEC requires institutional investment managers that exercise investment discretion over $100 million or more of certain equity securities to file a 13F report with the SEC.[29] However, disclosures are quarterly, and lack disclosure of short stock. The SEC should consider amending the disclosures required by Form 13F to include short stock positions. The Commission should also consider reducing the reporting threshold,[30] and reducing the lag between the date triggering Form 13F disclosure and the required filing date, as some have suggested.[31]

Payment for Order Flow, Robinhood, and Best Execution

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[26] https://www.bloomberg.com/opinion/articles/2021-01-29/reddit-traders-on-robinhood-are-on-both-sides-of-gamestop?sref=f7rH2jWS#footnote-1

[27] https://financialservices.house.gov/uploadedfiles/hhrg-117-ba00-wstate-griffink-20210218.pdf

[28] https://www.davispolk.com/sites/default/files/2020-01-15_fsoc_shift_to_activities-based_approach_signals_emphasis_on_risks_from_digital_transformation.pdf

[29] https://www.sec.gov/divisions/investment/13ffaq.htm

[30] The SEC previously issued a rule proposal to raise the reporting threshold, but the proposal was shelved. See: https://www.institutionalinvestor.com/article/b1p176msszqf3p/Why-the-SEC-May-Have-Scrapped-Its-Controversial-13F-Proposal.

[31] https://corpgov.law.harvard.edu/2020/10/14/reporting-threshold-for-institutional-investment-managers/

It is important for regulators and lawmakers to consider how to make the true costs of trading more transparent. Payment for Order Flow (PFOF), an arrangement where a market maker pays a retail brokerage a pre-set fee for every trade they execute, obscures this cost in many ways.

In 2016, the SEC wrote a memo to its Equity Market Structure Advisory Committee, asking a series of questions about PFOF. The Commission pointed out that PFOF can "create potential conflicts with a broker's duty of best execution." Best execution is a legal mandate that requires brokers get the most advantageous order execution for their customers.[32] Brokers must conduct regular and rigorous reviews of its execution quality against competitors to evaluate if it's obtaining the best terms reasonably available for customer orders.[33]

The SEC's concerns about PFOF's potential conflict with best execution now seem prescient. Both the wholesalers most used by Robinhood, and Robinhood itself, have already faced regulatory enforcement actions for past failures on best execution and other issues:

- In December 2020, the SEC charged Robinhood with failing to disclose that it was using this Payment for Order Flow model at all. The SEC also found that Robinhood was failing to provide "best execution" to its clients, thus **costing them over $34 million** due to "inferior trade prices," even when factoring in zero commission trading.[34]
- FINRA fined Robinhood in 2019 for "best execution violations related to its customers' equity orders and related supervisory failures." Robinhood paid a $1.25 million fine.[35]
- In 2017, Citadel paid a $22.6 million fine to settle charges with the SEC over misleading statements to them about the way it priced trades.[36]
- In 2020, Citadel was fined by FINRA for trading ahead of clients.[37]
- In 2019, Virtu Financial settled with the SEC over violations of Regulation SCI.[38]

In the Commission's 2016 memo, it also noted that without PFOF, market makers could have "incentives to quote more competitively," leading to better prices for their customers. The SEC suggested that if PFOF were prohibited, market makers might need to lean harder on the competitiveness of their quotes in order to gain the business of brokers.[39] Without PFOF, we

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[32] https://www.sec.gov/fast-answers/answersbestexhtm.html

[33] https://www.sec.gov/spotlight/equity-market-structure/issues-affecting-customers-emsac-012616.pdf; and https://www.bloomberg.com/opinion/articles/2021-01-07/the-ipo-market-was-too-good?sref=f7rH2jWS.

[34] https://www.sec.gov/news/press-release/2020-321

[35] https://www.finra.org/media-center/newsreleases/2019/finra-fines-robinhood-financial-llc-125-million-best-execution

[36] https://www.sec.gov/news/pressrelease/2017-11.html; and https://www.sec.gov/litigation/admin/2017/33-10280.pdf.

[37] https://www.bloomberg.com/news/articles/2020-07-21/citadel-securities-fined-by-finra-for-trading-ahead-of-clients; and https://www.finra.org/sites/default/files/fda_documents/2014041859401%20Citadel%20Securities%20LLC%20CRD%20116797%20AWC%20sl.pdf.

[38] https://www.sec.gov/enforce/34-87155-s

[39] https://www.sec.gov/spotlight/equity-market-structure/issues-affecting-customers-emsac-012616.pdf

also might see a smaller portion of retail trades being executed off-exchange, and instead trading more on the "lit" markets like NYSE and NASDAQ. With more volumes on lit exchanges, we might see tighter spreads (a "spread" is the difference between the price participants are willing to buy and sell at). The SEC outlined a series of potential steps that could address the issues raised by PFOF, including an outright prohibition (as exists in Canada[40] and the United Kingdom[41]), or requiring brokers to pass any payment for order flow back to its customers.

In the first House Financial Services Committee hearing on GameStop, Robinhood CEO Vlad Tenev was asked if he would voluntarily agree to pass payments for order flow on to Robinhood's customers.[42] He declined, saying that it would end commission free trading. His hesitance may be rooted in the fact that from 2015-mid 2016, a staggering 80% of Robinhood's revenue came from PFOF.[43] While many other retail brokerages also take PFOF, Robinhood competitor Public decided to end its participation in PFOF in February,[44] while Fidelity has long declined to take PFOF on stock trades[45] (though it does on options[46]). Both brokerages offer commission free trades.

Robinhood has simultaneously argued that the PFOF amounts are low — an average of $0.0023 per equity share.[47] If that's the case, it seems reasonable to expect that, should Robinhood's revenue stream of PFOF end, the commissions it charges to clients would also be in the $0.0023 per equity share range.

T+2, T+1, T+0, Real Time Settlement, and Broker Capital Requirements

Robinhood tried to blame the freeze it placed on purchases of GameStop and other volatile names by their customers on a number of factors, including clearinghouse capital requirements[48] and the two-day trade settlement period (T+2). But it is unclear if Robinhood's singular focus on clearinghouse requirements and a lack of real time settlement may be an attempt to explain away what may have been internal risk failures, namely the inability to predict

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https://www.reuters.com/article/us-retail-trading-canada/canada-stock-market-rules-curb-platforms-linked-to-churning-u-s-stocks-idUSKBN2A92NC

41 The UK's Financial Conduct Authority (FCA) examined the practice of PFOF and decided to ban it in 2012. See, e.g. Sviatoslav Rosov, "Payment for Order Flow in the United Kingdom," CFA Institute, June 2016,
https://www.cfainstitute.org/en/advocacy/policy-positions/payment-for-order-flow-in-the-unitedkingdom.

42 https://twitter.com/RealBankReform/status/1362529887119167491

43 https://www.sec.gov/litigation/admin/2020/33-10906.pdf at 5.

44 https://medium.com/the-public-blog/were-officially-pfof-free-1232acf11ee8

45 https://www.fidelity.com/trading/execution-quality/overview

46 https://www.spglobal.com/marketintelligence/en/news-insights/trending/liJL9zOpAk76f_BrDunluA2

47 Jim Swartwout, "Demystifying payment for order flow," March 4, 2021,
https://robinhood.engineering/demystifying-payment-for-order-flow-119581544210.

48 https://blog.robinhood.com/news/2021/1/29/what-happened-this-week

needed backstops to guard the firm against failure, which led to Robinhood needing to raise some $3.4 billion dollars in a matter of days.[49]

Whilte there are many reasons to consider moving to T+1 settlement, challenges remain that make moving to T+0, or even real time settlement, difficult at this time. As one example, T+0 would eliminate flexibility some market participants rely on[50], and prohibit netting — which allows transactions to be "netted" together even if the trades execute over tens, or hundreds, or thousands of separate orders. As the Depository Trust & Clearing Corporation (DTCC) wrote, "Allowing trades to 'net' settle reduces the total amount of cash and securities that have to go back and forth throughout the day, and eliminates a significant amount of operational and market risk."[51] Losing the benefit of netting would create significant new operational costs.

Rather than pushing to move to T+0 or real time settlement before the industry has even made it to T+1, Congress and the regulators should instead examine if broker capital standards as they are today are adequate to withstand periods of extreme market stress.[52]

Conclusion

In the wake of the 2008 crisis, research showed that while casino gambling went down, playing small dollar lottery games with big jackpots increased among those who continued to struggle financially through the recession.[53] Reddit and Robinhood are driving a new kind of financial lottery: trading cheap options that require giant price moves to become profitable. Robinhood is certainly trying to encourage this, using targeted advertising on social media, with a Tweet declaring "Millions of people will soon begin receiving stimulus checks"[54] and links to a blog post that says "At Robinhood we think a missed opportunity is waiting too long to start investing, or worse, never investing at all."[55]

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49 https://www.bloomberg.com/news/articles/2021-02-01/robinhood-raises-an-additional-2-4-billion-from-its-investors

50 https://www.bloomberg.com/opinion/articles/2019-06-19/private-markets-could-be-more-public

51 https://perspectives.dtcc.com/articles/leading-the-industry-to-accelerated-settlement

52 https://ourfinancialsecurity.org/2021/02/letters-to-congress-letter-to-house-financial-services-on-gamestop-and-issues-in-the-stock-market/

53 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5524821/

54 https://twitter.com/RobinhoodApp/status/1370417373065310219

55 https://blog.robinhood.com/news/2021/3/12/the-building-blocks-of-your-financial-journey

Promoted Tweet by Robinhood stating "Millions of people will soon begin receiving stimulus checks. As you consider whether to spend, pay down debt, or save, we want you to be prepared"[56]

But those who tend to make the most during these bubbles are the already wealthy.[57] Capital markets should be reformed to be fairer for retail investors, and to curb the abuse of insider advantages. The way to truly democratize the economy, is to curb the drive to speculation by pouring national resources into lifting up Americans and rebuilding public institutions. Canceling federal student debt,[58] which President Biden can do without Congress,[59] would grow the economy,[60] relieve the disproportionate debt burdens carried by Black and Brown borrowers,[61] and incentivize science and engineering graduates to consider careers benefiting the public good, rather than just building the best math formula that can earn a big Wall Street firm a few more fractions of a cent on a stock trade. A modest wealth tax could be redirected to priorities like universal child care or tuition free higher education. Lawmakers should ensure hedge funds aren't taking advantage of regulatory blind spots to make themselves Too Big to Fail. A very small financial transaction tax could fund investments in reducing the racial wealth gap through programs like baby bonds.[62]

Trying to mimic this with zero-sum policies that seek to supposedly "democratize" access to financial markets and "disrupt" old ways of thinking helped get us into this mess. But bold investments in public institutions can get us out.

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[56] https://twitter.com/RobinhoodApp/status/1370417373065310219
[57] https://business.time.com/2009/04/15/the-asset-bubble-theory-of-income-inequality/
[58] https://www.nytimes.com/2021/02/01/opinion/student-debt-cancellation-biden.html
[59]
https://www.warren.senate.gov/imo/media/doc/Administrative%20Student%20Debt%20Relief_Legal%20Q&A%2011.30.20201.pdf
[60] https://www.npr.org/2019/11/25/782070151/forgiving-student-debt-would-boost-economy
[61] https://www.brookings.edu/essay/student-debt-cancellation-should-consider-wealth-not-income/
[62]
https://www.urban.org/urban-wire/how-baby-bonds-could-help-americans-start-adulthood-strong-and-narrow-racial-wealth-gap

Testimony of Alan Grujic

Founder and CEO of All of Us Financial

Before the Committee on Financial Services United States House of Representatives

March 17, 2021

Introduction

Good morning, Chairwoman Waters, Ranking Member McHenry, and distinguished members of the Committee. My name is Alan Grujic. I am founder and CEO of All of Us Financial, a San Francisco-based online broker, launched in May 2020. Our mission is to empower and educate retail investors. Thank you for the opportunity to discuss January's unprecedented activity in GameStop and associated lessons learned to improve our markets.

The "All of Us" Story

I am Canadian by origin, a US citizen, and have lived in San Francisco since 2005. I am an engineer by training, but my career has been in capital markets. For a decade, I worked for Toronto-Dominion Bank across the globe. In 2002, I co-founded a high-frequency trading firm, Infinium, which traded a wide variety of financial products on a global basis. In 2011, I founded a quantitative hedge fund, Galiam, which constructed and traded portfolios in a fully-automated fashion. Our clients included large global financial institutions.

In my market travels, I found that no one was properly solving a critically important problem: leveling the playing field for retail investors. Retail investors operate at a disadvantage and underperform the broader markets over time. I decided to apply my experience to try to address this critical societal need.

The narrative that "markets are rigged" and that big institutions steal from the little girls and guys out there is mostly not correct. That narrative exploits fear and reduces rich complexity to a simple fairy tale. Find a victim, finger a villain, promote a hero.

We don't live in Sherwood Forrest. Our markets are well-structured, highly competitive, and expertly regulated. There is also plenty of room for improvement, particularly as we adapt to a changing world. One needed improvement is to deliver institutional-grade capabilities to retail investors. Technology platforms can deliver institutional-quality infrastructure, data, knowledge, access, and influence into the hands of, and in the service of, retail investors.

That's our mission at All of Us.

January's Activity in GameStop

Social media has changed individual behaviors. As with most things, change can be both good and bad. An implement can be both a tool for building and a weapon for destroying.

In markets, we regularly experience unanticipated events, when history-based risk models don't provide effective warning. With GameStop, groups of individual investors acted in concert, at a speed and size unimaginable without social media in its current form. Robinhood and others didn't have the required capital to cover client positions. Yes, Robinhood could have been more proactive. But market participants need to upgrade risk models to reflect the current state, in which quick collective action at scale can cause concentration risk to spike. Concentration risk can by managed by accounting for this unprecedented activity in our business management, capital reserves, and forecasting.

Social media can empower individuals, but also influence them. When does influence become manipulation? As a professional trader and investor, I fear traders in GameStop were being manipulated to take actions not in their best interests. Manipulation is illegal, and I expect regulators have paid close attention and will take appropriate action.

While pundits debate who "won" and "lost" the GameStop battle, we should be very concerned about the disorderly and volatile battlefield. Disorderly and overly volatile markets lead to business failures, extreme shifts in fortunes (both good and bad), and larger risk premiums. Instability and uncertainty are bad for our economy. Well-designed and operated markets are the solution. Our industry must learn from the GameStop growing pains and improve.

Payment for Order Flow, Plus Transparency & Alignment

Let me say this for the record: we are paid for order flow at All of Us. Because we believe in radical transparency and alignment, we share that revenue with our customers. In fact, one of our core principles is to share every revenue stream. We believe that is the best way to align our interests with our customers, and also the best way to educate our customers about how the markets work. Some view disclosure as a point-in-time regulatory requirement. We view disclosure as a real-time foundation for customer education and alignment.

PFOF is not a necessary component of our market structure, but it is one of several effective ways for markets to operate. I acknowledge there is fear of bad actors and conflicts to be managed, but that is not uncommon in markets, business, and life.

Importantly, regulation requires all market makers to trade with customers at the best prices available in the market—and there is a comprehensive execution audit trail for brokers and regulators to monitor. This does not guarantee that customers always get the best execution possible, but it does ensure that customers get very good execution. Above this very high hurdle, brokers compete to deliver value to customers in a variety of ways.

As we consider PFOF, there are some truths that we should face.

First, in any risk market, liquidity has value. Provision of liquidity is a service extended; removal of liquidity is a service consumed. Market makers provide a valuable service and need to earn a return.

Second, transaction services, such as matching buyers with sellers and settling trades, have value. A broker can avoid market makers and send orders to an exchange, but the exchange will also need to earn a return for this service.

Third, market makers are indifferent between PFOF and price improvement, because the net price to them is the same. Brokers care, however. Brokers also need to earn a return for providing services in a highly competitive environment. If we remove PFOF, it seems likely that commissions will increase. Other innovations, such as fractional shares, may become uneconomical. And as brokers replace lost revenues, unintended consequences for retail investors are likely.

Last, some claim separating retail and institutional flow harms retail investors. They are incorrect. The opposite is true. Market makers earn a return by providing liquidity, and they earn more money from retail flow than institutional flow. Market makers offer price improvement or PFOF to retail investors; often, market makers try to *avoid* institutional flow. If we force a combination of retail and institutional flow, so that everyone gets the same average price, that price will be worse for retail and better for institutional than it is today.

Short Selling Transparency & Securities Lending

Short selling is also an instrument that can be used for good or bad purposes. A short seller, just like a buyer, that manipulates market it is bad. But a short seller that provides liquidity to a buyer to facilitate a trade is good.

Vitalik Buterin, the creator of Ethereum, has said that "short-selling is to markets as criticism is to free speech." I agree. Unfortunately, public company management is not always truthful, and short sellers that believe management is misrepresenting facts add information and liquidity to the market by expressing this view.

More transparency and efficiency in securities lending is welcome. All of Us shares revenues associated with securities lending with our customers. Improvements here would benefit retail investors.

Room for Improvement: T+2

Modern technology can facilitate near-instant settlement, via distributed ledger technologies or other means. Any delay in settlement increases the risk in the financial system. It is obvious that the longer two parties wait to settle a trade, the higher the risk that one fails to meet their end of the bargain. Moving from T+2 to T+0 means less settlement risk, which means less capital required to manage this risk, which leads to greater capital efficiency—which ultimately improves the real economy.

Gamification & "Social Investing"

Social media platforms and gamification are powerful forces, which can also be used for both good and bad purposes. But we need to go forward, not back. Society is evolving and younger generations want products and services delivered via social media platforms. Gamification and social investing can drive financial literacy education and encourage healthy behavior, such as regular saving and investing.

All of Us uses social and customer competitions to provide context and guidance. Last October, we launched our "Sharpeshooter Challenge" to reward customers who reduced portfolio risk. Everyone knows that you need to take risk to earn a return, but we want to raise awareness that risk can lead to both positive and negative outcomes. With the right tools, retail investors can learn to measure and manage risk.

Brokerage is highly competitive and social investing innovations will continue. I expect that FINRA and the SEC are considering how to update regulation to address an evolving society, as previously done to meet technological change. The right balance is to facilitate innovation for the benefit of a rapidly growing number of retail investors, while ensuring continuity of policy and practice that delivers investor protection.

Conclusion

Our markets are a wonderful means for all to build wealth. Market participants are innovative and competitive, infrastructure is transparent and resilient, regulators are expert and well-resourced. But as the GameStop activity shows, our markets can always be improved. And efforts to educate and improve the experience of retail investors are critical as markets become increasingly accessible—and more and more people invest for the first time.

I appreciate the opportunity to appear before the Committee today. I look forward to answering your questions at the appropriate time.

BETTER MARKETS

Testimony of Dennis M. Kelleher
President and CEO Better Markets, Inc.
Before
The U.S. House Committee on Financial Services

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

March 17, 2021

Good morning Chairwoman Waters, Ranking Member McHenry, and Members of the Committee on Financial Services. Thank you for the invitation to testify today.

Better Markets, Inc. ("Better Markets") is a non-profit, non-partisan, and independent organization founded in the wake of the 2008 financial crisis to promote the public interest in the financial markets, support financial reforms of Wall Street, and make the financial system work for all Americans again. Better Markets works with allies—including many in finance—to promote pro-market, pro-business, and pro-growth policies that help build a stronger, safer financial system, one that protects and promotes Americans' jobs, savings, retirements, and more.

To that end, Better Markets has filed over 300 comment letters with U.S. securities, banking, and derivatives regulators, many addressing the implementation of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act").[1] We have also published numerous letters, reports, fact sheets, and white papers on public policy issues pertinent to U.S. securities markets and had hundreds of meetings with U.S. regulators and others, including related to the specific issues of this hearing as set forth in Appendix D attached hereto. Much of our attention has focused on critical issues before this Committee, including ensuring that the financial system (1) supports the real economy, jobs, and economic growth; (2) is resilient and not prone to crashes; (3) protects workers, consumers, investors, and markets; (4) reduces wealth and income inequality; and (5) is designed to combat structural racism and the climate crisis. Our website, www.bettermarkets.com, includes information on these and our other public interest activities.

My name is Dennis Kelleher, and I am the Co-founder, President, and Chief Executive Officer of Better Markets. Prior to that, I had the privilege to work with a number of you while I was a senior staffer for three different U.S. Senators. Most recently, I served as Chief Counsel and Senior Leadership Advisor to the Chairman of the U.S. Senate Democratic Policy Committee. Before that, I served as Deputy Staff Director and General Counsel for what is now known as the U.S. Senate Health, Education, Labor & Pensions (HELP) Committee, and as Legislative Director and Leadership Advisor to the Secretary of the Democratic Caucus. Prior to my experience in the U.S. Senate, I was a partner at the global law firm of Skadden, Arps, Slate, Meagher & Flom, where I specialized in securities and financial markets in the U.S. and Europe. Prior to obtaining degrees at Brandeis University and Harvard Law School, I enlisted in the U.S. Air Force while in high school and served four years active duty as a crash-rescue firefighter. I grew up in central Massachusetts. Further information on my background and work can be found here.

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1 Public Law 111-203, 124 Stat. 1376 (2010).

Table of Contents

I. **The many serious conflicts of interest, market frailties, and market design flaws that have too long plagued the U.S. securities markets and adversely affected investors need to be investigated and examined.**

Let me first applaud you, Madame Chair, and all of the Members of the Committee for convening a second hearing of the U.S. House Committee on Financial Services ("Committee") to examine critical market structure and regulatory issues raised by the frenzied trading in GameStop and other equities. The Committee's consideration of these issues will bring much-needed public attention to the regulatory and industry reforms that are necessary to preserve and enhance the fairness, safety and soundness, transparency, and efficiency of our preeminent securities markets. Given the number and complexity of the issues involved, I urge the Committee to continue its vital oversight and policy-setting function by convening additional hearings to continue examining our regulatory frameworks and the financial markets ecosystem that not only enabled these events but increased risks to investors and the financial system as a whole.

This hearing, of course, is not about the stock-market gyrations of a single company, GameStop, but rather, about the quality and resiliency of our markets, ending predatory (if not illegal) and other harmful practices, and stopping what too many in the financial industry continue to view as a get-rich-quick game. As this Committee well knows, because of their serious implications for working Americans, our financial markets must not be viewed as a game. Yet, almost two out of three of Americans believe that investing in the securities markets is indeed a "rigged"[2] game and nearly three out of five Americans rightly view the stock market as disconnected from the economic well-being of working families.[3]

This public sentiment is far from new. In our efforts to understand the views of the American people, Better Markets itself commissioned independent polling seven years ago and found that almost two out of three voters agreed that "[t]he stock market is rigged for insiders and people who know how to manipulate the system."[4] The GameStop saga not only provides new context for these perceptions and beliefs but confirms that longstanding structural advantages and market practices have harmed our markets, adversely affected investors, and given rise to a loss of public confidence in our financial markets.

That cannot be allowed to continue. Our markets may be the envy of the world, but that is not pre-ordained, guaranteed, or destined to always be the case. Indeed, they are the envy of the world only because they are, in a number of critical respects, transparent, well-regulated, and policed, which is why investors and the public historically have had faith and confidence that our markets are fair and relatively free of fraud. That confidence underpins our markets; lose that, and our markets risk taking on characteristics of the many backwater markets around the world that are viewed as cesspools in which predators and criminals can exploit everyone else.

My colleagues and I at Better Markets commend the Chairwoman and the Members of this Committee who have been courageously shining a light on the need for new and strengthened rules to govern our evolving securities markets. We well know the power and influence of the large, incumbent financial firms that enrich themselves under the current market structure and practices prevailing in today's markets, even if that does not serve the purposes of capital formation, price discovery, financial stability, and investor protection.

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2 *See* C. Williams, *Amid GameStop Frenzy, People Believe the Stock Market is Stacked Against the Little Guy*, Morning Consult (Feb. 3, 2021), *available* at https://morningconsult.com/2021/02/03/amid-gamestop-frenzy-peoples-pitchforks-are-out-for-wall-street/.

3 *See* J. Burke, *Americans increasingly see the stock market as a barometer just for the rich, not the whole economy*, CNBC (Dec. 11, 2020), *available* at https://www.cnbc.com/2020/12/11/americans-increasingly-feel-the-stock-market-isnt-barometer-for-economy-but-instead-the-wealdoesnt-indicate-overall-economy-health-but-that-of-the-wealthy-and-coporations.html. According to one estimate, "only 10% of those in the bottom half of the wealth distribution own [any] stocks [at all], [with] less than a third of the middle class" owning the same. *See* T. Ghilarducci, *Where Typical Americans Have Their Wealth*, U.S. Committee on Banking, Housing, and Urban Development, "Does Wall Street Always Win? GameStop, Robinhood, and Retail Investors" (Mar. 9, 2021), *available* at https://www.banking.senate.gov/imo/media/doc/Ghilarducci%20Testimony%203-9-211.pdf. It goes without saying that reforming the securities markets will not, in itself, adequately address economic inequalities, racial disparities in wealth, climate concerns, and many other injustices created by or that are a byproduct of our economic system. However, it is one of the places that we must start.

4 *See* J. Puzzanghera, *Poll finds 64% of voters believe stock market is rigged against them*, L.A. Times (July 17, 2014), *available* at https://www.latimes.com/business/la-fi-wall-street-regulation-dodd-frank-poll-20140717-story.html.

I would like to emphasize three points before discussing a number of substantive issues in more detail.

- First, as we delve into the details of equity market structure and discuss the concealed practices within our securities markets that are unfamiliar, if not entirely unknown, it must be remembered that most of the policy responses to address the identified complexities and practices can be relatively simple—if there is the political will to examine issues impartially and thoroughly and to regulate practices and markets appropriately.

- Second, and undeniably, it must be acknowledged that most of the regulatory issues and market practices we will discuss in this hearing have been intentionally complexified and overengineered by the financial industry and U.S. regulators—sometimes, inadvertently but often deliberately—to the advantage of a very small number of Wall Street firms, which seek to extract profits from investors by "getting between the wall and the wallpaper."[5] ***The consequence, and too often the goal, of this created complexity has been the transformation of our financial markets from a wealth creation system for the many into a wealth extraction system for the few.***

- Third, and finally, it must be conceded that the Securities and Exchange Commission ("SEC") already has sweeping authority to do much of what needs to be done in connection with the issues in this hearing. The failure of the agency to appropriately respond to the most apparent deficiencies is not due to a lack of legal authority but a multi-decade lack of courage and imagination to take meaningful actions based on existing authorities. Furthermore, in material respects, the market fragmentation exploited by predatory firms, which also increase risk and opacity in our securities markets, is a function of the law itself—not necessarily lawbreaking. It is therefore critical that the SEC re-examine actions that already have been taken and especially, the distortive and harmful practices that have been directly or indirectly, implicitly or explicitly, or *de facto* declared or assumed to be *legal*, like payment for order flow, in addition to those that remain unaddressed, ambiguous, or illegal.

  That's why in the course of examining these issues, the Committee must searchingly evaluate the actions and positions of the SEC and the Financial Industry Regulatory Authority ("FINRA"). Although certain legislative solutions may be necessary, the SEC and FINRA already have broad authorities to establish guardrails and punish and deter misconduct, manipulation, and distortive trading practices in our securities markets, each of which is essential to bolstering and restoring capital formation, sound market mechanisms for capital allocation, market integrity and stability, and investor confidence and trust.

A. Harms to Investors: The GameStop trading frenzy likely imposed hundreds of millions, if not billions, of dollars of losses on everyday investors.

Just a little more than two months ago, on December 31, 2020, GameStop closed at a mere $18.84 per share. By January 27, 2021—one month later—GameStop closed at an astonishing $347.51 per share, representing an 1,844 percent increase in share price. During those four weeks, there was no discernable change in the fundamental outlook of GameStop's business prospects that could explain or rationalize this kind of precipitous climb in the company's share price. However, had investors purchased the stock near the end of 2020, rode the so-called "Reddit Rebellion" to these heights, and closed out all GameStop positions on January 27, 2021, they would have made a substantial amount of money trading a stock that

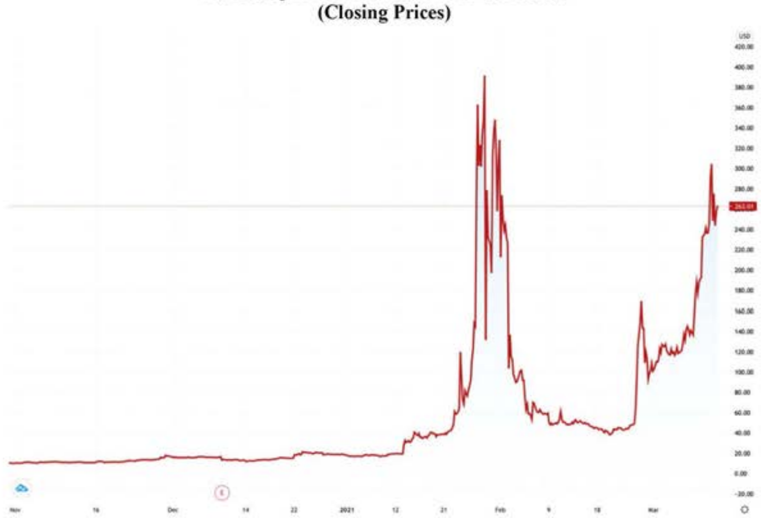
[5] To our knowledge, this phrase was first employed to describe the wholesale brokerage model in the U.S. treasury markets. *See* Thomas Jaffe, *Getting between the wall and the wallpaper* (Oct. 20, 1997), *available* at https://www.forbes.com/forbes/1997/1020/6009066a.html#7d354a61363d.

some analysts viewed as sliding slowly but surely towards the fate of Blockbuster Entertainment, Inc.—bankruptcy and liquidation.[6]

However, it must be remembered that for each person that did buy low and sell high, someone else was buying high—and often very, very high—before an ensuing and breathtaking price plummet. Many (possibly most) investors (some living by the investment philosophy that "you only live once" ("YOLO")) found themselves late to the revelry, buying at an inflated price, and thus adversely affected by a precipitous decline in the GameStop share price (as they frequently indicated on Reddit and elsewhere). Only six trading days after the late January peak, on February 4, 2021, GameStop closed at a mere $53.50 per share, representing a staggering $429.50 per share retreat from its intraday peak of $483.00 on January 28, 2021. Any investor that purchased GameStop in late January 2021 for fear of missing out ("FOMO") on the speculative fervor and held that position for a single week would have experienced massive, potentially ruinous losses.

Figure 1.

GameStop Price November 2019 to Present (Closing Prices)



Source: Trading View, As of Wednesday, March 10, 2021

[6] I am not a stock analyst. However, as our February 16, 2021 letter to the Committee points out, even a rudimentary review of GameStop's financial and business prospects before the meteoric rise of its stock price would have yielded the following conclusions: GameStop was bleeding revenue in 2019 and 2020; it was closing stores with little to no prospects of re-opening them, and that was before the COVID-19 pandemic kept most people away from the types of public places where many of GameStop's stores are located; and its basic business—that of renting and selling hard-disk video games—was under threat from the new generation video game consoles that were no longer equipped with hard-disk readers and instead required gamers to digitally download or stream the games. *See* Better Markets' Letter to M. Waters, Chairwoman of the House Financial Services Committee, et al., *Re: Critical Issues to Address in the February 18, 2021 Hearing: "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide"* (Feb. 16, 2021), *available* at https://bettermarkets.com/sites/default/files/Critical%20Issues%20to%20Adress%20in%20the%20Game%20Stop%20Hearing.pdf.

Yet, had the same FOMO investor simply held GameStop for one more month, his or her position would have been resurrected by GameStop's subsequent and inexplicable increase to an intraday high of $348.50 as of Wednesday of last week, the very same trading day that the stock then dropped 40 percent in just 25 minutes.[7]

It is difficult to determine precisely how YOLO, FOMO, and everyday investors fared throughout this unprecedented GameStop volatility,[8] but countless investors undoubtedly lost hundreds of millions, if not billions, of dollars in aggregate.[9]

B. <u>Harms to Markets: GameStop-like trading frenzies damage investor confidence and undermine the fundamental purposes of the securities markets.</u>

The detrimental effects of the extraordinary GameStop volatility over the last two months are not limited to losses experienced by day traders and longer-term investors in the company (and it is important to distinguish the effects on these and other categories of market participants). Such dramatic and unfounded volatility also damages investor confidence broadly and undermines the critically important purposes of the securities markets.

Working families most often build their wealth through home ownership and indirect and direct securities investments,[10] so the policy discussion concerning the integrity of the securities markets is nothing less than a discussion about wealth creation, standards of living, social mobility, economic opportunity and security, retirement dignity, the pursuit of happiness, and ultimately, the ability to achieve the American Dream.

1. **<u>GameStop-like trading frenzies must be analyzed for their effects on the financing and signaling purposes of the securities markets.</u>**

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7 *See* J. Pound, *GameStop drops by 40% in 25 minutes*, CNBC (Mar. 10, 2021), *available* at https://www.cnbc.com/2021/03/10/gamestop-surges-40percent-then-wipes-out-gain-completely-and-is-halted-again.html.

8 The performance across Robinhood's accounts likely would be a fairly good proxy for retail investor performance in GameStop over the described time period. Robinhood should be able to determine—and report to the Committee on—the median and average losses in investor accounts that found themselves on the wrong side of the GameStop trading. That statistic must be isolated to individual accounts with negative performance, as the gains experienced by certain investors could obscure the detrimental effects of the GameStop frenzy on other investors. In his testimony before this Committee, Robinhood's Chief Executive Officer instead cited the misleading statistic that "[t]he total value of our customers assets on Robinhood exceeds the net amount of money they have deposited with us by over $35 billion," which says nothing about risk-adjusted returns, time horizons, or the percentage of assets obtained through credit arrangements rather than deposits.

9 Notwithstanding a current lack of reliable data on the full extent of GameStop trading losses, media reports and Reddit posts have provided numerous anecdotes about everyday investors who were caught up in the frenzy and lost sums that were significant to their families. *See, e.g.*, D. Harwell, *As GameStop stock crumbles, newbie traders reckon with heavy losses*, Washington Post (Feb. 2, 2021), *available* at *https://www.washingtonpost.com/technology/2021/02/02/gamestop-stock-plunge-losers/*; *see also* R. Ensign, *GameStop Investors Who Bet Big—and Lost Big*, Wall Street Journal (Feb. 15, 2021), *available* at https://www.wsj.com/articles/gamestop-investors-who-bet-bigand-lost-big-11613385002; *see also* M. Phillips et al., *The Hopes That Rose and Fell With GameStop*, New York Times (Feb. 7, 2021), *available* at https://www.nytimes.com/2021/02/07/business/gamestop-stock-losses.html.

10 Private-sector defined contribution retirement plans alone, like company-sponsored 401(k)s, cover more than 100 million Americans and hold securities with a value of at least $8.8 trillion. *See, e.g.*, Vanguard, *How America Saves* (2020), at 7, *available* at https://institutional.vanguard.com/ngiam/assets/pdf/has/how-america-saves-report-2020.pdf. In addition, defined benefit (pension) plans, mutual funds and securities held in private brokerage accounts, and government savings programs, like the federal thrift savings plan, provide tens of millions of individual workers exposure to the U.S. securities markets as well.

The securities markets—the markets for stocks (business ownership) and bonds (credit)—serve as the cornerstones of the U.S. financial system. In essence, the securities markets are both financing and signaling markets.[11] They are ***financing*** markets because they allocate the hard-earned savings of working families to businesses in need of capital to fund expansions, create jobs, invest in research and development, and ultimately produce goods and services for consumers and, ideally, serve as the engines of useful innovation. The phrase, "primary markets," is often used as shorthand to describe securities activities that serve this fundamental financing function—providing an avenue for people and businesses to get the capital they need to turn their ideas into a reality.

The securities markets are also ***signaling*** markets because they facilitate a price discovery process for ownership and debt interests in companies through competitive trading. This process provides vital information on investor sentiment with respect to the commercial prospects of specific firms, ideas, and business sectors. Through that informational mechanism, trading in securities markets affects not only the allocation of investments across our economy but also the cost of capital to businesses in need of it. The phrase, "secondary markets," is often used as shorthand to describe trading activities involving securities that already have been issued to raise funds.

If secondary markets are liquid, efficient, fair, orderly, and stable (*i.e.*, equitably and reliably facilitate the purchase or sale of securities with minimal effort and transaction costs), investors are more likely to participate in them, increasing the informational value of trading and encouraging the allocation of capital to useful purposes. In such conditions, the securities markets also are less costly for investors who can easily exit investments and reallocate savings, which increases the willingness of such investors to enter the securities markets in the first place. Illiquid, inefficient, unfair, disorderly, or unstable markets undermine the public confidence necessary to attract and maintain investor participation, thereby limiting the value of information derived from secondary trading, distorting capital allocation and costs across the U.S. economy, and ultimately, constraining the capital formation critical to job creation and U.S. economic growth.

2. **<u>Public confidence is damaged and the core purposes of the securities markets cannot be achieved when securities, like "meme" stocks, routinely experience inexplicably dramatic swings in prices.</u>**

Congress must keep in mind the financing and signaling purposes of the securities markets as it scrutinizes GameStop-like trading frenzies. Nothing in modern markets occurs in a vacuum. If securities, like "meme" stocks, have inflated prices that deviate substantially from any semblance of the fundamental values of the underlying companies, investors may re-allocate and misallocate their investments and savings. This, of course, adversely affects companies that investors do not invest in as well as the companies from which investors divest. But it also affects companies that experience dramatic inflows, and equally dramatic outflows, of gambling-like speculative investments. Rampant gambling-like speculation in the nature of recent GameStop events skews capital allocation and costs across the markets, distorts future capital raising by the affected companies, and influences corporate decisions relating to everything from the size of the company's workforce to the location of business operations to the choice of corporate leadership.

The longer-term consequences arising from a lack of confidence in the markets, however, could be that investors simply forgo investing in securities. That result would simultaneously diminish an already too-limited avenue for wealth creation and a critical source of business funding. In all likelihood, that result

[11] A considerable academic literature discusses secondary and tertiary purposes of the securities markets. In addition, many academics describe these functions with different terminology. Nevertheless, the purposes of the securities markets are, in essence, those described.

also would make businesses even more reliant on the small number of too-big-to-fail banks already too interconnected with the financial system, already too dominant in numerous aspects of the financial markets infrastructure, and already too economically and politically powerful. On the other hand, working families may find themselves with the unfortunate, unfair, and unenviable choice of investing in what they perceive as a rigged "game" (with rules that are not well understood and advantage other participants) or not investing at all and thereby jeopardizing their families' opportunity to secure an already too concentrated share of U.S. economic growth.

These concerns are about the preservation of market integrity and are therefore largely neutral as to the directional exposures assumed in frenzied trading. Feverish short-selling and a collapse in share prices after chaotic purchasing each can lead to seriously adverse consequences. In either case, the effects may harm not only employees and existing investors but the families of those employees and investors, the businesses they frequent, suppliers of those businesses, and indeed, the entirety of the communities in which they live.

II. The conflicts of interest, market frailties, and market design flaws that encourage, facilitate, and increase harmful and dangerous gambling-like speculative trading must be eliminated.

The market structure and other issues highlighted by the recent trading in GameStop and other securities must be investigated and examined.[12] As discussed below, although unlawful practices must be addressed and the regrettably lax supervision of certain market practices, firms, and, intermediaries must be improved, the law may also need to be clarified and strengthened in certain respects to address longstanding and significant deficiencies in the structure of the financial markets and the regulatory framework that governs them.

A. Payment for Order Flow: The practice of payment for order flow costs investors billions of dollars, siphons trading away from transparent exchanges, and presents significant risks to markets.

The frenzied trading in GameStop and other so-called "Reddit Rebellion" equities has brought attention to longstanding equity market structure issues. In particular, retail broker-dealer order routing practices have—again—come under regulatory and public scrutiny. In 2020, Robinhood reportedly received \$687 million dollars[13] in so-called "rebates" for essentially selling its customer orders to seven high frequency trading firms ("HFTs") that serve as its executing broker-dealers (*i.e.*, the HFTs that execute or facilitate execution of Robinhood's customer orders).[14] These "rebates" or kickbacks, called "payment for order flow" ("PFOF"), are used by nearly all of the supposedly "commission-free" retail broker-dealers (*e.g.*, Robinhood, E-Trade, Schwab/TD Ameritrade) who receive a significant volume of securities orders

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12 As this Committee knows, we discussed a number of issues in our February 16, 2021 letter to the Committee prior to the first hearing on these events. *See* fn. 6 *above*. Better Markets also prepared a number of other documents analyzing issues related to the GameStop events. *See, e.g.*, Better Markets, *Everything You Need to Know about the House Financial Services Committee Hearing on GameStop, Robinhood, Citadel, Reddit, Roaring Kitty & Rigged Markets* (Feb. 16, 2021), *available* at https://bettermarkets.com/blog/everything-you-need-know-about-house-financial-services-committee-hearing-gamestop-robinhood.

13 *See* P. Rudegeair et al., *Robinhood's Reckoning: Facing Life After GameStop*, Wall Street Journal (Feb. 5, 2021), *available* at https://www.wsj.com/articles/robinhoods-reckoning-can-it-survive-the-gamestop-bubble-11612547759.

14 According to Robinhood's order routing filings, these seven HFTs are Citadel Execution Services; Virtu Americas, LLC; Two Sigma Securities, LLC; G1X Execution Services, LLC; Wolverine Securities, LLC; Wolverine Execution Services, LLC; and Morgan Stanley & Co. LLC.

from Main Street investors.[15] PFOF across all retail broker-dealers in 2020 was reportedly at least $2.6 billion.[16]

Logically, HFTs were willing to rebate $2.6 billion to retail broker-dealers because the execution of customer orders from firms like Robinhood generated significant net trading profits to those HFTs. ***The most pertinent question, however, is not whether the HFTs make money from customer order flow or share profits with the routing retail brokers but whether everyday investors end up worse off in a material number of securities transactions routed to specific HFTs because of PFOF.*** As the SEC has found, and despite often inaccurate or incomplete HFT-industry claims to the contrary, the only valid answer to this question is "yes."

Better Markets published both a short fact sheet and a long primer that explain the nuances and complexities with respect to PFOF. Rather than re-addressing the full scope of PFOF issues in this testimony, I have attached those documents as **Appendix A** and **Appendix B**. In addition, I have created a series of slides to show how PFOF works and why it does not and cannot result in ***actual best execution*** for retail investors. In fact, PFOF virtually guarantees that retail investors will not get best execution if that is understood to be the best available price in the markets at the time of a trade. Those slides are attached as **Appendix C**.

However, the Members of this Committee should know the following essential facts about PFOF.

1. **PFOF presents clear conflicts of interest that cannot be adequately mitigated by disclosure and best-execution requirements.**

First, PFOF creates clear conflicts of interest between the following:

(1) A retail broker-dealer's duty to seek the actual "best execution" available for customer orders; and

(2) A retail broker-dealer's duty and desire to maximize its own profits for shareholders and/or owners through PFOF revenues generated by preferentially routing transactions to select HFTs.

These conflicts of interest, in practice, have been found to affect order routing decisions and harm Main Street investors. This is evidenced, for example, by a recent SEC enforcement action in which the SEC found that Robinhood executives internally reviewed the firm's order routing practices, determined that limiting order routing to the PFOF executing dealers (HFTs) was harming its customers, and yet, continued to preferentially route orders.[17] ***Robinhood paid a $65 million civil monetary penalty for failing to disclose***

[15] As noted in our February 16, 2021 letter to the Committee, legislators and regulators should analyze the impact of broker claims of "commission-free trading," which are too often heard and understood by reasonable investors as "free trading." Put differently, claims of "commission-free trading," without more, may be materially misleading to reasonable investors and, if they are, the SEC should put an end to such misleading marketing.

[16] *See* A. Osipovich, *GameStop Mania Drives Scrutiny of Payments for Online Brokers*, Wall Street Journal (Feb. 4, 2021), *available* at https://www.wsj.com/articles/gamestop-mania-drives-scrutiny-of-payments-to-online-brokers-11612434601.

[17] *See* SEC, *In Re Robinhood Financial*, Order Instituting Administrative and Cease and Desist Proceedings (Dec. 17, 2020) *available* at https://www.sec.gov/litigation/admin/2020/33-10906.pdf (finding that "Robinhood had conducted a[n] . . . extensive internal analysis that found Robinhood's execution quality and price improvement metrics were substantially worse than other retail broker-dealers' in many respects, and [that] senior Robinhood personnel were aware of this analysis" and further finding that Robinhood executives knew that "the percentage of orders that received price improvement and the amount

these PFOF and order routing practices to its customers. The facts are damning and seem to indicate that the firm intentionally concealed the adverse effects of PFOF from its customers.[18]

The SEC and its professional staff have long recognized the inherent the conflicts of interest associated with PFOF. In a recent Memorandum to the SEC's Equity Market Structure Advisory Committee, the SEC's Division of Trading and Markets bluntly summarized the SEC's view, in part, as follows:

> The Commission has stated that the existence of payment for order flow raises the potential for conflicts of interest for broker-dealers handling orders.[19]

In the same Memorandum, the Division noted the reason that HFTs are willing to pay so much for retail order flow:

> Market makers [Executing Dealers/HFTs] are interested in retail customer order flow because ***retail investors are, on balance, less informed than other traders about short-term price movements.***[20]

The Division also emphasized that the "economic incentives" associated with PFOF "create potential conflicts of interest with a broker's duty of best execution and may cause observers to question the rigor with which a broker seeks to obtain the best execution for its customer orders."[21] The Division went even further, however, in suggesting the following:

> ***[I]n the absence of payment for order flow, market makers [Executing Dealers/HFTs] could have incentives to quote more competitively, in which case customers could receive even better prices for their orders.***[22]

Furthermore, after studying the issue for years, the SEC's Division of Trading and Markets expressly stated the following:

> One option to address concerns with [PFOF] would be to prohibit this practice on the grounds that it presents a conflict of interest too significant to be adequately addressed by disclosure and best-execution obligations.

Nevertheless, the SEC has not since that time changed its longstanding policy views that (1) disclosure alone can adequately address the clear conflicts of interest presented by PFOF; and (2) "a broker-dealer does not necessarily violate its best-execution obligation merely because it receives payment for order

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of price improvement, measured on a per order, per share, and per dollar traded basis" were "substantially worse than other broker-dealers").

18 Robinhood did not admit or deny the SEC's findings in connection with that enforcement action. *Id* at 1.

19 *See* 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* ("EMSAC Memo") (Jan. 26, 2016), at 7-10, *available* at https://www.sec.gov/spotlight/equity-market-structure/issues-affecting-customers-emsac-012616.pdf.

20 *Id* at 6 (emphasis added).

21 *Id.*

22 *Id.* (emphasis added).

flow."[23] The current Acting Chair appears open to continuing these PFOF policies, though she rightly has not committed to that course of action.[24]

The implicit faith in disclosure and best-execution requirements is misplaced, harmful, and plainly inconsistent with the realities of the marketplace. There is broad consensus that disclosures relating to PFOF are not sufficient, and I would add that the inevitable cleverly written legalese and carefully presented statistical information can never be sufficient, to mitigate harmful order-routing conflicts of interest. Furthermore, given the complexity of order routing (*see* **Appendix C**) and the information overload associated with click-through disclosures and financial and online activities in general, one could reasonably doubt whether retail investor disclosures would be read, much less capture in a meaningful way the fundamental risks and costs associated with PFOF.

On the other hand, as I discuss below, the regulatory standards governing "best execution" are multi-factor, malleable, and difficult for regulators to monitor, much less enforce, making them an inadequate mitigant for the conflicts of interest presented by PFOF. Indeed, as visually set forth in our Appendix C, PFOF virtually guarantees that retail investors will not get "best execution" if that is—as it should be—based on the best available price in the markets.

2. **PFOF is both a *cause* and a *consequence* of the needlessly fragmented system of created complexity that has become the hallmark of the U.S. equity market structure. It entrenches HFTs that internalize the vast majority of U.S. retail order flow and that may pose a systemic risk as well.**

In addition to the harms inflicted directly on retail broker-dealer customers, PFOF takes retail trading activity (referred to as "liquidity") away from public securities exchanges and redirects that order flow to a very small number of HFTs that execute an alarming percentage of overall trading. In fact, PFOF entrenches approximately seven dominant HFTs that now "internalize" (*i.e.*, execute trades against their own securities inventory and incoming orders) the vast majority, if not ***almost all***, of the retail order flow in the United States. Citadel Securities alone advertises that it trades approximately 26% of U.S. equities volume across 8,900 U.S.-listed equities, executes approximately 47% of all U.S.-listed retail volume, and acts as a specialist or market-maker with respect to 99% of traded volume in 3,000 U.S.-listed options names.[25] ***The two largest HFTs involved in PFOF across the markets, Citadel Securities and Virtu Financial, together account for more of the U.S. equities trading market share than the New York Stock Exchange.***

Obviously, one implication of these facts is that any significant disruption to an HFT like Citadel Securities or Virtu Financial would shake markets and could quite possibly cause significant, widespread dislocations in many securities, if not ignite a catastrophe. For this reason, Better Markets believes that the Financial Stability Oversight Council ("FSOC") should consider designating HFTs serving as executing dealers and market-makers as systemically significant once they have a sufficiently critical market presence.

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23 *Id* at 7.

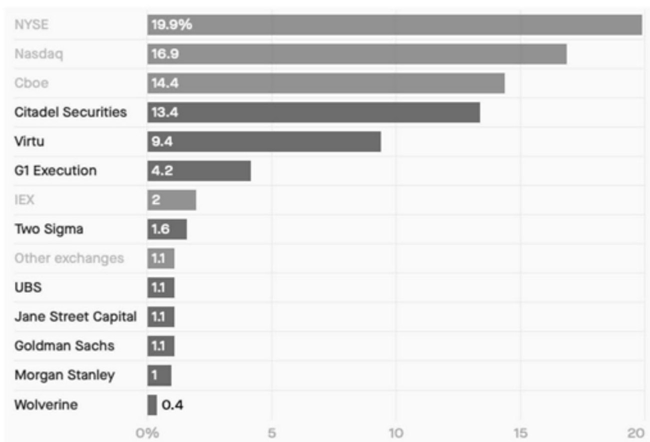
24 *See* Letter from A. Herren Lee, SEC Chairwoman, to Senator E. Warren ("SEC Letter") (Feb. 25, 2021), at 4, *available* at https://www.warren.senate.gov/imo/media/doc/Warren%20-%20GameStop%20-%20ES159891%20Response.pdf ("I believe the Commission should examine the effects of certain firms receiving 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.").

25 Citadel Securities, *Equities and Options*, Homepage (as of March 12, 2021), *available* at https://www.citadelsecurities.com/products/equities-and-options/.

The Knight Capital meltdown should be considered the canary in the coalmine in this regard. In 2012, Knight Capital Americas LLC ("KC") ***lost more than $460 million dollars in less than an hour*** from erroneously trading 397 million shares, resulting in $3.5 billion in accidental long positions in 80 stocks and $3.15 billion in accidental short positions in 74 stocks.[26] The episode was blamed on a "programming error." In the end, a mere 212 small retail orders resulted in the single largest trading loss arising from a so-called "glitch" in an order routing system.[27] There can be little doubt that a similar "glitch" in Virtu or Citadel Securities' order routing systems, for example, would significantly disrupt the equities markets, potentially causing a dangerous and costly systemic event.

Figure 2.

U.S. Stock Market Share by Trading Center
December 2020



Source: Quartz[28]

The second-order effects of PFOF are equally concerning. Because PFOF entrenches HFTs that primarily execute transactions through internalization and therefore has the effect of fragmenting liquidity and leaving exchanges largely outside of the retail order flow, the exchanges—for competitive reasons—are essentially forced into creating their own "rebate" programs (*e.g.*, maker-taker programs), order types, and trading protocols designed to benefit and attract the participation of the small number of dominant HFTs. These exchange inducements, in turn, further fragment, complexify, and distort order routing and the securities markets more generally.

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[26] *See* SEC, *In the Matter of Knight Capital Americas LLC*, Securities Exchange Act of 1934 Release No. 70694, Administrative Proceeding File No. 3-15570, *available* at https://www.sec.gov/litigation/admin/2013/34-70694.pdf.

[27] *See* B. Eha, *Is Knight's $440 million glitch the costliest computer bug ever?*, CNN, *available* at https://money.cnn.com/2012/08/09/technology/knight-expensive-computer-bug/index.html.

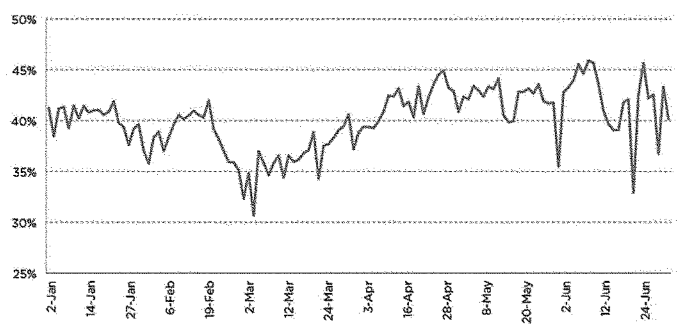
[28] *See* J. Detrixhe, *Citadel Securities gets almost as much trading volume as Nasdaq* (Feb. 5, 2021), *available* at https://qz.com/1969196/citadel-securities-gets-almost-as-much-trading-volume-as-nasdaq/.

Furthermore, such high levels of internalization structurally segment U.S. retail order flow in a manner that may increase market fragility, disincentivize resting orders on the exchanges, and widen quoted spreads, all of which adversely affect all investors in the securities markets. At any given time, approximately 47 percent of all U.S. stock market volume is traded away from transparent, regulated exchanges (*see* Figure 3 for figures during the first half of 2020) due to a combination of internalization, trading on alternative trading systems (dark pools), and trading through single-dealer platforms.[29] In certain securities, and at certain times, more than 50 percent of the trading in U.S. equities markets likely occurs in dark markets.

Retail trading volume through Robinhood and similar broker-dealers (like E-Trade and Schwab/TD Ameritrade) is internalized by HFTs at far higher rates than this, which means that retail trading representing as much as one-third of total U.S. equities trading volume (depending on the measurement period and securities in question[30]) essentially never interacts with orders on the securities exchanges.[31]

Figure 3.

Percentage of Average Daily Trading Volume in Equities Executed Away from Public Exchanges (January through June 2020)



Source: Greenwich Associates[32]

[29] *See* Greenwich Associates, *U.S. Capital Markets Performance During COVID* (Q4 2020), at 11-12, *available* at https://www.greenwich.com/equities/us-capital-markets-performance-during-covid#simple-table-of-contents-2. *See also* CBOE, *U.S. Equities Market Volume Summary*, Five-Day Average (Mar. 15, 2021), *available* at https://www.cboe.com/us/equities/market_statistics/ (showing that the five-day average for on-exchange trading represented 53.15% of U.S. equities market volume, while off-exchange trading represented 46.75%).

[30] *See* K. Martin et al., *Rise of the retail army: the amateur traders transforming markets* (Mar. 9, 2021), *available* at https://www.ft.com/content/7a91e3ea-b9ec-4611-9a03-a8dd3b8bddb5?accessToken=zwAAAXg4Zm0gkc96kePquexGEdOaA6jdO4vdtQ.MEQCIF3ZCaSkwhygMrMyvp35VAORqfs1e8FkiSmGGxAWHn-EAiBn6EIkZGEPwbEDEiVAvoBCJRyZM3C0LiSKbztTIpww_w&sharetype=gift?token=76b0447a-54cd-4601-89ee-34e358b17d47 (citing an estimate that retail investors constituted 23 percent of all U.S. equity trading in 2021 but noting that retail trading accounted for more than half of certain technology stocks in certain 2020 weeks).

[31] *See* J. McCrank, *Factbox: The U.S. retail trading frenzy in numbers* (Jan. 29, 2021), *available* at https://www.reuters.com/article/us-retail-trading-numbers/factbox-the-u-s-retail-trading-frenzy-in-numbers-idUSKBN29Y2PW.

[32] *See* fn. 29 *above*, Greenwich Associates, *U.S. Capital Markets Performance During COVID* (Q4 2020), at 11-12.

None of this accounts for the *on-exchange* trading that occurs through ***hidden*** order types and other trading protocols advantageous to the HFTs, which increasingly affect the reliability and permanence of "lit" trading interest. Those measures are a consequence, in part, of the structural segmentation of order flow and markets. The hidden volume rate alone—the total trade volume against hidden orders divided by the total trade volume—generally ranges from ten to thirty percent, depending on the exchange and measurement period. Some exchanges had a hidden volume rate that reached as high as 40 percent in January 2021.[33]

Thus, in today's markets, anyone leaving resting orders on the exchanges is denied the opportunity to interact with almost all of the retail order flow and is denied the opportunity to interact with about half of the market as whole. In addition to denying investors best execution and fragmenting liquidity, that makes both the internalized and public markets more vulnerable to frenzies, anomalous events, and disruptions.

Far from an ideal market structure in which the maximum number of buyers and sellers can find and interact with each other, ***this fragmentation serves only the interests of a handful of HFTs that have mastered gaming the market imperfections*** they not only created but also appear to exploit and perpetuate. As such, one can fairly characterize our securities markets as "rigged" to the advantage of a small number of dominant market participants and decidedly against retail investors and the buy side of the markets more generally.

In other words, PFOF is, in many ways, both a cause and a consequence of the needlessly fragmented system of created complexity that has become the hallmark of the U.S. equity market structure. Ultimately, PFOF and a series of other insidious market structure features and practices beyond the scope of my current testimony interfere with the fundamental purposes of the securities markets, including the promotion of capital formation, price discovery, and useful capital allocation across the markets.

PFOF's entrenchment of executing dealers/HFTs also contravenes a statutorily specified purpose of the national market system. In its 1975 amendments to the Securities Exchange Act of 1934, Congress explicitly stated that the national market system was intended to ensure "an opportunity . . . for investors' orders to be executed without the participation of a dealer."[34] Yet, for the reasons discussed, PFOF all but ensures the exact opposite.

3. **<u>The industry-claimed "price improvements" from PFOF and internalization are at best misleading, and at worst outright false, because they are measured against the wrong benchmark, which understates the true costs to investors while significantly overstating the supposed benefits.</u>**

The retail broker-dealers and HFTs claim that PFOF and preferential routing of retail order flow result in significant "price improvements" for customers. However, price improvement, by definition, must be defined relative to a benchmark—that is, the price must be *improved* relative to some other price. To put it simply, in the equities markets, price improvement is measured against the wrong benchmark—the so-called "national best bid or offer," or the "NBBO."

Despite its name, the NBBO frequently does not even represent the "best" bid or offer available on the public U.S. stock exchanges (never mind the best available price away from the exchanges or that

[33] SEC, *Select Metrics: U.S. Exchanges Hidden Rate (%)*, Market Structure, Data Visualizations (last accessed March 13, 2021), *available* at https://www.sec.gov/marketstructure/datavis/ma_exchange_hiddenrate.html#.YFAJBy1h2-w.

[34] *See* Sec. 11A, Pub. Law 94-29, 89 Stat. 112 (1975).

would be readily available on the exchanges in a market structure that prohibited PFOF and limited internalization). The NBBO is disseminated through a public data feed that consolidates executable orders across the U.S. stock exchanges. However, these exchanges facilitate only about 53 percent of the trading volume across the markets, which means that the trading interest leading to transactions in 47 percent of the market is excluded from the NBBO. For the remaining trading that does occur on-exchange, an estimated 20 percent is executed against hidden orders, which are also excluded from the NBBO.[35] And trading interest in the form of "odd-lot" orders (*i.e.*, in general, orders for less than 100 shares) is ***excluded*** from the NBBO as well, despite being ***regularly*** displayed at ***better prices than the NBBO*** in certain categories of securities.

Figure 4.

Breakdown of Dark Non-Public Trading and "Lit" Public Trading, Impacts on the NBBO

Source: CBOE[36] (*See* **Appendix C**, Slide 6)

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[35] The hidden volume rate, as we mentioned above, generally ranges from ten to thirty percent, depending on the exchange and measurement period. *See* fn. 33 *above*.

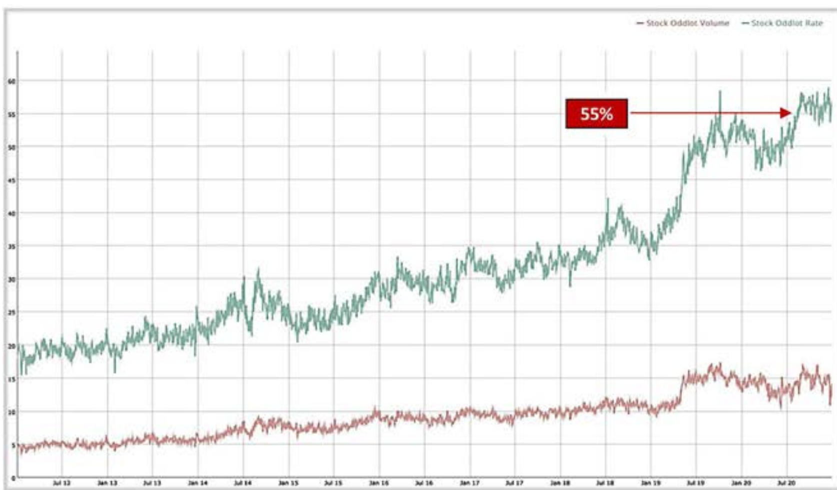
[36] *See* CBOE, *U.S. Equities Market Volume Summary* (accessed March 15, 2021), *available* at https://www.cboe.com/us/equities/market_statistics/.

Better Markets explains some of the technical issues associated with the NBBO in its fact sheet and primer on PFOF (attached as Appendix A and Appendix B) and I will not, therefore, repeat that here. However, there are two critical takeaways worth mentioning:

(1) The ***exclusion*** of odd-lot pricing information from the NBBO makes the NBBO inaccurate and misleading in light of the multi-year trend towards increased odd-lot trading across the markets.[37] In recent months, the odd-lot rate—which is the total number of odd-lot equity trades relative to the total number of equity trades—has exceeded 55%, which strongly suggests that a material percentage of trading interest is quoted in odd lots across the markets. For stocks priced above $500 per share, odd-lot orders have been superior to the NBBO as often as 75% of trading days.[38]

Figure 5.

Stock Odd Lot Volume and Stock Odd Lot Rate (July 2012 through January 2021)



Source: U.S. Securities and Exchange Commission[39]

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[37] A combination of factors, including technological developments and the related expansion of retail trading, likely has led to the increase in the use of odd lots to trade securities. The term "odd-lot" means any order for a number of shares that does not constitute a "round lot." Until recently, the term "round lot" usually meant an order for 100 shares, but the SEC recently set forth smaller round lots in certain equity categories.

[38] *See* B. Redfearn, Former Director of the Securities and Exchange Commission's Division of Trading and Markets, *Equity Market Structure 2019: Looking Back & Moving Forward* (Mar. 8, 2019), *available* at https://www.sec.gov/news/speech/clayton-redfearn-equity-market-structure-2019#_ftnref31.

[39] SEC, *Select Metrics: Odd Lot Rate (%) and Old Lot Volume*, Market Structure, Data Visualizations (last accessed March 13, 2021), *available* at https://www.sec.gov/marketstructure/datavis/ma_overview.html#.YEwtfC1h2-y.

(2) The most active market-makers on the exchanges also are the most active HFTs (executing dealers and internalizers) capturing retail order flow. This means that the claimed price improvement achieved through internalization is measured against a benchmark that is materially influenced by firms that are simultaneously internalizing against the spreads on the exchanges and engaging in market-making and other trading activities that influence the spreads. This may incentivize HFTs to quote wider spreads in the public securities markets from time to time (in their market-making capacity) that can be exploited to capture as much of that spread as possible in the private, internalized securities markets (in their executing dealer capacity).[40] This is yet another blatant conflict of interest in a critical part of today's equity market structure.

The lack of odd-lot and other data in the NBBO also enables the HFTs and others to inflate and protect their profits by purchasing proprietary data from the exchanges and taking advantage of various forms of privileged access to the securities markets, both of which enable the seven dominant HFT firms to ***simultaneously, profitably, and regularly trade inside the NBBO*** in a manner that few others can. PFOF is profitable only because the HFTs are able to share some of the billions of dollars they pocket by claiming price improvement against the NBBO, while trading at prices "inside" of the NBBO and engaging in other inefficient and under-the-radar wealth extraction activities that are beyond the scope of my current testimony.

4. <u>The SEC and the Office of Financial Research ("OFR") should undertake a robust, comprehensive, and data driven study of PFOF and submit a public report to the Committee.</u>

All of this opaque, needless created complexity enables systematic, secret wealth extraction from the buy side by the sell side. Indeed, this is little more than a destructive multi-billion dollar "hidden tax" (likely significantly exceeding $10 billion) on the execution of retail customer orders.[41] The actual retail execution costs and detrimental spillover effects on the markets as a whole far outweigh any of the claimed benefits to investors associated with so-called "commission-free trading" (which would likely remain for competitive reasons even in the absence of PFOF and in fact, exists today for a number of retail broker-dealers, like Fidelity, that do not avail themselves of PFOF for equity orders).[42]

Furthermore, Congress must remain deeply skeptical of the disingenuous argument that retail investors have "never had it better," which has essentially nothing to do with PFOF and ignores the genuine causes of increased market access and narrowing spreads over the last 25 years, namely technological innovations and cost reductions, the introduction of electronic trading, and implementation of decimalization and other elements of the Regulation NMS framework.

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40 There is some empirical evidence that this is exactly what is occurring. *See* G. Eaton et al., *Zero-Commission Individual Investors, High Frequency Traders, and Stock Market Quality*, SSRN (Feb. 1, 2021), *available* at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3776874.

41 The SEC is in a unique position to do a data-driven study on the extent of this "hidden tax" and Congressional oversight committees should demand that they do so immediately and publicly release a report.

42 According to Fidelity's review of order routing filings in 2020, the dollar value of price improvement on its customer ***trades***—a measure that reveals the overall monetary improvement on executed orders—beat the industry average by more than $14 for order sizes of at least 1,000 shares. In 2021, a $14 *implicit* commission for an order of that size is much greater than the explicit commission that would have been assessed before the advent of so-called "no-commission" trading. *See* Fidelity, *Dollar Value of Price Improvement: Fidelity Price Improvement vs. industry average for period between January 1, 2020, and December 31, 2020* (last accessed March 13, 2021), *available* at https://www.fidelity.com/trading/execution-quality/overview. It is in Fidelity's commercial interest to make such findings, of course, which is why Better Markets is asking the Committee to call on U.S. regulators, including the SEC, to conduct an independent, impartial, and comprehensive review of PFOF's influence on execution quality, market structure, and related issues.

Given that the conflicts of interest and misaligned incentives that fuel PFOF cannot be mitigated to adequately protect investors and given the SEC's inexplicable reluctance to ban practices that result in retail investors not receiving best execution, the Committee should explore legislative solutions that would prohibit the PFOF and address related equity market structure concerns necessary to make such a prohibition effective.[43] In connection with that legislative process, the Committee should ask the SEC and OFR to undertake a study of the following and to submit a public report to this Committee detailing all findings, data, and recommendations with sufficient granularity that independent professionals could validate the findings:

- Whether PFOF provides demonstrable, material benefits to retail investors, individually and in the aggregate, that sufficiently outweigh the known execution costs associated with the practice;
- Whether retail broker-dealers choosing not to route customer orders to executing dealers and therefore choosing to forego PFOF revenue obtain superior execution on customer orders and yet have a sustainable retail business model;
- Whether execution quality increased subsequent to prohibitions on PFOF in other jurisdictions;
- Whether order routing incentives at exchanges and other trading venues further incentivize inferior executions through rebate schemes and/or order execution practices intended to benefit market-makers;
- Whether retail broker-dealers receive higher PFOF "rebates" for certain types of orders and financial instruments, and whether broker-dealers promote more profitable order types and financial instruments to a greater degree than other types of orders and financial instruments, all to the detriment of retail investors;
- Whether smart order routers of retail broker-dealers should be permitted to discriminate against market centers that do not provide PFOF;
- Whether executing dealers providing PFOF to retail broker-dealers should be (1) prohibited from internalizing trades at the NBBO and (2) required to internalize only at a material price improvement to the NBBO; and
- Whether in addition to a prohibition on PFOF, retail order flow should be required to be routed to the exchanges in lieu of internalization and if so, whether other regulatory changes would need to accompany such a rule to protect investors and avoid adverse consequences (*e.g.*, revisions to regulatory standards for exchange fees, rebate programs, and order execution protocols).

B. Best Execution: The "best execution" standard and the "best available" price for securities are far more subjective than the industry claims. In addition, best-execution requirements do not sufficiently address the conflicts of interest associated with PFOF.

The SEC and FINRA have adopted "best execution" regulatory frameworks ostensibly to protect retail customers by limiting broker-dealer discretion with respect to the routing of customer orders. These

[43] *See* Better Markets, *"Payment for Order Flow: How Wall Street Costs Main Street Investors Billions of Dollars through Kickbacks and Preferential Routing of Customer Orders"* (Feb. 16, 2021), *available* at https://bettermarkets.com/sites/default/files/documents/Better_Markets_Payment_for_Order_Flow_Long_02-21-2021.pdf.

frameworks are a recognition of the fact that many broker-dealers face significant conflicts of interest in their order routing practices, including conflicts presented by PFOF arrangements.

The duty of best execution, in essence, requires that broker-dealers route customer orders in a manner that will result in the best execution reasonably available under prevailing market conditions. In practice, however, the duty of best execution has been reduced to a ***general*** requirement—applicable to all of a broker-dealer's customer orders ***in the aggregate***—to periodically assess which order routing practices offer the most favorable terms of execution under the circumstances. This once practical standard does not reflect the reality that, today, retail order routing decisions can be assessed on an automated trade-by-trade basis for much, if not all, of the market.

In assessing best-execution requirements and practices, broker-dealers are permitted to consider multiple factors in their periodic assessments of execution quality, and among those many factors are whether order routing practices:

a. Present an ***opportunity*** for price improvement—even if order routing practices do not actually improve prices in a material number of transactions;

b. Increase execution certainty; or

c. Increase the speed of execution.

Under this subjective multi-factor test, the best execution standard is exceedingly difficult to monitor, much less enforce, in part because the SEC, FINRA, and the courts historically have been reluctant to impose best-execution requirements that would require broker-dealers to affirmatively connect to as many market centers as is necessary to provide retail customers a "best" available price. These deficiencies are significantly compounded by the explicit acknowledgement of (the equally conflict-ridden) FINRA that broker-dealers can and indeed should consider PFOF as part of their analysis of execution quality, though not "unduly."[44] These facts also highlight yet additional drawbacks arising from the fragmentation of our markets.

In short, the SEC and FINRA's best-execution requirements, while critical, have not kept pace with order-routing technology or practices and are too malleable to mitigate the conflicts of interest presented by PFOF arrangements. At a minimum, PFOF presents material conflicts of interest that the best execution standard—as currently drafted, interpreted, and applied—does almost nothing to mitigate. Worse, because the SEC and FINRA best-execution framework is used to justify reliance on the NBBO as the benchmark for price-improvement statistics, it provides broker-dealers with regulatory cover to mislead investors (as detailed above and in Appendix C).

Perhaps not surprisingly, Robinhood is one of the relatively few broker-dealers that have been found by the SEC and FINRA to have engaged in order-routing practices so egregious that they failed a

[44] Consider the FINRA's supplementary material explaining requirements relating to the "regular and rigorous review of execution quality" under FINRA Rule 5310: "In reviewing and comparing the execution quality of its current order routing and execution arrangements to the execution quality of other markets, a [broker-dealer] member should consider . . . the existence of internalization or payment for order flow arrangements." FINRA's guidance should state, of course, that broker-dealers ***should not consider*** PFOF when conducting regular and rigorous execution quality reviews. Yet, compounding the inexplicable directive to consider PFOF, FINRA Regulatory Notice 15-46 also provides that order routing should not be "unduly influenced" by access fees and rebates," meaning it ***can*** be influenced by PFOF as long as it is not "unduly" influenced—whatever that means. *See* FINRA Regulatory Notice 15-46, *Guidance on Best Execution Obligations in Equity, Options, and Fixed Income Markets* (Nov. 2015), *available* at https://www.finra.org/sites/default/files/notice_doc_file_ref/Notice_Regulatory_15-46.pdf.

best-execution standard that is almost by design exceedingly difficult to fail.[45] Even then, the SEC (1) only charged Robinhood with disclosure violations and not substantive fraud violations, which appear to have been amply supported based on the facts in the SEC's order; and (2) did not charge any individuals, even though facts concerning the conduct of individuals at Robinhood (as identified in the order) would appear to merit consideration of individual charges.

In connection with the PFOF study mentioned above, the Committee should direct the SEC and OFR to re-examine best-execution obligations and the enforcement of existing rules and provide findings, data, and recommendations relating to the following:

- Whether the SEC and the FINRA have sufficient order routing and execution visibility to permit comparisons of execution quality and ensure compliance with the best-execution standard;

- Whether SEC and FINRA regulations and guidance requiring regular and rigorous execution quality reviews by retail and executing broker-dealers sufficiently protect investors, and whether trade-by-trade analyses and testing programs should be required for many, if not all, orders routed and executed on an automated basis;

- Whether the multi-factor best execution standard should apply to the most active retail broker-dealers in lieu of a standard more strictly focused on pricing;

- Whether the multi-factor best execution standard is appropriately enforceable; and

- Whether so-called "price improvement" metrics should benchmark against the NBBO, given the prevalence of internalization and the exclusion of significant order flow (*e.g.*, hidden and "odd-lot" order flow) from the NBBO at this time.

C. Gamification: Trading is being gamified to increase trading and maximize profits for executing dealers/HFTs, like Citadel Securities, and retail brokers, like Robinhood, not to "democratize" financial markets or provide retail traders with the same opportunities as professional traders.

Two congressional hearings have now discussed the issue of so-called "gamification." What is fairly well understood at this point is that Robinhood almost perfected the "gamification" of trading by incorporating addictive, endorphin-engendering game features of more benign apps into its trading app for the purpose of triggering more trading, more often, and more thoughtlessly.[46] Thus, Robinhood has taken

[45] *See* SEC, *In Re Robinhood Financial*, Order Instituting Administrative and Cease and Desist Proceedings (Dec. 17, 2020) *available* at https://www.sec.gov/litigation/admin/2020/33-10906.pdf (finding that "Robinhood had conducted a[n] . . . extensive internal analysis that found Robinhood's execution quality and price improvement metrics were substantially worse than other retail broker-dealers' in many respects, and [that] senior Robinhood personnel were aware of this analysis" and further finding that Robinhood executives knew that "the percentage of orders that received price improvement and the amount of price improvement, measured on a per order, per share, and per dollar traded basis" were "substantially worse than other broker-dealers").

[46] *See* Letter from R. Cook, FINRA, to Senator E. Warren ("FINRA Letter"), at 4-6 (Feb. 23, 2021), *available* at https://www.warren.senate.gov/imo/media/doc/FINRA%20Response.pdf (emphasizing that "[w]hile some of these [game-like] 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?

an activity—investing and risking money—that ideally requires thought, diligence, analysis, and financial wherewithal and imbued it with rapid, seemingly low-consequence, and fundamentally recreational game-playing attributes. Needless to say, investing in markets is not a game but involves the gain and loss of potentially life-changing sums of money, often in a very short period of time.[47]

However, what is not as well understood is that Robinhood's gamification of trading is part of a business model dependent on revenues derived from PFOF and margin accounts, and these revenues, in turn, depend on customers engaging in as much trading as possible. Despite the detrimental effects on individual investors using the trading platform, exchanges, and the investing public as a whole, Robinhood has figured out that providing "commission-free" and game-like trading facilitates the extraction of revenue from its customers because of the well-known economic reality that consumers will use more of a good or service believed to be "free." That is even more the case when the ostensibly free product is packaged to induce addiction.

In other words, providing "commission-free" and game-like trading is not an altruistic endeavor designed to "democratize access to the financial markets" and make trading more "delightful" to app users. It is a profit-maximizing business strategy that, in essence, is designed to induce customers to trade repeatedly and thoughtlessly, which, of course, presents more opportunities for a handful of HFTs to internalize those trades at a profit and share those profits with Robinhood via PFOF.

If Robinhood were interested in democratizing access to the financial markets and creating a level playing field for everyday investors, it would have, at a minimum, explained these irrefutable facts plainly and clearly to its customers, disclosed the true costs of preferential order routing, and shared the derived revenues with its "customer" base. Instead, it has for years used its customers as a product to be sold to its real economic customers—the executing dealers/HFTs that make billions of dollars off of Robinhood's users and who not only share that money with Robinhood but are incentivized to maximize the amount extracted. Presumably, that is why Robinhood not only failed to disclose its practices but apparently engaged in a knowing illegal conspiracy to mislead investors about PFOF, as detailed in the SEC order fining Robinhood $65 million just last December.[48]

Having noted the means by which Robinhood monetizes so-called "gamification" at the expense of its retail customers, it is important to remember that manic, panicky, frenzied, and, at times, irrational investing, particularly on a large scale, has effects that reach far beyond the harms to individual investors

- *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?

- *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?).

Interestingly, some recent research indicates that the mere use of a smartphone may increase trading activity generally and trading in so-called "lottery stocks" in particular. *See* S. Goldstein, *Why are markets. going crazy? Smartphones, one study suggests*, MarketWatch (Jan. 29, 2021), *available* at https://www.marketwatch.com/story/heres-another-explanation-for-the-surge-in-speculative-activity-smartphones-11611579511; *see also* A. Kalda et al., National Bureau of Economic Research, *Smart(Phone) Investing? A Within Investor-Time Analysis of New Technologies and Trading Behavior*, NBER Working Paper, *available* at https://www.nber.org/system/files/working_papers/w28363/w28363.pdf.

47 In this Committee's prior hearing on the GameStop events, Robinhood's Chief Executive Officer asserted, without evidence and contrary to its business model that depends on maximizing profits through frequent trading, that "most of [its] customers are investing for the long-term." That statement must be further examined, but we have doubts about its accuracy.

48 *See* fn. 17, 18, and 45 *above*.

involved. It can adversely impact company valuations, capital allocation and costs, capital formation, and perhaps market and systemic stability.

In connection with the PFOF study mentioned above, the Committee should therefore direct the SEC and OFR to consider the following:

- Whether retail broker-dealers, in practice, are balancing the communications and interfaces emphasizing the profitability and ease of trading with equally compelling and conspicuous information concerning the costs and risks of trading;
- Whether retail broker-dealers, in particular, have been satisfying existing legal duties before enabling extensive, leveraged trading and options trading and whether the standards for enabling high-risk trading strategies should be revised and strengthened;[49]
- Whether the application of regulations and legal duties is sufficiently clear (*e.g.*, whether trading app features can bring self-directed trading into scope for Regulation Best Interest on account of design elements that are tantamount to providing "recommendations"[50]);
- Whether the trading app design features present customer-communication risks that should be regulated differently than other types of customer communications; and
- Whether the placement and prominence of particular order types and financial instruments is sufficiently addressed by existing customer communications requirements.

D. <u>Capital and Liquidity Risk Management: The Robinhood trading halt was apparently motivated by a $3 billion margin call, which itself was necessitated by the fact that the firm's daily risk margin call amount exceeded the entirety of its excess capital. If Robinhood were subject to adequate capital and liquidity risk management requirements, no such trading halt would have been necessary.</u>

In the course of intense public scrutiny of events surrounding GameStop and other equities, Robinhood (and other retail-focused brokers) enacted abrupt *ad hoc* trading halts on the purchase of a number of volatile securities (with certain exceptions), including GameStop.[51] This had the effect of limiting demand for the securities subject to the trading halts and thereby advantaging short positions in those securities. In discussing the motivations for these trading halts, Robinhood reportedly gave different explanations at different times, and sometimes gave conflicting explanations at the same time. The company's most plausible explanation, since confirmed by the National Securities Clearing Corporation ("NSCC"), was that its trading halts, in essence, were defensive measures intended to reduce unspecified

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49 *See* Letter from A. Herren Lee, SEC Chairwoman, to Senator E. Warren ("SEC Letter") (Feb. 25, 2021), at 4, *available* at https://www.warren.senate.gov/imo/media/doc/Warren%20-%20GameStop%20-%20ES159891%20Response.pdf ("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").

50 *See, e.g.*, FINRA Letter, *above* in fn. 46, at 5.

51 *See* M. Fitzgerald, *Robinhood Restricts Trading in GameStop, Other Names Involved In Frenzy*, CNBC (Jan 28, 2021), *available* at https://www.cnbc.com/2021/01/28/robinhood-interactive-brokers-restrict-trading-in-gamestop-s.html.

financial requirements arising from the volatility in certain securities and its clearing agencies' own protective measures.[52]

The apparent inconsistencies in the statements of Robinhood's chief executive officer in the initial aftermath of its trading halt raise serious questions about the adequacy of the firm's capital and liquidity risk management requirements and indeed, the capital and liquidity risk management requirements applicable to all of the largest retail broker-dealers. For example, apparently as or shortly before it sought a $3.4 billion capital infusion, Robinhood's CEO claimed on CNBC that "[t]here was no liquidity problem" on account of clearinghouse margin calls, that Robinhood draws down its credit lines "all the time," and that the firm's trading halts were being done "preemptively" and "proactively."[53] Yet, Robinhood's CEO suggested during the same interview that its trading halts were motivated by the "deposits" due to its clearinghouse on account of market volatility and its customers' concentrated positions, as well as unspecified impacts on its net capital position.[54]

In other words, Robinhood's CEO appeared to claim that the firm's trading halt was at the same time a consequence of it being proactive and it being compelled. One could reasonably interpret these inconsistencies as arising from a fear that full and fair disclosure of Robinhood's financial condition would encourage customers to close accounts and/or move funds and trading activities to competitors.

The consequences of Robinhood's equivocation and apparent efforts to protect its commercial interests reach beyond the firm itself. A number of facts would be highly relevant to the Committee's consideration of the general adequacy—or inadequacy—of retail broker-dealer capital and liquidity risk management requirements: the extent to which Robinhood was in financial distress or came perilously close to defaulting on its NSCC margin calls; the circumstances and timelines surrounding its $3 billion margin call; the communicated rationale for the $3.4 billion in emergency funding it received;[55] the content of internal discussions relating to the imposition of the trading halt; and related events. Of course, this would be separate and apart from regulatory and prosecutorial interest in whether certain statements may have been fraudulent or misleading and whether the CEO's alleged lack of certain registrations were appropriate.

However, at least the current appearance that Robinhood remained in compliance with capital and liquidity risk management requirements, and had *excess* capital, suggests that those requirements collectively were insufficient to maintain the extent and nature of trading facilitated by the broker-dealer. Surely, maintaining sufficient capital and liquidity to remain in business and compliance with regulatory requirements, while posting margin calls, must be the minimum expectation for the SEC's broker-dealer framework.

In this regard, the Committee should explore the following areas of concern:

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52 *See* M. Bodson, DTCC, Letter to the House Financial Services Committee (Feb. 18, 2021), *available* at https://www.dtcc.com/dtcc-connection/articles/2021/february/18/dtcc-statement-to-house-financial-services-cmte.

53 K. Stankiewicz, *Robinhood CEO: Tapping credit lines is proactive, not a sign of cash crunch in GameStop frenzy*, CNBC (Jan. 29, 2021), *available* at https://www.cnbc.com/2021/01/29/robinhood-ceo-vlad-tenev-tapping-credit-lines-proactive-to-help-lift-gamestop-trading-limits.html.

54 *Id.*

55 Note that investors in the Robinhood funding round four days after the initial emergency $1 billion capital infusion reportedly accepted terms that were "less favourable" than the first round, suggesting that Robinhood had an immediate need to close on the initial round of investment following the initial NSCC margin call. *See* M. Kruppa, *Robinhood's bid to 'democratise finance' collides with Wall St reality*, Financial Times (Feb. 1, 2021), *available* at https://www.ft.com/content/9e69faf0-09c4-42ca-8c5f-78dc9568c18f.

- Whether broker-dealer capital and liquidity risk management requirements sufficiently protect retail investors against risks in extreme but plausible market conditions and sufficiently contemplate the effects of procyclical, defensive measures likely to be taken by clearing agencies and counterparties;

- Whether Robinhood, specifically, experienced liquidity shortfalls or other financial distresses, and the nature of the exact causes or drivers of such shortfalls and/or distresses;

- Whether Robinhood, specifically, and broker-dealers in general have written policies, procedures, and controls to govern determinations to impose trading halts and whether trading halts are required to be integrated into risk management programs;

- Whether any trading halts by retail broker-dealers should be effected only after a public notice period has expired; and

- Whether exchange trading-halt or circuit-breaker standards sufficiently permit cessation of trading in equities experiencing frenzied or mania-driven trading that is obviously divorced from fundamentals.

Before turning to the next issue, I would like to make three additional, cautionary points relating to the U.S. securities clearing system.

- First, in its examination of the issues raised by GameStop, the Committee should not overemphasize the apparent resiliency of our financial markets' infrastructure. A few weeks ago, Treasury Secretary Yellen and the chairs or heads of several U.S. financial regulators, including the SEC, assembled to discuss GameStop trading and related events. The Treasury Department subsequently released a statement that U.S. regulators "believe the core infrastructure was resilient during high volatility and heavy trading volume,"[56] mirroring comments made by some participants in the lead-up to the meeting and since that time. Although clearinghouses, like the NSCC, have performed well and apparently responsibly, the Committee should not let that fact distract from the many areas of our financial markets that either did not perform well or should have performed better. Furthermore, regulatory shortcomings that gave rise to troubling practices at the center of the GameStop events must be remedied by long understood—and equally long overdue—reforms, even if those reforms relate to activities ***within*** a financial markets infrastructure that is not impaired.

- Second, undue attention to the lack of an infrastructure meltdown would seem to underemphasize how perilously close Robinhood came to instigating a seriously adverse market event. After drawing on six bank credit lines reportedly totaling as much as $600 million, Robinhood reportedly sought an emergency infusion of more than $3.4 billion over four days to prevent further disruptions to trading on the platform.[57] In more extreme (but plausible) market conditions, Robinhood may have had more difficulty drawing on its credit lines and/or raising such a significant

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56 *See* J. Smialek et al., *Yellen and Regulators Met Amid GameStop Frenzy to Discuss Market Volatility*, The New York Times (Feb. 24, 2021), *available* at https://www.nytimes.com/2021/02/04/business/economy/yellen-gamestop.html.

57 *See* M. Kruppa et al., *Robinhood raises $2.4bn in second cash injection in four days*, Financial Times (Feb. 1, 2021), *available* at https://www.ft.com/content/790324e0-8526-4d9e-9717-a4430e1be034; *see also* K. Kelly, E. Griffith et al., *Robinhood, in Need of Cash, Raises $1 Billion From Its Investors*, The New York Times (Jan. 29, 2021), *available* at https://www.nytimes.com/2021/01/29/technology/robinhood-fundraising.html.

amount of capital on an emergency basis,[58] particularly at a time when other large market participants would be in dire need of substantial additional capital.[59] If Robinhood defaulted on its margin calls, it could have been forced to more broadly halt trading and/or unexpectedly close out the most volatile positions across as many as 13 million retail accounts, thereby exposing every holder of securities affected by these actions to potentially dramatic changes in prices, liquidity, and order flow.

Consider the systemic consequences, for example, if the hedge fund Melvin Capital Management ("MCM") were unable to obtain emergency funds and/or had to close out and/or cover all its GameStop and other short positions—or had to simply default on some of those positions. In all likelihood, the resulting redemptions, fire sales, and knock-on liquidity demands might have amplified the Robinhood disruptions and financial constraints, encouraged NSCC to take more drastic actions or hold the line on the initial $3 billion margin call (later reduced on a discretionary basis), changed the risk tolerance of investors that injected billions into Robinhood and MCM, and perhaps ignited or failed to limit a broader systemic panic. This extreme but plausible scenario brings to mind the apparently forgotten lessons of Long-Term Capital Management.

Thus, the Committee should focus on and emphasize the fact that the GameStop trading events were an apparent ***near miss***, not necessarily a demonstration that our infrastructure ***would have*** remained resilient under highly plausible, slightly more adverse circumstances.

- Third, and finally, Robinhood and others have drawn attention to the necessity of implementing risk-reducing changes to the securities settlement period, currently operating on a T+2 (*i.e.*, trade-date-plus-two-days) time horizon. Because margin models at the NSCC and other clearinghouses account for risks during the period of time that elapses between trading activities and actual settlement of transactions, a shorter time horizon for settlement—like T+1—would not only reduce risk to the clearing system but also generally reduce liquidity demands and risks to clearing firms, like Robinhood, that must meet margin calls calibrated to the risks and volatilities expected for the firm's overall portfolio during the unsettled risk period.

  A reduction in the securities settlement period to T+1 is appropriate, feasible, and long overdue. However, in our view, moving to ***less than*** T+1 raises a number of issues relating to operational risk, the pre-funding of market activities, and credit risk management that need to be carefully studied before being implemented. Regardless of any changes to the settlement period, Robinhood's attention to securities settlement and the risk margin call amount required by its trading activities cannot and must not distract from the reality that all broker-dealers are required to have the capital and liquidity to support customer trading. It is not a defense for a liquidity crisis that in a different world, under different rules and processes, no such liquidity event would have occurred.

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58 There are also a number of questions regarding the investors in Robinhood. *See* G. Tett, *The money behind Robinhood is pure Sheriff of Nottingham*, Financial Times, Opinion (Feb. 4, 2021), *available* at https://www.ft.com/content/72aa45ee-4591-4819-a104-9d445d3f4daf.

59 Imagine the potential challenges of Robinhood trying to raise $4 billion if, rather than just Melvin Capital, multiple hedge funds and other market participants had experienced correlated losses and each sought a $2.75 billion emergency bailout. That scenario is plausible given that Melvin Capital Management alone reportedly declined more than 50% in the month of January due to losses on its GameStop short positions. *See* Juliet Chung, Citadel, *Point72 to Invest $2.75 Billion Into Melvin Capital Management*, Wall Street Journal (Jan. 25, 2021), *available* at https://www.wsj.com/articles/citadel-point72-to-invest-2-75-billion-into-melvin-capital-management-11611604340.

E. **Forced Arbitration: The GameStop frenzy represents yet another occasion for examining the pressing need to ban or at least limit mandatory pre-dispute arbitration clauses in financial services agreements.**

By our count, at least 70 lawsuits have been filed in connection with the recent market turmoil and related trading losses. For example, claimants have alleged that Robinhood's decision to shut down purchases of GameStop shares during a critical period of time violated its contracts with clients, its duties to customers as a broker-dealer, and/or applicable laws and rules. Presumably, Robinhood and other defendants will invoke their lengthy, fine-print customer agreements and insist that all individual lawsuits against them must be dismissed and heard not in open court but before a private, nonpublic arbitration forum such as the one operated by the brokerage industry under FINRA's auspices.[60] As of February 11, 2021, Robinhood disclosed that it had 24 arbitrations pending.[61]

Robinhood has noted that it remains "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."[62] Given that forced arbitration (1) is highly secretive, (2) is a biased forum that generally favors industry respondents and affords wronged investors very little meaningful relief, (3) provides neither the public nor regulators any insight into the nature of the claims being lodged or the manner in which they are resolved, and (4) lacks the procedural protections provided in court proceedings, including the right to appeal an erroneous decision or to even have a written decision stating the facts found and the basis for the decision,[63] Robinhood's "review," if undertaken and fairly and genuinely conducted, should have no trouble concluding that such proceedings are not "in its customers' best interests with respect to resolving customer complaints."

Regardless of Robinhood's decision in this regard, the GameStop events present yet another occasion for examining the pressing need to ban or limit mandatory pre-dispute arbitration clauses in financial services agreements. In this and other appropriate hearings, the Committee should address these questions:

- In general, whether and to what extent market participants should be permitted to use and rely upon mandatory pre-dispute arbitration clauses in their client agreements;
- Whether and to what extent forced arbitration proceedings result in (1) injured investors receiving compensation and in what amounts, (2) financial firms pocketing ill-gotten gains because investors are not able to fully recover their losses from illegal conduct, and (3) regulators and legislators being deprived of information regarding the illegal conduct of financial firms due to the non-public, secret nature of the proceedings and the complete lack of procedural protections, including but not limited to written decisions with factual findings from the record that support an articulated basis for the outcome;

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60 *See* Robinhood Financial LLC & Robinhood Securities, *LLC Customer Agreement*, Section 38 Arbitration (Revised June 22, 2020), *available* at https://cdn.robinhood.com/assets/robinhood/legal/Customer%20Agreement.pdf.

61 *See* Letter from L. Moskowitz, Robinhood Markets, Inc., to Senator E. Warren ("Robinhood Letter") (Feb. 12, 2021), *available* at https://www.warren.senate.gov/imo/media/doc/Robinhood%20Response%20to%20Feb%202%20Letter.pdf.

62 *Id.*

63 *See also* Better Markets, *Forced Arbitration: Taking Away Your Rights and Your Money* (June 11, 2019), *available* at https://bettermarkets.com/blog/forced-arbitration-taking-away-your-rights-and-your-money.

- Whether carve-outs under applicable rules for class action lawsuits really provide injured investors with an adequate and practical means of obtaining relief; and

- Whether, and if so why, the SEC failed to use the explicit authority it received in section 921 of the Dodd- Frank Act to prohibit or limit the use of mandatory arbitration clauses in agreements between brokers and their clients.

F. **Transparency of Short Interest: The SEC is examining ways to increase the transparency of short interest in the securities markets and must promptly move to a comprehensive rulemaking to increase the scope and frequency of short-interest reporting.**

Some trading in GameStop and other so-called "Reddit Rebellion" equities was apparently motivated by objections to the short selling activities of institutional traders. There is some transparency with respect to short interests acquired through traditional short selling activities. Market participants frequently rely on put-call, short-interest, and days-to-cover ratios, for example, to gauge market sentiment on valuations, and some of these short-interest measures are informed by bi-monthly reporting by broker-dealers. However, these metrics do not adequately capture the levels of short interest across financial firms or in a sufficiently timely manner. Moreover, these measures do not include the short interests acquired through derivatives that provide leveraged exposures to securities, or baskets of securities, without any purchase or sale of the underlying securities.

The Committee must exercise its full oversight and legislative functions to investigate and explore reforms in the following areas of concern:

- Whether the SEC should increase the frequency and expand the scope of short interest reporting by broker-dealers and impose additional or expanded reporting obligations on other market participants;

- Whether the SEC should revise securities filings to provide greater transparency of short positions, and whether revisions to section 13(f) of the Securities and Exchange Act of 1934 and Rule 13(f) thereunder may be necessary;

- Whether regulators and market participants have access to timely and complete information on short interest, including short interest acquired through equity derivatives;

- Whether short-selling restrictions should be effected on an investor-by-investor, broker-dealer-by-broker dealer, or other basis beyond a certain ratio of the number of shorted securities to the total float in that security;

- Whether repeated fails-to-deliver in connection short-selling is presently subject to sufficient enforcement and sanction and if not, whether and how enforcement and sanctions must be strengthened; and

- Whether changes to Regulation SHO or related short-selling restrictions, for example disclosure requirements under section 929X(a) of the Dodd-Frank Act and/or reinstatement of the Uptick Rule, would have ameliorated the precipitous declines in GameStop and other "meme" stocks and better protected investors and markets than the current short-interest regulatory framework.

G. Manipulation: The SEC and FINRA have extensive authority and resources and a duty to address any violations of law, including manipulation and fraud related to frenzied trading in GameStop and beyond.

The recent trading patterns in GameStop and other equities raise questions about whether certain traders may have engaged in unlawful manipulation and/or disruptive trading. Media reports indicate that retail traders may have coordinated to purchase GameStop shares, perhaps to put upward pressure on its share price and force institutional short sellers to cover their positions and put even more upward pressure on share prices (*i.e.*, to effect a "short squeeze"). There are also reports that hedge funds and other sophisticated participants took advantage, or sought to take advantage, of the retail momentum and pushed up prices as well. In addition, there have numerous reports suggesting that bots and imposter activities were active and frequent in the subreddit forum r/wallstreetbets, which, if true, suggests that intentional manipulation may well have occurred.[64]

On the other side of the market, the GameStop short interest held by hedge funds and others that reportedly served as motivation for the so-called "Reddit Rebellion's" trading rose as high as 100% of the free float (*i.e.*, total stock available to trade) in 2019 and 2020 and exploded as GameStop's price continued to increase in 2021. The short interest, at its peak, reportedly exceeded the total stock available to trade by a fairly significant amount and may have reached as high as 140% of the total float, although it is remarkably—and tellingly—challenging to find the precise figures.

The SEC and CFTC manipulation standards most clearly apply to trading activities intended to influence prices of financial instruments by disseminating false information or engaging in deceptive trading practices that create a false impression about the level of interest in the stock, its value, or its price direction. Some of the critical open questions with respect to manipulation under the presently known facts include the following:

- Whether some class of retail investors demonstrably intended to engage in manipulative trading practices to effect a short squeeze;
- Whether retail investors actually caused the short squeeze in GameStop, as frequently reported, or whether other trading interests took advantage of retail trading momentum and/or withdrew liquidity to exacerbate or cause the upward price pressures;
- Whether institutional investors or others were engaged in manipulative practices, including through automated trading on incoming retail customer orders or their extensive short selling in equities;
- Whether certain traders or persons who were publicly encouraging the purchase or retention of GameStop and other equities were simultaneously selling to secure profits or limit losses; and
- Whether definitions and prohibitions on market manipulation and manipulative trading practices in statutes as well as SEC and CFTC regulations and interpretations fully cover the range of practices and activities that were detrimental to retail traders and investors.

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[64] *See, e.g.*, S. Murray, *GameStop Stock Price Falls As Bots Invade WallStreetBets*, The Gamer (Feb. 2, 2021), *available* at https://www.thegamer.com/gamestop-stock-bots-wallstreetbets/; *see also* S. Gandel, *WallStreetBets says Reddit group hit by 'large amount' of bot activity*, CBS News (Feb. 2, 2021) *available* at https://www.cbsnews.com/news/wallstreetbets-reddit-bot-activity/; C. McCabe, *A Week Inside the WallStreetBets Forum That Launched the GameStop Frenzy*, Wall Street Journal (Feb. 13, 2021), *available* at https://www.wsj.com/articles/a-week-inside-the-wallstreetbets-forum-that-launched-the-gamestop-frenzy-11613212202?mod=series_gamestopstockmarket.

The vehicles, methods, and means for violating the law change, but our financial regulators' duties to protect investors and market integrity remain timeless and paramount. Today's laws must be evaluated for the appropriateness of their scope and application, but the Committee also should remind the SEC and FINRA, if necessary, that they have extensive authority and resources and a duty to address any violations of law, including manipulation and fraud in connection with or related to the recent frenzied trading in GameStop and beyond.

Fraud, market manipulation, and other illegal practices are punishable regardless of forum or form and should be charged as such regardless of whether they occur at an open-outcry tulip auction or via a cool app or subreddit channel.

H. <u>Consolidated Audit Trail: The SEC has been derelict in its duties to protect investors and markets by failing to implement a fully functional and real-time consolidated audit trail for securities transactions. If it had a CAT, the SEC already would have a data-driven, informed basis to evaluate the 2021 trading events, take appropriate enforcement, rulemaking, or other actions, and fully inform the Congress about the material facts of such events.</u>

The SEC must have access to timely, accurate, and complete information on trading activities across the securities markets to effectively supervise and police them and consider policy improvements. This common-sense proposition has been understood since at least the "Flash Crash" in May 2010, after which the SEC commenced plans to create a consolidated audit trail ("CAT") of all trading-related activities in the securities markets. Once fully operationalized—with needed upgrades and appropriate oversight—the CAT will collect granular order, cancellation, modification, and trade execution information and enable the SEC and other regulators to reduce, manage, and better understand market disruptions, distortions, and crashes—including trading events like the GameStop frenzy—and identify, deter, and punish illegal conduct.[65]

The Committee should hold the SEC and the industry-led consortium, CAT NMS, accountable for its years-long failure to construct, implement and operationalize the CAT. In this regard, the Committee should hold an additional oversight hearing specifically on this topic and explore the following areas of concern:

- Whether conflicts-of-interest embedded in the CAT's governance structure have impeded implementation and thereby denied the SEC a valuable tool needed to assess recent GameStop trading and related market activities, and whether those conflicts of interest will continue to plague the CAT once it is operational;

- Whether the SEC should continue to outsource construction and operation of the CAT to the industry or the industry's representatives in light of the many crippling conflicts of interest and repeated failures to meet deadlines and operationalize the long-overdue project;

- Whether transparent CAT-planning milestones and significant penalties can be adopted near-term to increase accountability and the rapid construction, deployment, and operation of the CAT;

- Whether recent changes to the CAT NMS Rule would make it more difficult for regulators to detect manipulative trading activities and identify manipulators—and make CAT less user-

[65] *See* Better Markets, *The Consolidated Audit Trail is a long overdue transparency and accountability measure to protect investors and the integrity of the U.S. securities markets* (Feb. 16, 2021), *available* at https://bettermarkets.com/sites/default/files/documents/Better_Markets_CAT_Fact_Sheet_02-16-2021.pdf.

friendly—by (1) reducing or eliminating key information to be reported into CAT; and (2) increasing hurdles (such as download and access limits) for users;

- Whether accelerated phased implementation of certain order and trade execution information would better facilitate near-term completion of the CAT; and

- Whether the SEC should upgrade CAT with an eye towards real-time reporting as originally envisioned by the SEC in 2010.

III. Conclusion

There is still much that we do not know about the GameStop frenzy. Indeed, the publicly available ***facts*** are remarkably quite limited. That is why the first and most important task is for there to be comprehensive, thorough, granular, and data-driven investigations and examinations by prosecutors, policymakers, regulators, and legislators. This Committee's commitment to holding a series of public hearings to obtain those facts and examine market practices is essential not just for public understanding and possible legislation but also for public and investor confidence in our markets and in Congressional oversight. We appreciate the opportunity to participate in this hearing and would welcome continuing the discussion as the Committee continues its examination.

In closing, it is important to remember that, while the particular context for this hearing is new, most of the issues, trading practices, and obvious vulnerabilities of the U.S. financial system are not. There is little new about irrational exuberance and speculative fervor for questionable securities, and frankly, there little new about most of the other issues raised by the GameStop trading events, including the widespread predatory practices. Market participants at the center of these events have for years taken advantage of the complexity they created, the resulting market fragmentation, their order routing schemes, the questionable execution and trading practices, the lack of transparency, and the many uses of seen and unseen leverage. That is why Better Markets has repeatedly advocated for critical reforms to our equity market structure (*see* **Appendix D**).

Furthermore, for years, a handful of dominant market participants—including the executing dealers/HFTs at the center of the GameStop controversy and Wall Street's too-big-to-fail banks—have responded to economic incentives and regulatory opportunities by "danc[ing] while the music was playing"[66] (*i.e.*, maximizing profits regardless of risks) rather than taking necessary actions to protect their firms and the integrity of the U.S. financial system. These market participants often claim merely to operate within the rules they have been given and to be a victim of unforeseeable circumstances when markets malfunction or catastrophe strikes, even though they "strike up the band" in the face of risks they know, or should know, are building and materializing.

As the predatory, and in some cases illegal, practices just discussed illustrate, much of the current market structure has been intentionally created to be as non-transparent and complex as possible to enable and conceal as much wealth extraction as possible. That complexity is also wielded as a cudgel to intimidate policymakers, regulators, and legislators from looking at those activities too closely or asking too many

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66 *See* Reuters Staff, *Ex-Citi CEO defends "dancing" to U.S. panel*, Reuters (Apr. 8, 2010), *available* at https://www.reuters.com/article/financial-crisis-dancing/ex-citi-ceo-defends-dancing-quote-to-u-s-panel-idUSN0819810820100408. *See also* D. Kelleher, *Remarks on Stress Tests as a Policy Tool: No Evil Required*, Conference on "Stress Testing: A Discussion and Review," pp. 10-11(July 9, 2019), *available* at https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwj_zMPO593uAhUtuVkKHQI2ARoQFjABegQIBhAC&url=https%3A%2F%2Fwww.bostonfed.org%2F-%2Fmedia%2FDocuments%2Fevents%2F2019%2Fstress-testing%2Fstress-tests-and-policy-paper-kelleher.pdf%3Fla%3Den&usg=AOvVaw05n777Voi9q9tdcp7B3ggl.

questions. More than 100 years ago, Supreme Court Justice Louis Brandeis said, "sunlight is the best disinfectant" and that is as true today as it was then. These hearings are shining a spotlight on nefarious, lucrative practices, and the Committee must continue to look closely and ask the hard questions to unearth the facts, bring them into the open, demystify them, strip away the created complexity, and determine if the current market structure and the current practices within it can survive in the light of day.

I look forward to addressing any questions you may have on the recent frenzied trading in GameStop and other equities.

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Appendices:

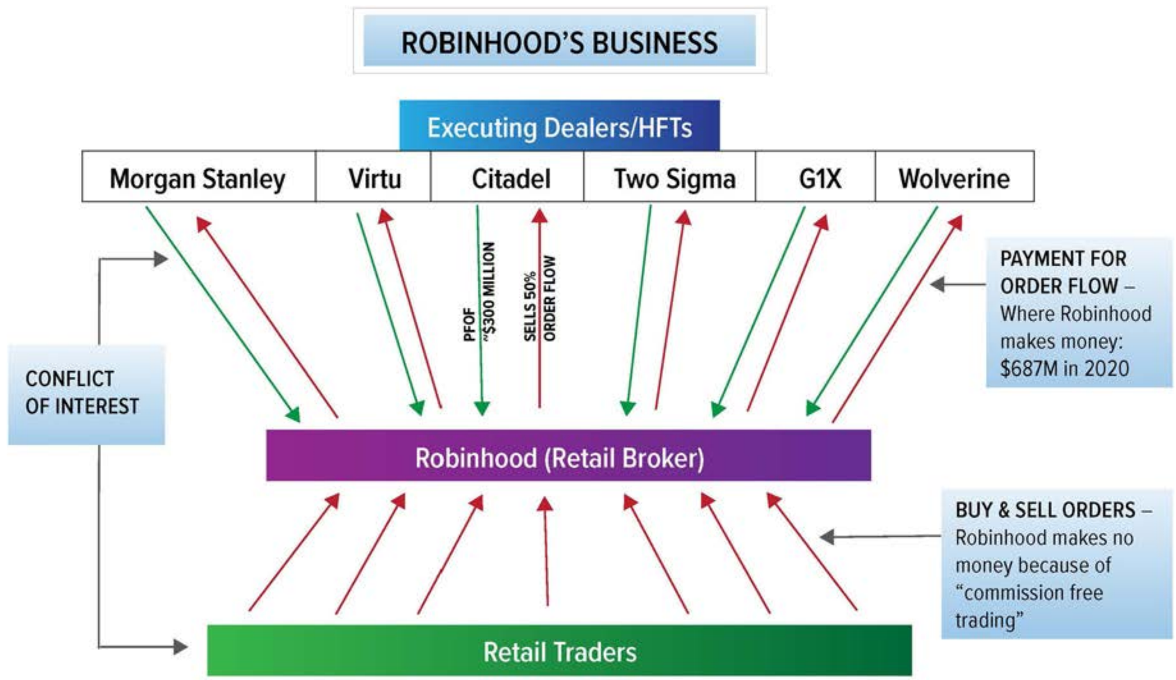
A: See Better Markets, *"Payment for Order Flow: How Wall Street Costs Main Street Investors Billions of Dollars through Kickbacks and Preferential Routing of Customer Orders"* (Feb. 16, 2021) (Long Primer), *available* at https://bettermarkets.com/sites/default/files/documents/Better_Markets_Payment_for_Order_Flow_Long_02-21-2021.pdf.

B: See Better Markets, *"Payment for Order Flow: How Wall Street Costs Main Street Investors Billions of Dollars through Kickbacks and Preferential Routing of Customer Orders"* (Feb. 16, 2021) (Short Fact Sheet), *available* at https://bettermarkets.com/sites/default/files/documents/Better_Markets_Payment_for_Order_Flow_Short_02-21-2021.pdf.

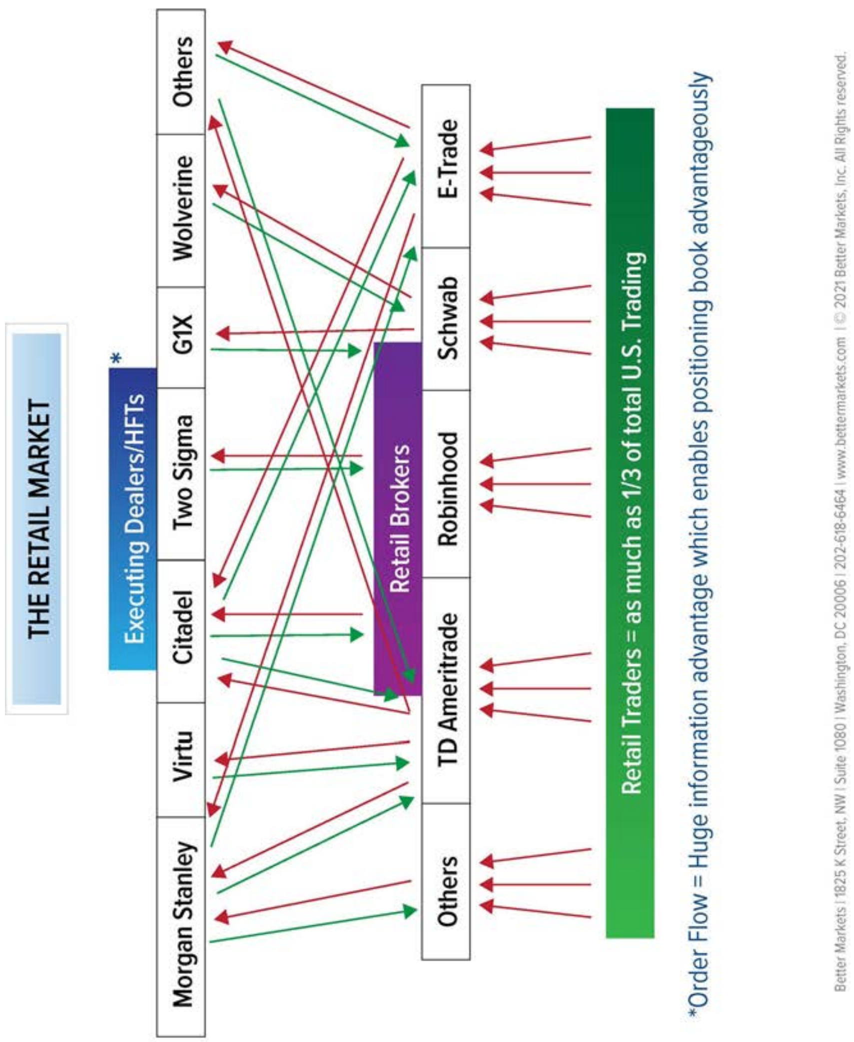
C: *Payment for Order Flow Charts* attached below (Mar. 16, 2021).

D: *Better Markets' Market Structure Advocacy Through the Years* attached below (Mar. 16, 2021) and *available* at https://bettermarkets.com/blog/better-markets-market-structure-advocacy-through-years.

APPENDIX C



ROBINHOOD'S BUSINESS
Executing Dealers/HFTs
Morgan Stanley
Virtu
Citadel
Two Sigma
G1X
Wolverine
PFOF ~$300 MILLION
SELLS 50% ORDER FLOW
PAYMENT FOR ORDER FLOW – Where Robinhood makes money: $687M in 2020
CONFLICT OF INTEREST
Robinhood (Retail Broker)
BUY & SELL ORDERS – Robinhood makes no money because of "commission free trading"
Retail Traders


THE RETAIL MARKET
Executing Dealers/HFTs *
Morgan Stanley
Virtu
Citadel
Two Sigma
G1X
Wolverine
Others
Retail Brokers
Others
TD Ameritrade
Robinhood
Schwab
E-Trade
Retail Traders = as much as 1/3 of total U.S. Trading
*Order Flow = Huge information advantage which enables positioning book advantageously
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POSSIBLE TRADING VENUES FOR EXECUTING DEALERS/HFTs

Internalizers/ HFTs (7+)
(LEAST REGULATED AND TRANSPARENT)

1. Citadel
2. Virtu
3. Susquehanna
4. Morgan Stanley
5. Two Sigma
6. G1X
7. Wolverine

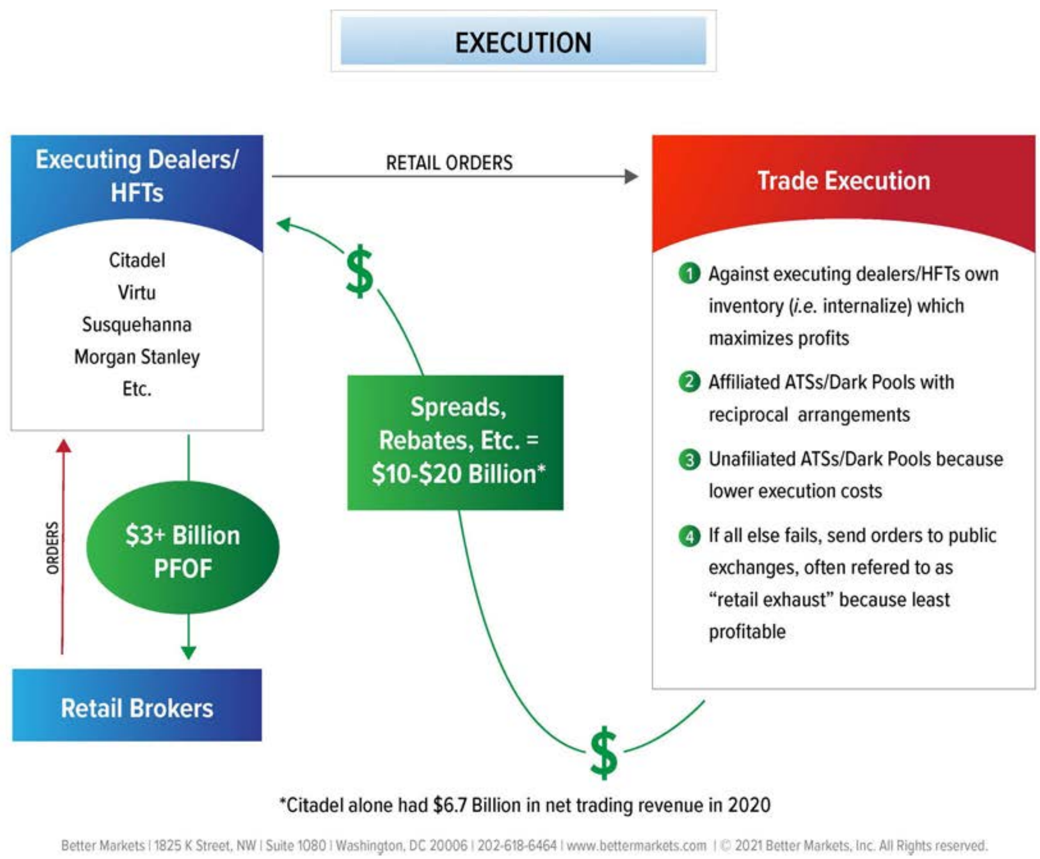
ATS*/Dark Pools (30+)

1. UBS ATS
2. Sigma X2
3. CROSSFINDER
4. JPM-X
5. LEVEL ATS
6. THE BARCLAYS ATS
7. IBKR ATS
8. MS POOL (AT-4)
9. BIDS ATS
10. INTELLIGENT CROSS LLC

*Alternative Trading Systems

Public "lit" Stock Exchanges (16+)
(MOST REGULATED AND TRANSPARENT)

1. NYSE
2. NYSE Arca
3. NYSE American
4. NYSE National
5. NYSE Chicago
6. NASDAQ
7. NASDAQ BX
8. NASDAQ PSX
9. Cboe BATS
10. Cboe BATY
11. Cboe EDGX
12. Cboe EDGA
13. IEX
14. MEMX
15. MIAX
16. LTSE


EXECUTION
Executing Dealers/ HFTs
Citadel
Virtu
Susquehanna
Morgan Stanley
Etc.
RETAIL ORDERS
Trade Execution
1 Against executing dealers/HFTs own inventory (i.e. internalize) which maximizes profits
2 Affiliated ATSs/Dark Pools with reciprocal arrangements
3 Unafiliated ATSs/Dark Pools because lower execution costs
4 If all else fails, send orders to public exchanges, often refered to as "retail exhaust" because least profitable
$
Spreads, Rebates, Etc. = $10-$20 Billion*
$
ORDERS
$3+ Billion PFOF
Retail Brokers
*Citadel alone had $6.7 Billion in net trading revenue in 2020
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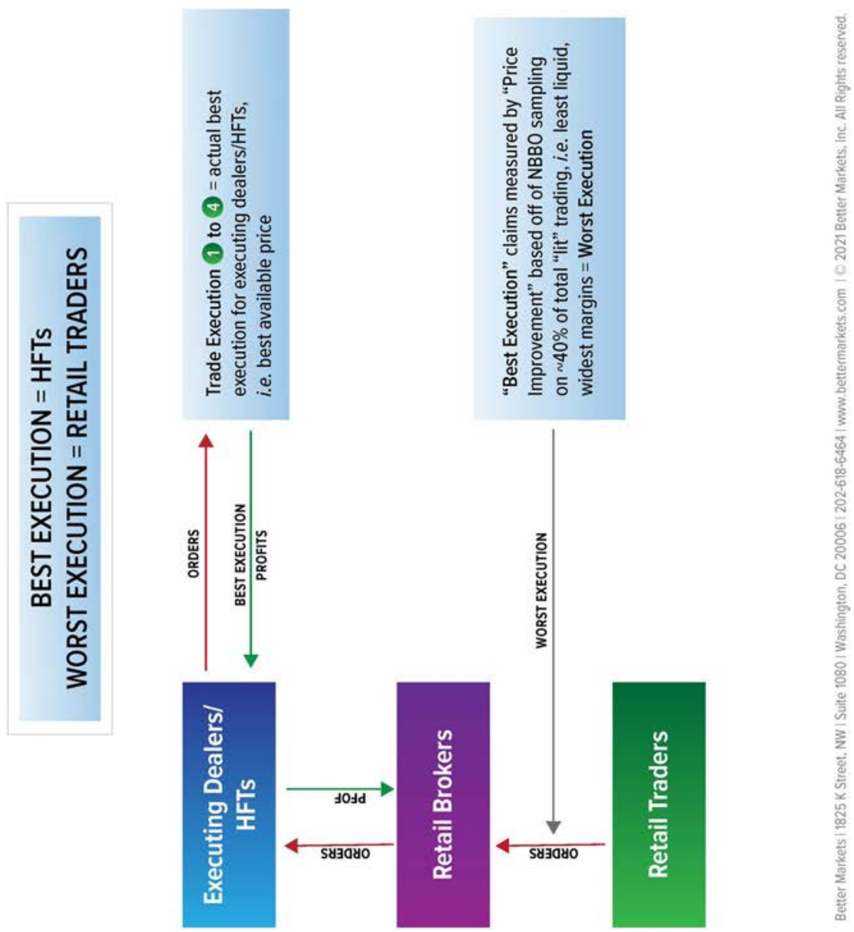
BEST EXECUTION = HFTs
WORST EXECUTION = RETAIL TRADERS
Executing Dealers/ HFTs
Retail Brokers
Retail Traders
ORDERS
PFOF
ORDERS
ORDERS
BEST EXECUTION PROFITS
WORST EXECUTION
Trade Execution 1 to 4 = actual best execution for executing dealers/HFTs, i.e. best available price
"Best Execution" claims measured by "Price Improvement" based off of NBBO sampling on ~40% of total "lit" trading, i.e. least liquid, widest margins = Worst Execution
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ALL TRADING IN THE U.S. *

5 day running average as of March 15, 2021 = 53.38% lit and 46.62% dark: https://www.cboe.com/us/equities/market_statistics/

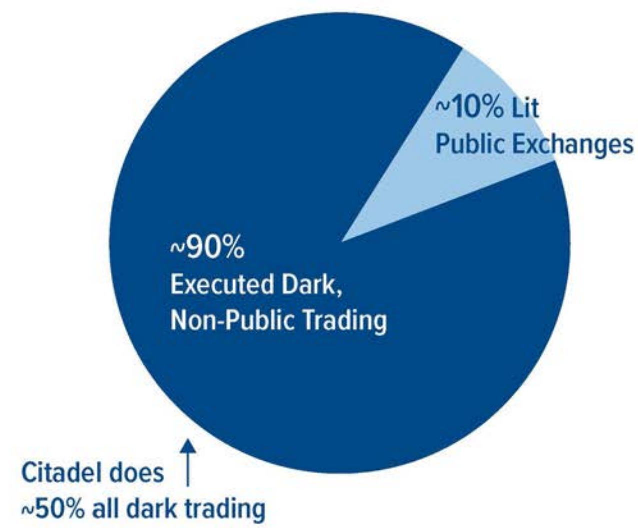
NBBO determined based on only the 53% of the bids/offers on "lit" public exchanges but after (1) excluding 20% of the volume that trades through hidden orders and (2) excluding odd lots which are a significant percentage of the "lit" trading. Therefore, NBBO only based on ~40% of total bids/offers but even that amount of "lit" bids/offers likely manipulated because:

1. Executing Dealers/HFTs are active traders in "lit" and dark markets and able to influence spreads in the "lit" markets
2. Posting bids/offers of just 200-300 shares often can move price
3. Lit exchange prices also move based on undisclosed activity in derivatives, futures and bond markets, where HFTs are active as well

= NBBO not even close to best execution and should not be used as benchmark or reference price

* Approx. 12 billion shares traded per day in U.S. with average trade size ~100 shares; executed within milliseconds

Retail Trading in US =
as much as 1/3rd all Trading



APPENDIX D

BETTER MARKETS

Better Markets Market Structure Advocacy

March 16, 2021

Better Markets has long recognized the myriad problems with the securities market structure,[1] and has repeatedly advocated for critical market reforms, at the Securities and Exchange Commission ("SEC"), including testimony before the Equity Market Structure Advisory Committee,[2] in the courts, and before Congress. This advocacy has spanned a number of market structure issues. Better Markets has called for more robust oversight and regulation of critical parts of the current securities trading infrastructure, including comment letters to the SEC in support of Reg. SCI, which enhanced cybersecurity and systems' security at stock exchanges and self-regulatory organizations such as Financial Industry Regulatory Authority and Municipal Securities Rulemaking Board,[3] and enhancements to Reg. ATS that strengthened the SEC's oversight of Alternative Trading Systems.[4] We also supported the SEC when it rescinded a rule that allowed exchanges to increase access and data fees essentially without SEC's involvement.[5]

Better Markets has also addressed the ways that current market structure, and in particular market fragmentation, has created opportunities for predatory market participants, including brokers, high-frequency trading firms, and others, to take advantage of retail traders, through "payment for order flow" ("PFOF"), maker-taker fee structures at exchanges, and other issues that create conflicts of interest between brokers and their clients, lead to inferior execution and, relatedly, enable certain privileged market participants to take advantage of retail investors. Better Markets has supported SEC efforts to address these issues (and urged it to do more). For example, Better Markets issued comment letter in support of an SEC that mandated important disclosures brokers, exchanges, and ATS must make with regards to their order routing decision.[6] Better Markets also advocated in favor of the SEC's Transaction Fee Pilot for NMS Stocks that sought to assess the potential impact of reforming the maker-taker

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[1] *See* Better Markets, *Comment Letter to SEC on Roundtable on Market Data and Access* (Feb. 4, 2019), https://bettermarkets.com/sites/default/files/Ltr%20SEC%20Market%20Data%20Fees%202-4-2019%20-%20Final.pdf; *see also* Better Markets Blog, *The SEC at a Technical Crossroads* (June 13, 2016), https://bettermarkets.com/blog/sec-technological-crossroads.

[2] Lev Bagramian, Better Markets, *Testimony Before the EMSAC* (Apr. 5, 2017), https://bettermarkets.com/sites/default/files/EMSAC%20Bagramian%20Remarks%2004-05-2017%20FINAL.pdf.

[3] Better Markets, *Comment Letter on Regulation Systems Compliance and Integrity* (Jul. 8, 2013), https://bettermarkets.com/sites/default/files/documents/SEC-%20CL-%20Systems%20Compliance%20and%20Integrity-%207-8-13.pdf.

[4] Better Markets, *Comment Letter on Regulation of NMS Stock Alternative Trading Systems* (Feb. 26, 2015), https://bettermarkets.com/sites/default/files/SEC%20-%20CL%20-%20Regulation%20of%20NMS%20Stock%20ATS%20-%202-26-2016.pdf.

[5] Better Markets, *Comment Letter on Rescission of Effective-Upon-Filing Procedure for NMS Plans Fee Amendments* (Dec. 10, 2019), https://bettermarkets.com/sites/default/files/Better_Markets_Rescission_of_Effective-Upon-Filing_Procedure_for_NMS_Plans_Fee_Amendments_S7-15-19.pdf.

[6] Better Markets, *Comment Letter to SEC on Disclosure of Order Handling Information* (Sept. 26, 2016), https://bettermarkets.com/sites/default/files/SEC%20-%20CL%20-%20Disclosure%20of%20Order%20Handling%20-%209-26-16_0.pdf.

exchange fee model, filing a comment letter in support of the Pilot[7] and an amicus brief with the D.C. Circuit in defense of the Pilot against the industry's (unfortunately, ultimately successful) attack.[8] Better Markets also filed an amicus brief in the 8th Circuit, in support of the plaintiffs in a class action lawsuit alleging that TD Ameritrade routed orders in order to maximize profits from order routing revenue rather than fulfilling its fiduciary duty to its clients to seek best execution.[9] Where appropriate, we have also supported efforts by the industry to ameliorate the effects of market fragmentation, including supporting IEX's "D-Limit" order type that seeks to enable a more level playing field by preventing privileged traders from using latency built into the system to take advantage of other investors.[10]

Better Markets has also urged the SEC to improve the trading data available to the public and regulators. For example, Better Markets filed a comment letter in support of a rule that upgraded the market data infrastructure (the so-called Securities Information Processors or SIPs), highlighting the significant deficiencies in the current state of market data, and urged the approval of the proposal.[11] Most prominently, Better Markets has been a tireless advocate of efforts to implement the Consolidated Audit Trail ("CAT"), which, as Better Markets pointed out in an op-ed in American Banker, is a critical tool for the SEC to monitor trading.[12] Better Markets has filed at least two comment letters addressing CAT-related rules proposed by the SEC[13] and also supported the implementation of CAT by sending the SEC a letter pushing back on the false narrative that the CAT would jeopardize fundamental privacy rights.[14] More urgently, Better Markets, through a letter to former Chair Clayton, pressed the SEC not to delay implementation of the CAT,[15] and as it became clear that implementation of the CAT was facing unreasonable delays, sent at least 3 letters critical of various aspects of the SEC's implementation (or lack thereof) of the CAT, highlighting the unreasonable delay in implementing the CAT and how the process of implementation to become riddled with industry conflicts of interest.[16] In light of the SEC's failure to timely

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[7] Better Markets, *Comment Letter on Transaction Fee Pilot for NMS Stocks* (May 24, 2018), https://bettermarkets.com/sites/default/files/CL%20SEC%20Transaction%20Fee%20Pilot%205-24-18%20-%20Final.pdf.

[8] Amicus Brief of Better Markets in Support of SEC in *NYSE v. SEC* (D.C. Cir. No. 19-1042) (filed Aug. 1, 2019), https://bettermarkets.com/sites/default/files/NYSE%20v.%20SEC%2C%2019-1042%20%28Final%20for%20Filing%29.pdf.

[9] Amicus Brief of Better Markets in Support of Plaintiffs in *Ford v. TD Ameritrade* (8th Cir. No. 18-3689) (filed May 8, 2019), https://bettermarkets.com/sites/default/files/Better%20Markets%20Amicus%20Brief%20Ford%20v.%20TD%20Ameritrade.pdf.

[10] Better Markets, *Comment Letter on IEX Proposed D-Limit Order Type* (May 15, 2020), https://bettermarkets.com/sites/default/files/Better_Markets_Comment_Letter_on_IEX_Proposed_D-Limit_Order_Type.pdf.

[11] Better Markets, *Comment Letter on The SEC's Market Data Infrastructure Proposal* (May 26, 2020), https://bettermarkets.com/sites/default/files/Better_Markets_Comment_Letter_on_Market_Data_Infrastructure-5-26-2020.pdf.

[12] Lev Bagramian, Better Markets, *BankThink: Regulators Shouldn't Bail on Plan to Prevent the Next Flash Crash*, American Banker (Nov. 8, 2017), https://www.americanbanker.com/opinion/policymakers-shouldnt-bail-on-plan-to-prevent-next-flash-crash; *see also* Better Markets Blog, *SEC Should Stay the Course on CAT* (Jan. 18, 2018), https://bettermarkets.com/spotlight-series-investors-and-markets/sec-should-stay-course-cat.; Better Markets Blog, *Flash Crash Anniversary a Reminder of Why We Need CAT and Why the SEC Should Flex Its Muscle to End Industry Procrastination* (May 4, 2018), https://bettermarkets.com/spotlight-series-investors-and-markets/flash-crash-anniversary-reminder-why-we-need-cat-and-why-sec.

[13] Better Markets, *Comment Letter on Proposed Amendments to the National Market System Plan Governing the Consolidated Audit Trail* (Nov. 30, 2020), https://bettermarkets.com/sites/default/files/Better%20Markets%20Comment%20Letter%20on%20Proposed%20Amendments%20to%20the%20National%20Market%20System%20Plan.pdf; Better Markets, *Comment Letter Proposed Amendments to the National Market System Plan Governing the Consolidated Audit Trail* (Oct. 28, 2019), https://bettermarkets.com/sites/default/files/CL_SEC_CAT_Amendments_10-28-19FINAL.pdf.

[14] Better Markets, *Letter to Chairman Clayton Addressing ACLU Concerns about the CAT* (Jan. 24, 2020), https://bettermarkets.com/sites/default/files/Ltr%20Clayton%20Re%20ACLU%20on%20CAT%201-24-2020.pdf.

[15] Better Markets, *Letter to Chairman Clayton Supporting Decision Not to Delay the CAT* (Nov. 15, 2017), https://bettermarkets.com/sites/default/files/Ltr%20SEC%20Chair%20Clayton%20re%20CAT%2011-15-17.pdf.

[16] Better Markets, *Letter to SEC on the National Market System Plan Governing the Consolidated Audit Trail* (Jul. 18, 2016), https://bettermarkets.com/sites/default/files/CL%20-%20SEC%20-%20Consolidated%20Audit%20Trial%207-18-2016.pdf; Better Markets, *Letter to Chairman Clayton Expressing Disappointment with CAT Implementation* (Sept. 24, 2018),

implement the CAT, Better Markets has sent at least two letters to the Senate Banking Committee urging it to conduct oversight of the SEC's implementation of the CAT.[17]

Finally, many of the market structure issues Better Markets has highlighted over the years, and sought to reform, came to a head in the GameStop saga, and Better Markets has produced a plethora of materials related to that ongoing fiasco, including: (1) a letter to the House Financial Services Committee explaining the various market structure issues at play;[18] (2) a memorandum[19] and fact sheet[20] detailing the issues raised by the GameStop Saga; (3) a fact sheet on Citadel, one of the key players in the GameStop saga (and in market structure issues more generally);[21] (4) fact sheets on PFOF and how it relates to GameStop;[22] (5) a fact sheet on CAT and how it relates to GameStop;[23] and (6) a letter to the Financial Stability Oversight Council, urging it to address the various market structure issues implicated by the GameStop saga.[24]

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https://bettermarkets.com/sites/default/files/BM%20Ltr%20to%20SEC%20Chair%20Clayton%20On%20CAT.pdf. Better Markets' criticism of the SEC for excessive deference to industry has not been limited to implementation of the CAT. In 2015, Better Markets sent a letter to the SEC and separately published an op-ed, pointing out that several industry members of the EMSAC had a lengthy history of violating SEC rules. Better Markets, *Letter to Chair White on Serious Market Structure-related Civil and Criminal Illegal Conduct by a Number of Firms Represented on the SEC's Equity Market Structure Advisory Committee* (Oct. 22, 2015), https://bettermarkets.com/sites/default/files/Illegal%20Conduct%20by%20Firms%20on%20SEC%27s%20EMSAC_0.pdf; Dennis Kelleher, Better Markets, *BankThink: Special Interests Dominate SEC Trading Advisory Panel* (Nov. 13, 2015), https://www.americanbanker.com/opinion/special-interests-dominate-sec-trading-advisory-panel.

[17] Better Markets, *Letter to Senate Banking Committe Regarding Oversight of the CAT Implementation* (Oct. 21, 2018), https://bettermarkets.com/sites/default/files/Ltr_Senate_Banking_Committee_Hearing_re_CAT_10-19-19_-_Final_%28002%29.pdf; Better Markets, *Letter to U.S. Senate Banking Committee Calling on Oversight for The SEC's to CAT Implementation* (Apr. 14, 2017), https://bettermarkets.com/sites/default/files/Senate%20Banking%20Committee%20Economic%20Growth%20Proposals.pdf.

[18] Better Markets, *Letter to House Financial Services Committee on GameStop* (Feb. 16, 2021), https://bettermarkets.com/sites/default/files/Critical%20Issues%20to%20Adress%20in%20the%20Game%20Stop%20Hearing.pdf.

[19] Better Markets, *Key Topics for GameStop, Robinhood, Citadel, Reddit, Roaring Kitty Hearing at the House Financial Services Committee* (Feb. 18, 2021), https://bettermarkets.com/sites/default/files/Memo%20GameStop%20Hearing%20Interested%20Parties%202-17-2020.pdf.

[20] Better Markets, *Fact Sheet: Reddit, Robinhood, GameStop & Rigged Markets: The Key Issues for Investigation* (Feb. 1, 2021).

[21] Better Markets, *Fact Sheet: What You Need to Know About Citadel's Role in the Robinhood and the GameStop Saga* (Feb. 16, 2021), https://bettermarkets.com/sites/default/files/documents/Better_Markets_Citadel_Role_in_GameStop_02-16-2021.pdf.

[22] Better Markets, *Fact Sheet: Payment for Order Flow—How Wall Street Costs Main Street Investors Billions of Dollars through Kickbacks and Preferential Routing of Customer Orders (Short Version)* (Feb. 16, 2021), https://bettermarkets.com/sites/default/files/documents/Better_Markets_Payment_for_Order_Flow_Short_02-21-2021.pdf; Better Markets, *Fact Sheet: Payment for Order Flow—How Wall Street Costs Main Street Investors Billions of Dollars through Kickbacks and Preferential Routing of Customer Orders (Long Version)* (Feb. 16, 2021), https://bettermarkets.com/sites/default/files/documents/Better_Markets_Payment_for_Order_Flow_Long_02-21-2021.pdf.

[23] Better Markets, *Fact Sheet: The Consolidated Audit Trail is a Long Overdue Transparency and Accountability Measure to Protect Investors and the Integrity of the U.S. Securities Markets* (Feb. 16, 2021), https://bettermarkets.com/sites/default/files/documents/Better_Markets_CAT_Fact_Sheet_02-16-2021.pdf.

[24] Better Markets, *Letter to FSOC Regarding GameStop* (Feb. 3, 2021), https://bettermarkets.com/sites/default/files/Better%20Markets%20Letter%20to%20FSOC%20Regarding%20Gamestop%202-3-2021.pdf.

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Written Testimony of

Michael S. Piwowar
Executive Director of the Milken Institute Center for Financial Markets

Before the U.S. House Committee on Financial Services

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

March 17, 2021

Good morning. Thank you Chairwoman Waters, Ranking Member McHenry, and Members of the Committee for inviting me to testify today.

My name is Mike Piwowar, and I am the Executive Director of the Milken Institute Center for Financial Markets.[1] I had the pleasure of serving 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.

* * *

Thank you for calling this second hearing on the lessons learned from the January trading frenzy in Gamestop and other so-called meme stocks. In the first hearing, members of this Committee identified a number of issues that the SEC should prioritize in its regulatory, compliance, and enforcement roles. I hope that my testimony today will be helpful in guiding some of those priorities.

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.[2] The SEC's Division of Examinations has said that one of their 2021 examination priorities will be to examine

[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] 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.

broker-dealers to assess whether they are meeting their legal and compliance obligations when providing retail customers access to complex strategies, such as options trading.[3] The Commission also said that they are investigating whether abusive or manipulative trading activity prohibited by the federal securities laws occurred during this episode.[4]

I have complete confidence that the Commission and its compliance and enforcement staff will identify and pursue any evidence of noncompliance or wrongdoing. Accordingly, I focus my testimony on the regulatory policy issues that have been raised in the aftermath of the January trading. The first part of my testimony focuses on achieving more equitable access to investing in private companies. The second part focuses on improving three specific areas of market structure and market infrastructure5 policy.

Achieving More Equitable Access to Investing in Private Companies

The State of Retail Investing

Retail investors enjoy more choices and face lower costs and barriers when investing their hard-earned savings in public companies 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.[6] 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

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

[4] 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.

[5] The term "market structure" (or "market microstructure") generally refers to the operation and regulation of financial markets. The term "market infrastructure" (or "market plumbing") generally refers to the network of systems that facilitate financial market transactions, such as payment systems, clearance, and settlement.

[6] 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.q-group.org/wp-content/uploads/2014/01/Equity-Trading-in-the-21st-Century-An-Update-FINAL.pdf.

and expenses down to their lowest levels in history.[7] 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% in 1989 to 53% in 2019.[8]

Low-income households saw the biggest gains over this period, but low-income households still lag high-income households in ownership rates of public companies.[9][10] In 2019, 15% of households in the lowest income quintile held stocks in public companies – directly or indirectly through funds and retirement savings accounts – compared to 88% of households in the highest income quintile.[11] 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.

Accredited Investor Definition

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.[12] 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.[13] If not, the SEC has decided that, for your protection, you are restricted access to invest in private companies.

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[7] 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.
[8] See Federal Reserve Board 2019 Survey of Consumer Finances (Nov. 17, 2020), available at https://www.federalreserve.gov/econres/scfindex.htm.
[9] 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.
[10] 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.
[11] 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.
[12] 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-051816html.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.
[13] 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

As an SEC commissioner, I took my investor protection mandate extremely seriously. However, I challenge the SEC's investor protection rationale for prohibiting non-accredited 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.[14,15]

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.

Market Structure and Market Infrastructure Policy

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individual for accredited investor status[.]" See Accredited Investor Definition, Final Rule, SEC Release Nos. 33-10824; 34-89669 (Aug. 26, 2021), 85 Fed. Reg. 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.

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

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

Before addressing specific market structure and market infrastructure policy issues, I summarize some guiding principles that I find useful in thinking through them.

Guiding Principles

There Are No Solutions; There Are Only Trade-offs[16]

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").[17] 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.[18] 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.

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[16] This phrase is often attributed to Thomas Sowell.

[17] 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.

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

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.[19] 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 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."[20] 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.[21]

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[19] See, e.g., Advancing and Defending the SEC's Core Mission, Speech by Commissioner Michael S. Piwowar 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. Piwowar (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. Piwowar (Sept. 15, 2016), available at https://www.sec.gov/news/statement/piwowar-statement-list-of-rules-regulatory-flexibility-act.html; Remarks at FINRA and Columbia University Market Structure Conference, Speech by Commissioner Michael S. Piwowar (Oct. 26, 2017), available at https://www.sec.gov/news/speech/speech-piwowar-2017-10-26; and Statement of Commissioner Piwowar at Open Meeting Regarding Amendments to the Commission's Whistleblower Program Rules, Commissioner Michael S. Piwowar (June 28, 2018), available at https://www.sec.gov/news/public-statement/statement-piwowar-whistleblower-062818.

[20] 5 U.S.C. 610.

[21] 5 U.S.C. 610(b).

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.[22] 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."[23]

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.

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.[24] 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.[25] To put that number in context, it represented nearly ten times the amount required just three days earlier.[26]

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

[22] 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.
[23] Id.
[24] 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.
[25] Id.
[26] Id.

in a unique position to answer those questions. That is why I published an op-ed in *The Wall Street Journal* last month.[27]

As Acting Chairman of the SEC, I led the effort in 2017 to move officially from T+3 to T+2.[28] 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 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.[29] 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."[30]

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.

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[27] 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.
[28] 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.
[29] See Securities Transaction Settlement Cycle, Final Rule, SEC Release No. 34-80295 (Mar. 22, 2017), 82 Fed. Reg. 15564 Mar. 29, 2017), available at https://www.sec.gov/rules/final/2017/34-80295.pdf.
[30] Id.

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.[31][32]

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.[33]

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.[34]

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[31] 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.

[32] 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.

[33] See Fast Answers – Best Execution, (May 9, 2011), available at https://www.sec.gov/fast-answers/answersbestexhtm.html

[34] 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.

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

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.[35] 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.[36] 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.

[35] Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37496 (June 29, 2005).
[36] Id.

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

	Total GME Shares Executed	Amount Executed: Inside The Quote	Amount Executed: Outside The Quote	Net Price Improvement: Total	Net Price Improvement: 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.[37] 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.

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

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

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.[38] As a result, the vast majority of short sales that occur in the United States are legal.[39]

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."[40,41] Also, "the existing evidence short-selling cannot be blamed for having triggered downward price reversal during the 2008 financial crisis."[42] Short-sellers also protect other investors by detecting and publicizing fraud.[43]

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.[44] 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.

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[38] See Short Sales (Regulation SHO), Final Rule, SEC Release No. 34-50103 (Jul 28, 2004), 69 Fed. Reg. 48008 (Aug. 6, 2004), available at https://www.sec.gov/rules/final/34-50103.htm.

[39] 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.

[40] 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.

[41] 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.

[42] Id.

[43] 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.

[44] 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.

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.[45] Title VII of the Dodd-Frank Act[46] 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."[47]

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 securities lending activities, including income and fees from securities lending and the fees paid to securities lending agents in the prior fiscal year.[48] 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.

The Role of the House Financial Services Committee

[45] 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, The 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).
[46] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (2010).
[47] Dodd-Frank Wall Street Reform and Consumer Protection Act, § 984(b), Pub. L. No. 111-203 (2010).
[48] 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.

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 retail investors should have more equitable access to investment opportunities, hearings on abolishing or greatly expanding the accredited investor definition would be helpful. Soliciting feedback on how to creatively and effectively protect retail investors when investing in private companies would be particularly helpful.

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.

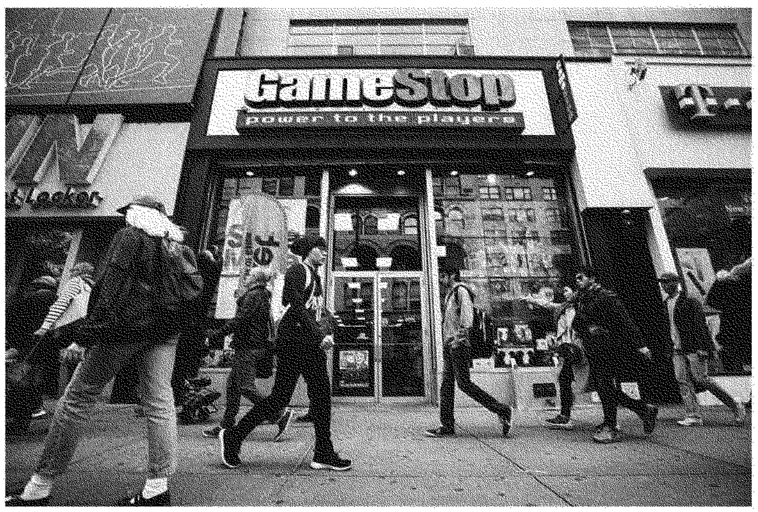
*   *   *

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.

PERSONAL FINANCE

Trading hot stocks like GameStop seems fun until you look beneath the surface

Congress is asking questions about whether middlemen or "market makers" like Citadel that execute stock trades really give small investors the best prices.



— Pedestrians walk past a GameStop store in New York. Michael Nagle / Bloomberg via Getty Images

Feb. 18, 2021, 5:04 AM EST

By Gretchen Morgenson

As an individual investor, you may not know much about the inner workings of the stock market. Or care.

But it's starting to dawn on novice traders in GameStop and other gyrating stocks that what you don't know can cost you.

Many investors who've flocked to the Robinhood stock trading app to buy and sell shares in recent months, for example, almost certainly didn't know they were customers of a powerful, behind-the-scenes trading firm called Citadel Securities, founded by Chicago billionaire Ken Griffin, a middleman or "market maker" who actually executes their trades.

These investors were probably also unaware that as Robinhood and Citadel have grown, regulators found they didn't always give customers the best prices on their securities trades. Both have had past run-ins with regulators.

Now, however, the losses individual investors absorbed during GameStop mania have drawn the interest of federal law enforcement officials, the Wall Street Journal has reported and NBC News has confirmed, nosing around to see if any laws or rules were broken.

On Thursday morning, Congress is set to address the matter in hearings convened by Maxine Waters, the California Democrat who chairs the House Financial Services Committee. Among those on tap to testify is Citadel's Griffin, whose mighty firm executes huge swaths of trades for Robinhood and other brokers daily.

— Kenneth Griffin, founder and chief executive officer of Citadel LLC, during a conference in Las Vegas on May 11, 2016. David Paul Morris / Bloomberg via Getty Images

At stake is a simple question: Is the operation of the U.S. stock market, with its many complexities, fair to individual investors? At least one of the practices from which Citadel benefits is forbidden in some countries.

"At the end of the day this is about whether or not your broker is getting you the best prices or trying to maximize their own profits," said Tyler Gellasch, executive director of the Healthy Markets Association, an investor-focused not-for-profit that works to educate market participants. "If brokers aren't required to give you the best prices, somebody benefits, and often that somebody is Citadel."

Josh Zeitz, a Citadel spokesman, disagreed. "Citadel Securities has been a driving force in reducing the costs of trading for retail investors," Zeitz said in a statement. He said retail brokers use Citadel because they are obligated to route trade orders to the firm best able to execute them.

A magnet for stock orders

Citadel is the biggest and most powerful company executing stock trades both for its own account and for investors in U.S. equity markets. Since Jan. 2017, volume in U.S. stocks handled by Citadel off any stock exchange has doubled from 7 percent to 15 percent, according to data provided by GTA Babelfish, a trading analytics firm that advises investors on trade executions. During the week of Jan. 4, 2021, Citadel handled more overall trading volume than the Nasdaq stock market, GTA Babelfish data shows.

One reason for this growth: Increasing interest in the stock market among individual investors.

Another: Citadel pays big money to firms like Robinhood, Charles Schwab and TD Ameritrade for the privilege of executing trades for these firms' individual investor customers.

GameStop shares plunge in ongoing stock market roller coaster

Citadel is a magnet for stock orders and sends increasing "payments for order flow," as they are called, to retail brokers. In the last three months of 2020, for example, regulatory filings show Citadel paid Robinhood $107.8 million to execute a portion of its stock and options orders.

These payments have helped Citadel capture a large percentage of Robinhood's trades. In October, for example, Citadel handled 70 percent of Robinhood's options trades placed at the prevailing market price, the filings show, with the next largest "market maker" handling 15 percent.

Robinhood receives higher payments on securities that carry wider spreads, that is, the difference between what an investor pays to buy and what he receives in a sale. Robinhood says it sends its orders to the market maker most likely to give the customer the best execution.

In December, Robinhood paid $65 million to settle an SEC enforcement action for not disclosing how much money it was receiving for routing its orders to firms like Citadel and for failing to seek the best price for its customers' orders. Robinhood neither admitted nor denied the allegations.

"Due in large part to its unusually high payment for order flow rates," the SEC said in announcing the settlement, "Robinhood customers' orders were executed at prices that were inferior to other brokers' prices." This failure deprived its clients of $34.1 million, the SEC said.

A Robinhood spokesman provided this statement: "The settlement relates to historical practices that do not reflect Robinhood today. We are fully transparent in our communications with customers about our current revenue streams, have significantly improved our best execution processes, and have established relationships with additional market makers to improve execution quality."

Robinhood faces several lawsuits over trading restrictions

Long before this settlement, though, payment for order flow had been criticized by investor advocates as potentially harmful to investors. The harm can arise because investors' trades that go to a market maker that paid for them are more likely to be kept inside that firm, a practice known as internalization. If kept under wraps, those trades won't wind up on venues, like an exchange, where they would be exposed to other buyers or sellers, maybe resulting in a better outcome for investors.

This makes sense if you think about stock trading as an eBay transaction. Say you'd like to list a bicycle for sale on eBay at $100, a price you think is reasonable. Unknown to you, however, a buyer is willing to pay $110 for it. You learn about this interest when eBay displays your offer and a buyer steps up at a higher price. If eBay had not displayed your offer and simply paid you the $100 you were asking, you'd have never learned that another buyer was willing to pay $10 more.

Payments for order flow are banned in other countries' stock markets, including those in the United Kingdom, Australia and Canada. In a 2019 report on the practice, the Financial Conduct Authority, Britain's regulator, said such payments make it "more likely that extra costs will be passed on to the broker's client" and "may lead to poorer outcomes for clients and reduce market integrity."

'Price improvement'

Market makers like Citadel say paying for orders is not a problem because they deliver big savings to investors by giving them better prices on their trades. "Last year alone, we provided $3 billion in price improvement that went directly into the pockets of retail investors," the Citadel spokesman told NBC News.

But critics say figures like these can't be compared to the investor savings that would result from broader access to Robinhood's and other brokers' customer trades.

"$3 billion sounds like a large number, but it has no context and there's no opportunity to do a comparison," said Jeff Alexander, cofounder of GTA Babelfish. "Saying the Yankees scored 6 runs sounds great, until you find out that the Red Sox scored 8."

GameStop frenzy: Lawmakers, traders outraged after sales halted

Gellasch agrees, saying that market makers' definition of "price improvement" bears little relation to whether a customer received the best available price. Market makers can claim to provide price improvement, he told NBC News, even if they are "providing prices that are significantly inferior to those that may be available in the marketplace."

Market makers like Citadel make money by pocketing the difference between the price at which they buy shares – the bid – and the price they receive from selling them to Robinhood clients, the offer. Other firms in the business are Virtu Americas, G1X Execution Services and Two Sigma Securities.

Brokers have a duty to ensure their customers receive "best execution" regarding prices on trades. But as Gellasch noted, it is very difficult for individual investors to know if they are getting the best prices.

In 2017, the SEC brought an enforcement case against Citadel, contending that even though the firm had promised to provide customers with the best prices, either by executing the trades internally or on other venues, Citadel had two execution strategies that did not do that. Millions of trades were affected, the SEC said. Citadel paid $22.5 million to settle the matter, without admitting or denying the allegations.

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GameStop? Reddit? Explaining what's happening in the stock market

Even though Citadel now pays hundreds of millions for other firms' retail stock and option orders, the firm used to criticize the practice. In an April 2004 letter to the SEC, Citadel's general counsel, Adam Cooper, urged the regulator to ban the practice in the options markets.

"In practice, the conflict of interest caused by payment for order flow may lead broker-dealers to execute customer options orders at a 'defensible' price, rather than aggressively pursuing the best possible price and seeking price improvement opportunities," Cooper wrote.

Just over a year after Cooper's letter, Citadel Execution Services, the unit that pays for orders, started operating.

According to a person familiar with the firm's change in thinking, payments for order flow have become a feature of current market structure and are well-regulated.

'Which way the market is going'

The types of orders Citadel pays for – those of individual investors – are far more profitable and less risky than orders from big institutional investors. That's because individual orders are typically small and easily filled in their entirety, while institutional investors with thousands of shares to transact must parcel them out their bit by bit to avoid disrupting the market in a stock.

When a firm like Citadel executes orders, it also receives valuable information on the direction a stock is likely to take. Market maker firms handling flow get to see unfilled orders from customers at specified prices the market hasn't hit yet.

These include a type of sell order known as a "stop-loss" that's triggered at a price below the prevailing market. Such orders are designed to limit investors' losses.

Knowing how many stop loss orders are awaiting execution, and at what prices, signals where the floor is in a stock. It's information any professional trader would covet.

"If somebody is willing to pay you for the order flow it must be valuable," said Joe Saluzzi, partner and cofounder of Themis Trading, an independent firm that executes trades on behalf of institutional investors. "It's not trade by trade that matters, it's the aggregate of them all that allows you to figure out which way the market is going."

Related

BUSINESS

Roaring Kitty and Robinhood head to the Hill: Key players in the GameStop rally set to testify Thursday

The Citadel spokesman said, "The firm states in its client disclosures that it does not use unexecuted stop-order information to inform its trading."

As the biggest market maker in the U.S., Citadel Securities has a bird's-eye view on many stocks, as well as the overall market. Citadel data showed it handled 29 percent of trading volume in GameStop the week the stock crashed.

Citadel is a power player in other stocks adored by individual investors. According to Babelfish data, during the first week of January, Citadel executed 25 percent of trades in AMC, the theatre chain, 17 percent of trades in Apple Computer and 16.3 percent in Tesla.

As Citadel and the handful of other market makers have come to dominate stock trading in recent years, investors' execution costs have rocketed. This shows up in a stock's spread, the difference between the bid and the offer.

In 2012, that difference averaged around 2.5 cents in S&P 500 stocks, according to Bank of America data. In late 2019, it was more than double that. When spreads widen, market makers' profits increase and investors pay more.

The GameStop imbroglio is not the first time market makers have come under scrutiny from law enforcement. In 1996, the Department of Justice settled an investigation into major Nasdaq market makers that found the firms had conspired to set bid and offer prices of stocks they traded at levels that generated high profits to themselves but raised investors' costs.

From 2009 to 2020, the Financial Regulatory Authority has brought 18 enforcement matters against Citadel Securities, FINRA records show. Citadel settled all without admitting or denying the regulator's findings. FINRA cases against Citadel Securities are more numerous than those against each of its primary competitors during the same period.

One case involved Citadel trading ahead of its customers, a regulatory violation. Firms are supposed to execute their customers' orders first to ensure they get the best price. Citadel paid $700,000 to settle the matter. From September 2012 through mid-September 2014, FINRA said, Citadel Securities removed hundreds of thousands of its customers' over-the-counter stock orders from immediate execution. While the trades sat unexecuted, Citadel "in many instances" traded for its own account.

In another, Citadel paid $239,000 to settle a FINRA case alleging that in 2007 and 2008 it had not made a sufficient effort to get the most favorable price for its customers in more than 1,500 transactions.

The Citadel spokesman declined to comment on these cases.

Gretchen Morgenson

Gretchen Morgenson is the senior financial reporter for the NBC News Investigative Unit.

Michael Kosnar contributed.

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Cabinet **Commentary**

GameStop: Regulators Should Focus Less on "Solving the Problem"; More on "Improving the Situation"[1]

February 16, 2021

This memorandum represents the views of the author(s) only.

The hullabaloo surrounding the run-up in the price of GameStop ("GME") and the activities of Robinhood Markets, Inc. (together with subsidiaries, as applicable, "Robinhood") have generated front page news, calls for action, and allegations of wrongdoing. The press release announcing congressional hearings on GameStop used the terms "predatory conduct," "indefensible," "predatory short selling," "vulture strategies," "manipulative conduct," "abusive practices," "gamification," and "unethical conduct."[2] The hearings seem to be based on the presumption that everyone involved in the GME price run-up is guilty of some misconduct or, if no existing rules have been broken, some additional rules must be adopted that would have been broken.

It remains possible that there was fraudulent misconduct; there is some indication of rule-breaking, though seemingly well short of fraud. Investigation is certainly appropriate, and the Securities and Exchange Commission ("SEC") should pursue enforcement actions to the extent it uncovers market manipulation or other fraudulent misconduct.

Any investigation should allow the SEC to gain a better understanding of how retail investors trade and access information in the age of zero-commission trading and social media. But there is a meaningful risk that legislative or regulatory actions will be taken that are not relevant to any

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[1] The hyperlinks in the memorandum are generally to the Cadwalader Cabinet (www.FindKnowDo.com) and are in some cases password-protected for Cabinet subscribers. If you wish to sign up for our free daily newsletter, you may do so at the bottom of the www.FindKnowDo.com home page. Nonsubscribers interested in a demonstration or trial of the Cabinet may contact Cheryl Kuntz at email address Cheryl.Kuntz@cwt.com. See some of our awards and honors: https://www.findknowdo.com/endorsements.

[2] Congresswoman Maxine Waters, Press Release: Waters Announces February Hearing on Recent Market Volatility Involving GameStop, Other Stocks (Feb. 1, 2021); Press Release: Following Recent Market Instability, Waters Announces Hearing on Short Selling, Online Trading Platforms (Jan. 28, 2021).

problem, or that are counterproductive. In fact, there are a number of regulatory changes intended to protect retail investors that likely contributed, albeit indirectly, to the GameStop drama.[3]

So when we say that regulators should focus less on "solving the problem," and more on "improving the situation," what do we mean? The "problem" is that one investor's recommendation on a somewhat obscure stock led to a crazy run-up in the stock price, much of it divorced from any financial logic, causing some investors to make, and other investors to lose, a lot of money, depending on which side of the market they were on and when they got into or out of the stock. The "situation" requiring improvement is that, although many retail investors are financially unsophisticated, the regulatory system has likely served to encourage them to obtain information from non-traditional (largely unregulated sources) like the Reddit.com subreddit wallstreetbets ("WSB"), because it does not provide a way for regulated broker-dealers to serve these clients profitably, either through the production of research or conversations with a registered representative.[4]

A Brief Selective Chronology of the GME Run-Up[5]

In July 2020 (according to reports), an individual investor by the name of Keith Gill[6] produced a short video that was posted on YouTube and shared on WSB in which he expressed his view that GameStop was a good buy at the then-current price, which was about $4 a share.[7] For those who

3 This memorandum is focused on financial regulation. Portions of this memorandum are drawn from a separate piece, published by the Center for Financial Stability, which was in good part concerned with macroeconomics and the manner in which governmental policies have contributed to market volatility. *See* Lawrence Goodman, Steven Lofchie & Robin L. Lumsdaine *et al., Robinhood and GameStop: Essential Issues and Next Steps for Regulators and Investors*, CENTER FOR FINANCIAL STABILITY (Feb. 4, 2021), http://www.centerforfinancialstability.org/research/GME_Robinhood_020421.pdf.

4 As one measure of the decline in brokerage activity, the number of registered broker-dealers declined from about 4,000 in 2014 to about 3,500 in 2020, with declines in every intervening year. *See 2020 Evolution Revolution: A Profile of the Investment Adviser Profession*, INVESTMENT ADVISER ASSOCIATION, *located at* CADWALADER CABINET, https://www.findknowdo.com/news/11/20/2020/iaa-and-nrs-report-state-investment-adviser-industry. Meanwhile, the number of investment advisers increased. However, for small retail investors, the cost of hiring an adviser may be too high. Conversely, for investment advisers, a 1% fee on a small retail account, may not cost justify. *See also* Proposing Release, *Regulation Best Interest*, 83 FED. REG. 21574 (May 9, 2018) ("We also share concerns raised by commenters about retail customers losing access to advice they receive through recommendations from broker-dealers, or if advice from broker-dealers is effectively eliminated, particularly as not all such customers have the option to move to fee-based accounts.") The proposing release for Regulation Best Interest states further: "We recognize that as a result of the enhanced obligations that would apply, some broker-dealers may determine that it is not cost-effective to continue to recommend certain products or services to retail customers." *Id.* at 21584. Whether services to retail clients have been diminished is something that the SEC should explore.

5 This is not intended to be a full chronology of all events surrounding the GameStop run-up, but only of those that are important to this memorandum.

6 It appears that Mr. Gill may work for a broker-dealer (as further discussed below). Even assuming that to be the case, it appears that Mr. Gill's trading is for his own account, not for his employer or a significant fund.

7 Roaring Kitty, *100% Short Interest in GameStop Stock (GME) – Fundamental & Technical Deep Value Analysis*, YOUTUBE (July 27, 2020), https://www.youtube.com/watch?v=GZTr1-Gp74U. Mr. Gill made various posts on WSB regarding GME, going as far back as 2019. *See also GME YOLO Month-End Update – July 2020*, REDDIT (July 2020),

have not seen the video, Mr. Gill comes across as bright, thoughtful, open-minded, and self-effacing – not to mention telegenic.[8] In investment style, Mr. Gill is focused on the fundamentals: the issuer's balance sheet, business plan, management, and place in the product cycle. In many ways, he is a Warren Buffet for the social media age. Beyond that, he appears to have been right on the fundamentals: the stock subsequently rose considerably in value, and even as it falls from its run-up heights, the consensus view is that it will not fall anywhere near as low as it was when Mr. Gill made his initial video.

Prior to Mr. Gill's webcast, and continuing after that, a number of hedge funds and other investors sold short considerable amounts of GameStop stock, based on the view that the company was not well-managed and that it was doomed because it was selling a physical product that was moving online. This negative view of GameStop stock was not obviously wrong, which Mr. Gill acknowledged in his webcast, although Mr. Gill argued that it was overstated.

At some point in 2021, the stock of GameStop rose appreciably and other users of WSB picked up on Mr. Gill's online thesis and began buying GameStop stock. Presumably, although we won't really know until there is some investigation, most of these purchases were by retail investors buying small amounts of stock; however, the aggregate number of these small purchases made for a tremendous trading volume, driving up the price of GameStop shares considerably.[9]

The contributors to WSB include some reasonably sophisticated investors (as well as those that are not), even if they are retail; and they were well aware, through public sources, of the size of short positions in the GameStop stock. Further, they realized that the retail purchases that were driving up the price of the stock were creating tremendous pressure on the short sellers. At some point, the reasons for buying and holding GameStop likely changed, as evidenced by the posts on WSB, from believing in the fundamental value of the stock to squeezing the short sellers.[10]

Many of the purchases of GameStop by retail investors were effected through Robinhood, an SEC-registered broker-dealer that does not charge commissions and that makes the bulk of its revenue

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https://www.reddit.com/r/wallstreetbets/comments/i1wvqu/gme_yolo_monthend_update_july_2020/; *GME YOLO Update Following the Q2 Earnings Report Described as a "Chernobyl Experience"*, REDDIT (Sept. 11, 2019), https://www.reddit.com/r/wallstreetbets/comments/d31bke/gme_yolo_update_following_the_q2_earnings_report/.

[8] Some television show or network really needs to hire this guy. He has all of the above qualities, plus a ready-made audience.

[9] It seems that many of these purchasers were buying call options, which potentially have an outsized impact on the share price relative to the amount of money spent purchasing such options due to the common practice by call option writers of buying shares of the stock as a hedge.

[10] *See, e.g.*, Mr. Gill's video of August 21, 2020, in which he talked somewhat briefly about squeezing the short positions. Roaring Kitty, *The Big Short Squeeze from $5 to $50? Could GameStop Stock (GME) Explode Higher??? Value Investing!*, YOUTUBE (Aug. 21, 2020), https://www.youtube.com/watch?v=alntJzg0Um4&t=11s (near the end of the video at about 3:30).

through payment for order flow. (Robinhood does not have any ties to GameStop or to Mr. Gill; nor did Robinhood publish research on the company.)

On about January 28, 2021, Robinhood ceased accepting buy orders for the stock and for a number of other securities that had shot up in value based on a sudden influx of purchases by retail investors.[11] Although it was not publicly known when Robinhood took this action, it has since been reported that the Depository Trust Company ("DTC"), which is the "middle man" in the settlement of publicly traded equities in the United States, had required that Robinhood post a very significant amount of margin with it to protect DTC against credit risk arising from unsettled trades. As the reasons for Robinhood suspending its trading services were not publicly known, the retail investors on the WSB subreddit expressed a lot of anger at Robinhood, as their inability to purchase stock through the firm made it more difficult to run up the stock price and further squeeze the shorts.[12] (Robinhood has since obtained additional external financing that will assist it in meeting margin calls from DTC and has resumed offering trading in the stock.)[13]

As of February 12th, the stock of GameStop has declined from a high of $483 at one point on January 27th to $49.51 at the close on February 16. When the price settles down, there are some investors that will have made a good amount of money and some that will have lost. There will be found among the winners and losers both hedge funds and retail investors. Of course, the losses to the retail investors are more problematic than those suffered by the hedge funds, which might have been wrong on the fundamentals and got themselves into an overcrowded trade, and then were crushed by a weird social-media phenomenon.

So that brings us to the aftermath and to the regulatory reaction.

Things that Don't Seem a Problem

Short Selling. One cause of the pop in GME was that short sellers were forced to buy in their short positions, thus raising the argument that short sellers were responsible for the GME volatility. Issuers and corporate managers don't like short selling because it drives the price of their securities down. Those who don't understand financial markets think that short selling seems weird: how can

[11] Robinhood was not alone in suspending or imposing limitations on trading; other broker-dealers took similar actions.

[12] At least one lawyer filed a class action suit, claiming that Robinhood engaged in market manipulation, a position which was also supported or echoed by a number of elected officials. *See, e.g.*, *Nelson v. Robinhood Financial LLC et al.*, No. 21 Civ. 00777 (S.D.N.Y. Jan. 28, 2021), https://www.courtlistener.com/recap/gov.uscourts.nysd.553175/gov.uscourts.nysd.553175.1.0.pdf. *See also* Rashida Tlaib (@RashidaTlaib), TWITTER (Jan. 28, 2021, 10:03 AM), https://twitter.com/RashidaTlaib/status/1354807292667981828. Robinhood issued a statement on January 28 explaining some of their actions. Robinhood, *An Update on Market Volatility*, ROBINHOOD BLOG (Jan. 28, 2021), https://blog.Robinhood.com/news/2021/1/28/an-update-on-market-volatility.

[13] Robinhood, *Robinhood Raises $3.4 Billion to Fuel Record Customer Growth*, ROBINHOOD BLOG (Feb. 1, 2021), https://blog.Robinhood.com/news/2021/2/1/Robinhood-raises-34-billion-to-fuel-record-customer-growth.

you sell something you don't own? On the other hand, economists agree that short selling is healthy for the markets because it allows investors to express a negative view, thereby permitting the expression of negative as well as positive sentiments as to a security. Short selling also gives investors and research analysts a motive to search for fraud or other negative facts regarding an issuer. It's not so long after the financial crisis of 2008-2009 that we should forget that the "hero" of The Big Short was a short seller.

We should also be mindful that short selling is risky. Unlike longs, shorts can lose an infinite amount, and they are subject to squeezes, as in the case of GME. In light of the risks that short sellers already bear, and the value that short sellers bring to the market, making short selling more risky than it already is, and so further discouraging it, can only be bad for the market in the long run.

Failure of WSB Investors to File Under Section 13(d). Speaking very generally, a group of investors that are acting "in concert" are required to file reports disclosing their identity and intentions under Section 13(d) of the Securities Exchange Act of 1934. A few commenters have advanced the theory that the WSB readers trading in GME were acting in concert and thus should have made a Section 13(d) filing.

As a starting matter, even assuming the law-school argument that thousands of individual investors making individual decisions might in theory be acting in "concert" for purposes of Section 13(d), there would obviously be no real-world way that they could jointly make a filing. Beyond that, what purpose would be served? The point of the Section 13(d) filing requirements is to force investors to show their hand. The WSB investors were quite transparent: their views were posted on WSB.[14]

An Individual Investor Expressing His Views on the Market and the Value of GameStop. Based on what we have seen so far, Keith Gill seems a bright guy. It's a great thing that an individual investor can do the work and reach a wide audience – isn't that what the internet is for? There is nothing inherently wrong with a private citizen saying "I bought this stock; I like it; and you should buy it too." In fact, given the way the SEC regulates the production of investment research (as discussed briefly below), it may be one of the only ways to make money producing "research." (However, we will note that this manner of running an investment business does give rise to an opportunity for "pump and dump" schemes. Policing such schemes is going to be an even greater challenge for the SEC in the wake of GameStop.)

[14] Note that WSB is a publicly accessible forum currently with 8.8 million community members, on one of the top 10 most visited websites in the U.S. according to various sources. *See generally Top 100: The Most Visited Websites in the US*, SEMRUSH (Dec. 2020), https://www.semrush.com/blog/most-visited-websites/; *Top Sites in the United States*, ALEXA (2021), https://www.alexa.com/topsites/countries/US. This was not a small group of individuals on a private forum in some dark corner of the web.

As further discussed below, it may be that Keith Gill did not comply with his employer's compliance procedures or with FINRA requirements. Even if that is the case, to say that there were some FINRA rules broken does little to explain the GME events. It is a distraction from what is interesting and important about the story: a regular guy without boatloads of resources made what was probably a great call on a stock (even if not as great as believed by those who bought anywhere remotely near the GME high), moved the markets, and generated millions of dollars of losses and gains, much of it from investors whose principal source of financial information is social media.

Robinhood Stopping Trading in GameStop. Even if all of Robinhood's customers paid for their securities in advance, Robinhood could be (and was) subject to a margin demand from DTC for trades that were not yet settled. Under the securities laws, Robinhood could not use the customer money that had been prepaid to purchase GameStop stock until the actual settlement date. Further, DTC has no way of knowing whether GameStop's purchasers had prepaid for their stock, or whether Robinhood had credit exposure to its customers. This means that, as between DTC and GameStop, DTC could have been reasonably worried about Robinhood's credit and reasonably demanded more margin. And because Robinhood would not have been able to access its customers' funds until the settlement date to meet the margin call, Robinhood would have been subject to a liquidity squeeze.

One can also imagine that Robinhood would have been nervous that regulators would blame it for losses by retail investors trading in GameStop. That would not be a crazy concern (in fact, it's entirely realistic).[15] (That said, at least based on the reported news, the margin call was the driver behind Robinhood stopping or limiting GameStop purchases.)

In any case, broker-dealers are not obligated to "accept" orders from their clients, although they are obligated to execute orders promptly once they are actually accepted. It appears Robinhood immediately rejected GameStop orders that it would not execute, and thus Robinhood would have been acting legally.

Things that Will Be Looked At

Payment for Order Flow. The receipt by a retail broker (Robinhood) of payment for order flow is at most tangentially relevant to the GameStop saga[16] However, because Robinhood is a central player in the saga, and its business model is based on payment for order flow, this has become a

[15] For example, as will be further discussed below, the Massachusetts State securities regulator has brought a large-scale regulatory claim against Robinhood, alleging in part that the firm's services provided to its clients were in violation of the firm's obligations to its customers.

[16] The term "payment for order flow" generally refers to a broker-dealer, such as Robinhood, that has retail clients, sending its order flow to a designated market maker that pays the retail broker-dealer a small fee for sending each retail customer order to it.

common discussion point. For those interested in a description of payment for order flow, see Matt Levine's column *Money Stuff*.[17] While we are big fans of Matt Levine (he is basically the only columnist who really seems to understand the markets), the explanation is probably a little simplistic as it assumes away any arguments against the practice. While the regulatory treatment of payment for order flow may be a reasonable topic for further consideration, the practice of payment for order flow had no impact on the GME run-up.

Were There Too Many Unsettled Short Sales in GameStop? Investors are only permitted to sell short if they can reasonably expect to borrow securities to make delivery. Ironically, if there were short sellers who oversold and were not able to borrow successfully, they ended up hurting themselves by creating an overcrowded trade which facilitated the short squeeze.

Gamification of Trading. FINRA's 2021 Report on Risk Monitoring and Examination Activities noted that some online broker-dealers' apps include "interactive and game-like features, as well as related forms of advertising and marketing."[18] FINRA stated that these features may present increased risks to customers, if they are not designed with appropriate compliance considerations. There is no law against "gamification"; and part of FINRA's report may be read as complaining that online broker-dealers provide an attractive user experience, in the same way that do other large and successful technology firms.[19]

The real "problem" that the regulators are facing is that many retail investors are not sophisticated. But is the solution to that to regulate broker-dealers in a manner that discourages firms from providing services to retail investors? Might it be that regulators are effectively driving retail investors away from regulated entities and into social media? This is a question to which we will return.

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[17] Matt Levine, *People are Worried About Payment for Order Flow*, BLOOMBERG: MONEY STUFF (Feb. 5, 2021), https://www.bloomberg.com/opinion/articles/2021-02-05/robinhood-gamestop-saga-pressures-payment-for-order-flow.

[18] *See, e.g.*, Conor Almquist, Comment, *FINRA Identifies 2021 Risk Monitoring and Examination Priorities*, CADWALADER CABINET (Feb. 2, 2021), https://www.findknowdo.com/news/02/02/2021/finra-identifies-2021-risk-monitoring-and-examination-priorities?utm_source=Newsletter&utm_medium=Email&utm_campaign=Cabinet+Newsletter.

[19] The "gamification" complaint has also been advanced in a regulatory complaint filed by the Massachusetts Securities Division against Robinhood. *See* Complaint at 2, 4, In re Robinhood Financial, LLC, No. 2020-0047 (Mass. Commw. Ct. 2021), *available at* https://www.sec.state.ma.us/sct/current/sctRobinhood/MSD-Robinhood-Financial-LLC-Complaint-E-2020-0047.pdf (the "Massachusetts Complaint"). The complaint argued, in part, that Robinhood violated Massachusetts law through use of aggressive tactics to attract new and inexperienced investors, failed to implement policies and procedures to prevent and respond to outages and disruptions of the platform, and used the strategy of "gamification to encourage and entice continuous and repetitive use of its trading application." The complaint elaborates on the "gamification" strategy as an "application of typical elements of game playing," and uses examples of "colorful confetti raining down [customers'] screens after executing trades" and rewards for customers who interact daily with the application. More on the Massachusetts Complaint below.

Keith Gill's Status as a Registered Representative of a Broker-Dealer. According to FINRA's BrokerCheck,[20] Keith Gill is a registered representative of MML Investors Services, LLC, a Massachusetts-based broker-dealer. As a registered representative, Mr. Gill would have been required to get approval from his employer to do his webcasts and to effect personal securities trades.[21] We do not know whether he did so; some recent articles quoting his employer indicate he did not.[22]

Assuming Mr. Gill did break some rules, there is the possibility that the "officially-sanction lesson" of this saga will be "Keith Gill broke a rule" and this whole incident resulted from rule-breaking, and we need more rules and more enforcement. That would be unfortunate, because it would entirely miss what is significant about this story: that there are numerous retail investors who get their market information from WSB and who share stock price views on WSB, and their numbers will undoubtedly increase in the aftermath of the publicity generated by GameStop.

Even if we assume that Mr. Gill broke some rules as a registered representative in making his videos and Reddit posts, it is clear that he is not someone with the resources of a major institution behind his research.[23] He is not some big shot backed by a high level firm. He was successful, however, despite these limitations in producing what seems like a very thoughtful piece of market-moving research that was on the other side of the trade from some very big and successful players. Indeed, in many ways he seemed to have acted honorably: for example, he appears not to have sold out his GameStop stock at a time when he might have cashed out for a reasonable sized fortune.[24] (Likely the investigation will reveal what his trading and holding pattern was.)

Things that Should Be Looked At

Clearing Corporation Demands for Margin and Clearing Risk. Because they are the middle men in the settlement of securities trades, futures, and now swaps, clearing corporations are vital to the

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[20] *BrokerCheck Report: Keith Patrick Gill*, BROKERCHECK, https://brokercheck.finra.org/individual/summary/6054636 (last accessed Feb. 15, 2021).

[21] *See* FINRA Rule 2210 ("Communications with the Public"), https://www.findknowdo.com/us/finra/rules/2210; FINRA Rule 3270 ("Outside Business Activities of Registered Persons"), https://www.findknowdo.com/us/finra/rules/3270.

[22] *See* Dave Michaels, *GameStop Trader 'Roaring Kitty' and Former Employer May Face Federal Regulatory Scrutiny*, WALL ST. J. (Feb. 5, 2021), https://www.wsj.com/articles/gamestop-trader-roaring-kitty-and-former-employer-may-face-federal-regulatory-scrutiny-11612553349?mg=prod/com-wsj ("MassMutual has told Massachusetts regulators that it wasn't aware of his online activities, according to Debra O'Malley, a spokeswoman for William Galvin, Massachusetts' secretary of the commonwealth.").

[23] *See supra* note 7 and accompanying text. At least from his Youtube series regarding GameStop, Mr. Gill presented his argument as a summary of existing materials, going so far as providing links to various existing disclosures and analysis and saying that it was unnecessary to watch his videos if you just read his source materials.

[24] *See supra* note 7 and accompanying text. Indeed, Mr. Gill has been transparently posting his holdings in GameStop since 2019.

workings of our financial system. They must maintain sufficient margin from their clearing members (in this case the broker-dealers such as Robinhood) so that they do not themselves get into trouble. On the other hand, clearing corporations, by having the right to demand seemingly unlimited margin with little notice, have the power to keep themselves safe by putting others at risk. Further, in the case of a general market downturn, the power of the clearing firms to demand more margin sucks liquidity out of the system and puts the entire market at risk, even while it keeps the clearing houses safe. (Not to stray too far from the point, but this is at least a part of the story of the market downturn in the early days of the pandemic.)[25]

In the GameStop case, Robinhood reports that it was surprised by the size and timing of DTC's demand for margin. That shows something is amiss, even if it does not tell us what that is. At a minimum, transparency as between the clearing house and its members should be such that members are not surprised by demands for more margin.

Shortening the Settlement Cycle. Each day that a trade stays unsettled creates greater credit risk between the buyer and the seller, because each open day gives the value of the asset more time to diverge from the purchase price, creating an incentive for one party to default. Recently, regular-way trade settlement was reduced from three days to two. Query whether one-day trade settlement is operationally possible in the equity market?

Dealing with the Problem or Improving the Situation?

This brings us to the main point. When regulators adopt rules, they need to consider whether they are "solving the problem" or "improving the situation." To put it differently, restrictive regulations that eliminate a problem may do so at the cost of improving the situation.[26] As we head into what is expected to a regulatory-heavy administration, this is a concern to bear in mind.

The two regulations (or sets of regulations) on which we focus are (i) those governing the publication of research by broker-dealers and (ii) Regulation Best Interest, along with its state law copycats.

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[25] *See, e.g., ISDA Looks at Risk Management During the Pandemic*, CADWALADER CABINET (Jan. 6, 2021), https://www.findknowdo.com/news/01/06/2021/isda-looks-ccp-risk-management-during-pandemic; *FIA Considers Effects of CCP Margin Demands During the Pandemic*, CADWALADER CABINET (Oct. 30, 2020), https://www.findknowdo.com/news/10/30/2020/fia-considers-effects-ccp-demands-more-margin-during-pandemic; *SEC Reports on Credit Market Performance During the Pandemic*, CADWALADER CABINET (Oct. 6, 2020), https://www.findknowdo.com/news/10/06/2020/sec-reports-us-credit-market-performance-light-covid-19-pandemic.

[26] Just to be clear, we do not argue for the abolition of rules or every person or person-self. But rules are like medicine: even the healthful ones are generally better in moderation.

As background to the discussion, here are several questions. Why was Mr. Gill (bright and telegenic as he seems to be) so influential? What were the circumstances that made one person's views on GME so market moving?

Burdens on the Production of Research. Back in 2002, a number of major investment banks were accused of producing biased research reports that tended to paint an overly rosy picture of the business prospects of companies (particularly technology companies) to which the investment banks wanted to sell services. In short, the quid pro quo was supposed to be: investment bank produces research praising the issuer, and issuer directs transactions to the investment bank. When this came to light, the offending parties were hit with substantial fines and the SEC adopted rules that were intended to prevent investment banks from producing biased research. These rules are detailed, complicated, burdensome, and expensive to comply with.[27]

Did the SEC solve the problem (less biased research being provided to retail investors) or did the SEC improve the situation (more and better research to institutional investors)? The short answer is that there is now not much money in the production and distribution of research. No doubt there were beneficial aspects of this crackdown; however, the heavy regulatory requirements have made it far more difficult for brokerage firms to produce research profitably, and so the expanded rules likely resulted in an overall diminution in the quantity of research. That, we think, is a significant loss to the market.

To put this another way, the regulators may ask why so many investors obtain investment information from social media rather than more traditional, or at least more regulated, sources.

Regulation Best Interest. Recently, the SEC adopted Regulation Best Interest, which imposes a quasi-fiduciary duty on brokers that recommend securities to investors that are human beings (as opposed to funds and other legal entities). While Regulation Best Interest was generally heralded as providing greater protections for retail investors, the effect of the regulation may very well be to make it less worthwhile for broker-dealers to make recommendations to retail investors. (Note our previous memorandum on the issue.[28]) Rather than offer retail investors "better" recommendations, brokers would simply stop offering them any recommendations, or else direct them to advisory accounts that might be more expensive than a retail investor can really afford.

In other words, perhaps the regulators were solving the problem of biased recommendations, but they were not necessarily improving the situation if they were killing the economics of broker-

[27] For a good, long and detailed description of the research rules, see the chapter on research in *Lofchie's Guide to Broker-Dealer Regulation. See* Steven Lofchie, *Research*, LOFCHIE'S GUIDE TO BROKER-DEALER REGULATION, CADWALADER CABINET (June 1, 2016), *located at* https://www.findknowdo.com/us-federal/cadwalader/law-firm-analysis/bd-guide-research.

[28] Steven Lofchie *et al.*, *Choose One: Best Interest or Full Service*, CADWALADER (Apr. 26, 2018), https://www.cadwalader.com/resources/clients-friends-memos/choose-one-best-interest-or-full-service.

dealers providing some level of guidance and recommendations to retail investors. Seeing the large number of investors who are obtaining their information from WSB seems to evidence that the question that we were raising is not a trivial one.

At the time of the adoption of Regulation Best Interest, various regulators and legislators published "research" or made statements purporting to demonstrate that transacting with regulated broker-dealers cost investors money. But if the regulators have chased retail investors away from supposedly self-interested sales people (thereby "solving" the problem), have they improved investors' access to information or to guidance by chasing them to social media (improved the situation)? It is not obvious.[29]

Massachusetts Version of Regulation Best Interest and the Massachusetts Complaint. The State of Massachusetts adopted its own, even tougher, version of Regulation Best Interest that imposes a quasi-fiduciary duty on broker-dealers making "recommendations" to investors in the State of Massachusetts.[30] This state law version of Regulation Best Interest is the basis of a Massachusetts Complaint. The complaint makes a number of charges against Robinhood, most of which are outside the scope of this memorandum; *e.g.*, that Robinhood's technology was insufficient. Perhaps the most aggressive charge that the complaint makes against the firm is that Robinhood's provision of various lists to its customers constituted "recommendations" that imposed a quasi-fiduciary duty on Robinhood.

If providing a list of securities to a retail investor constitutes a recommendation that imposes a fiduciary duty, and makes the broker responsible for the customer's losses, the regulators are effectively saying, "don't provide retail investors with any information as you will be held to owe obligations to them that entail more cost than the revenue of the relationship can possibly bear." Once again, the regulators may be solving what they perceive as a problem, but they are doing it by effectively depriving the investors of any source of information other than social media.

[29] *See*, Steven Lofchie, Comment, *SEC Adopts "Retail Best Interest" Rulemaking Package*, CADWALADER CABINET (June 5, 2019), https://www.findknowdo.com/news/06/05/2019/sec-adopts-retail-best-interest-rulemaking-package.

[30] *See Massachusetts Securities Division proposed Fiduciary Conduct Standard*, CADWALADER CABINET (Dec. 18, 2019), https://www.findknowdo.com/news/12/18/2019/massachusetts-securities-division-proposes-fiduciary-conduct-standard. *See also* Steven Lofchie, Comment, *SIFMA CEO Urges Massachusetts Securities Division to Defer on SEC Reg. BI*, CADWALADER CABINET (Jan. 7, 2020), https://www.findknowdo.com/news/01/07/2020/sifma-ceo-urges-massachusetts-securities-division-defer-sec-reg-bi; Steven Lofchie, Comment, *NASAA President Offers Recommendations to Improve SEC Regulation Best Interest*, CADWALADER CABINET (March 14, 2019), https://www.findknowdo.com/news/03/14/2019/nasaa-president-offers-recommendations-improve-sec-regulation-best-interest.

Investor Education and Index Investing. Studies indicate that the average American is financially illiterate.[31] In the immediate aftermath of the GameStop run-up, the SEC published a short thoughtful piece as to the dangers of investing in hot stocks.[32] The likelihood that anyone who would benefit from the SEC's article will read the SEC's article is small, and the likelihood that the article will change behavior is smaller still.

At the same time, the Wall Street Journal published an article as to how ordinary people are providing under a minute explainers as to market events on TikTok.[33] Perhaps, the SEC should be reviewing those TikTok lessons, finding the good ones and republishing them, or maybe working with their creators to improve them so as to figure out how reach investors and make them smarter.[34]

If the regulators have an answer to this problem (*i.e.*, investor stupidity) to date, it is arguably to drive retail investors into investing in index mutual funds. There are some real safety benefits to this, but also some losses, including to the economy, as it makes it more difficult for smaller companies, not in the index, to raise money. It also deprives investors of the opportunity to have a substantial "win."[35] And we would say that another problem with this regulatory solution is that it gives up on educating investors, and just presumes that they are incurably stupid, so that the only solution is to

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31 *See, e.g.*, SECURITIES AND EXCHANGE COMMISSION, OFFICE OF INVESTOR EDUCATION AND ADVOCACY, STUDY REGARDING FINANCIAL LITERACY AMONG INVESTORS (Aug. 2012), https://www.sec.gov/news/studies/2012/917-financial-literacy-study-part1.pdf.

32 Securities and Exchange Commission, Investor Alert and Bulletin, *Thinking About Investing in the Latest Hot Stock?* (Jan. 30, 2021), https://www.sec.gov/oiea/investor-alerts-and-bulletins/risks-short-term-trading-based-social-media-investor-alert.

33 Here is a link to the TikTok that the WSJ particularly singled out: Brianna Parkins (@briannaparkins), TikTok (Jan. 28, 2021), https://www.tiktok.com/@briannaparkins/video/6922832369216949510?is_copy_url=1&is_from_webapp=v2&lang=en. We wouldn't say it's perfectly right, but its ok and it's 195.1K views as of today, which is likely more than the SEC's piece will have readers.

34 Here a couple of other TikToks that we thought were pretty amusing: Taylor Price (@pricelesstay), TikTok (Jan. 28, 2021), https://www.tiktok.com/@pricelesstay/video/6922807592750238982?is_copy_url=1&is_from_webapp=v1&lang=en; Your Rich BFF (@yourrichbff), TikTok (Feb. 7, 2021), https://www.tiktok.com/@yourrichbff/video/6926555011073707269?is_copy_url=1&is_from_webapp=v2&lang=en. That said, some of the TikToks are really off, not because they are intending to be misleading; they just don't get it close to right.

35 Approximately a year ago, SEC Commissioner Hester Peirce dissented from the SEC's refusal to allow the exchange-listing of a fund that would hold Bitcoin. *See SEC Rejects Proposal to List and Trade Bitcoins on Regulated Exchange*, CADWALADER CABINET (Feb. 26, 2020), https://www.findknowdo.com/news/02/26/2020/sec-rejects-proposal-list-and-trade-bitcoins-regulated-exchange. Commissioner Peirce argued that the SEC's refusal, while purportedly based on legal grounds, was really a decision to discourage investors from a product perceived to be overly risky. In the last year, Bitcoin is up almost 50%. This is not to argue that Bitcoin is not a very risky investment; it is. Rather, the question is how protective should the regulators be, and what are the costs of that protection?

forbid them from making decisions or taking risks, channeling them, instead, into investments that require no individual thought.[36]

Conclusion

If the legislators and the regulators follow their ordinary course, they will investigate all that happened around GameStop in the expectation that they will find anyone that they can tar as a bad apple, and maybe even multiple bad apples. In addition to that, the regulators will look to adopt rules to prevent the GameStop scenario from happening again – rules to which more individuals are subject, and that can be eventually broken, and so allow for subsequent enforcement actions. In short, they will look to solve a "problem."

But the regulators would do better if, instead of trying to solve the problem, they looked to improve the situation.[37] Here are some questions that they might ask in this regard:

1. Was Mr. Gill's video on GME one of the best bits of investment information available to retail investors? If so, how did it come about that an individual working without big backing could produce and publicize on social media better information than is generally available to retail investors?

2. Has the SEC's regulation of investment research made for better investment research being available to retail investors or just less research?

3. Will Regulation Best Interest, and the state law follow-ups, kibosh the ability of many retail investors to obtain any guidance from their regulated salespersons and just drive them to other channels including social media?

4. Is there more that the SEC or other regulators can do to educate retail investors so that they are less stupid? Turning out thoughtful essays that no one reads is not going to do it. Is a TikTok approach, or some other social media the better way?

5. Can the regulators use the interest in the markets created by GameStop as a teaching moment?

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[36] *See* Jordan Peterson, 12 RULES FOR LIFE, 46 ("And if it were possible to banish everything threatening (and therefore, everything challenging and interesting) – that would mean only that another danger would emerge: that of permanent human infantilism and absolute uselessness . . . How dull and contemptible would we become if there was no longer reason to pay attention?"). *See also* Steven Lofchie, Comment, *SEC Commissioner Piwowar Criticizes DOL Fiduciary Rule*, CADWALADER CABINET (July 26, 2017), https://www.findknowdo.com/news/07/26/2017/sec-commissioner-piwowar-criticizes-dol-fiduciary-rule.

[37] We note that the potential for over-regulation, if one will concede that such a thing is possible, is not limited to the protection of retail investors. Many will argue that traditional issuer initial public offerings have been replaced by SPACs and direct listings because of the burdens associated with a traditional IPO.

It would be a shame if the only "benefit" of the public interest in GameStop is another set of prohibitions, rather than regulatory focus on the opportunity to educate retail investors as to risks—and opportunities. As a new administration takes hold and we enter into a more regulation-intensive era, it is useful to recognize that problem solving through the adoption of more prohibitions does not always result in improving the situation.

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Q1 2020

The Impact of Zero Commissions on Retail Trading and Execution

GREENWICH
DATA | ANALYTICS | INSIGHTS

CONTENTS

Executive Summary

Beginning in September of 2019, major retail brokerage firms dropped their commissions to zero. Although other players had previously offered trading for free, the sudden move to zero seemed shocking. On reflection, however, this move was the natural progression of regulatory and competitive forces over the course of decades.

Now that zero commissions are part of the landscape, it is important to understand how we got here and what to expect next. Greenwich Associates believes that the future looks bright for retail traders, although attention needs to be paid to how retail brokerages continue to monetize those relationships. We also examine the role of the market maker in providing services to retail brokers.

Overall, we find that it has never been better for the retail trader, which is not likely to change in the near future.

Shane Swanson is an equities and financial technology expert in the Firm's Market Structure and Technology group.

Introduction: Never Better

For over a decade "the retail investor has never had it better" has been a common refrain.[1] During that time, fierce competition for retail order flow, regulatory reform benefiting retail traders, and commission cost compression have all drastically improved the trading and execution of retail orders. In addition, most of the largest brokerages recently dropped retail commissions to zero. This change, in hindsight, was a long time coming. However, the ramifications of such a major market structure shift are an intense point of scrutiny.

Not only have retail investors' commission costs come down to zero, but the services they receive have never been more advanced.

On the whole, Greenwich Associates finds that retail investors, in fact, have never had it better. Not only have their commission costs come down to zero, but the services they receive have never been more advanced. Years ago, retail investors had to call their brokers and hope that their calls were answered in order to get a trade done. Now, retail investors enjoy many of the advanced tools and capabilities previously reserved for professional or institutional investors. These systems include sophisticated charting options, customizable filtering for trade opportunities, tremendous amounts of data at their fingertips, and even the ability to program some of their own trading strategies. We have also seen execution venues continually innovating and regulatory changes increasingly favoring the needs of retail traders.

Moreover, execution quality metrics have continued to improve decade over decade.

Significantly, we find that today's market makers are providing execution quality at the highest levels. While payment for order flow amounts have shrunk year over year, commissions have still dropped to zero. That said, we do not see the focus on retail brokers' and market makers' best execution requirement slackening, even while the explicit compensation for doing so declines.

We believe that retail investors will continue to receive tremendous attention from their providers, who will continue to enhance such services. Why do we believe this? Because the markets have decades of history that show increasing service and improving execution to retail traders.

To that end, it is an opportune time to look back at the evolution of retail equity trading in the United States in an effort to better understand where the market is likely headed in this new, post-zero-commission world.

[1] See, e.g., https://www.businessinsider.com/the-market-has-never-been-fairer-for-the-retail-investor-2009-7; https://abnormalreturns.com/2012/02/14/there-has-never-been-a-better-time-to-be-an-individual-investor/; https://www.businessinsider.com/historical-trading-commissions-2014-3; https://www.sec.gov/spotlight/emsac/testimony-steven-quirk-td-ameritrade.pdf; https://finance.yahoo.com/news/investors-never-better-despite-trade-war-populism-132910423.html

35 Years of Regulatory Reform

There are (at least) four seminal regulatory events over the past few decades that have shaped today's retail trading experience.

First, the world changed in 1975 when the SEC abolished fixed commissions, opening the door for the now ubiquitous discount brokerages. Prior to May Day, commissions on trades were very expensive, often in the hundreds of dollars per trade.

Second, the SEC's rule for Disclosure of Order Handling and Routing Practices was approved in November of 2000. Disclosure of this information allowed apples-to-apples comparisons among brokers for the first time. Investors, their brokers and the regulators were able to compare a variety of data on order execution across sizes—for equities and options—and were provided at least some amount of information regarding economic relationships among the parties. With that data now public, regulators have become increasingly focused on execution quality, requiring brokers to continuously justify their routing decisions based on their obtained results.

Third, on April 9, 2001, all U.S. equities began trading in pennies and moving away from fractions, which had been the practice for the prior 150 years. In an instant, the minimum spread cost for trading dropped orders of magnitude, from trading in 1/16ths (or $0.0625 cents per share) to $0.01, an 84% decrease.

Last but not least, the adoption of Reg NMS, in particular the introduction of the Order Protection Rule (OPR), meant that retail orders were given even more protection than before. For example, whereas block trades might have previously traded through retail orders displayed in the market, post the OPR, such orders were "protected" against such trade-throughs (at least insomuch as they resided at the top of an exchange's book).

Regulators didn't stop there. Oversight of trading by market intermediaries has also been greatly increased over the past several decades. Throughout these years, the SEC's Section 21(a) Report on NASD, the Nasdaq market-maker collusion scandal and the NYSE Specialist Execution Fraud Settlement all resulted in enhanced retail investor protections and an augmented regulatory oversight regime.

Source: Greenwich Associates 2020

Competition is Good

Competition has also been a huge driving factor in the lowering of commissions over time. Much as the original discount brokers challenged the incumbents with lower commissions starting in the mid-70s, the mid-2010s brought about a new breed of retail trading—generally offering low or zero commission through app-based trading. From Robinhood in 2013 to Webull in 2017, these companies advertised themselves more as technology firms—not just brokers—appealing particularly to the millennial crowd and their associated distrust of old-school Wall Street. The major players made multiple steps toward zero commissions to compete: Some offered a set number of free trades per month, but only to their best clients, while others offered free trading on a limited universe of ETFs. It just wasn't enough, however, and the pressure to go lower became unrelenting.

In what now seems like a natural progression, Interactive Brokers offered a zero-commission product in September of 2019. The other large discount brokerages quickly followed suit—Charles Schwab, TD Ameritrade, E*Trade, Fidelity—along with larger institutions, including some bank platforms. Today, zero-commission trading for retail is the norm.

The Role of Market Makers

Nearly all retail broker-dealers send the overwhelming majority of their "non-directed" orders—those not designated to go to a specific venue—to wholesale market makers such as Citadel Securities, Virtu, Susquehanna, and Two Sigma. These market makers compete intensely to win order flow from retail broker-dealers by delivering "best execution" to the end retail investor.

So, what is basis of this intense competition among market makers?

Primarily, market makers compete through their ability to provide best execution, often through price improvement to retail orders.[2] Quite simply, they can often provide better prices than that available from the exchanges' public quotes. The amount of this price improvement can be quite significant. In fact, public data shows that market makers provided an average of $6.18 in savings per order during 2018.[3] This amounts to over $1.3 billion in savings to retail investors versus orders routed to the public quote. Moreover, nearly all retail-sized orders[4] received price improvement from market makers. Rule 605 data shows for the period July 2018–June 2019:

- 87% of retail market order shares received price improvement
- 94.9% of retail market order shares executed at the NBBO or better

MARKET MAKERS PROVIDED AN AVERAGE OF

$6.18

IN SAVINGS PER ORDER DURING 2018, AMOUNTING TO OVER

$1.3B

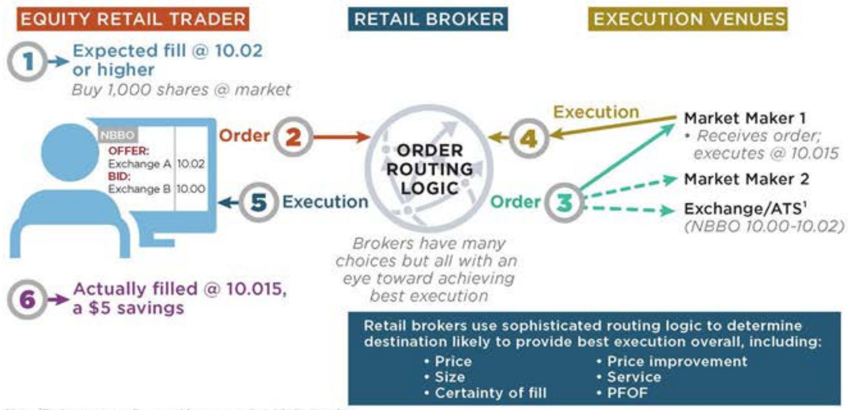
IN SAVINGS TO RETAIL INVESTORS

[2] Other important considerations are enhanced liquidity, speed of execution, certainty of execution, ability to handle trade accommodations, and customizations for individual clients' order flow.

[3] Public 2018 SEC Rule 605 data.

[4] Orders sized 100–9,999 in total shares.

SIMPLIFIED ROUTING OF RETAIL ORDERS



Note: [1]Exchanges are often used for non-marketable limit orders.
Source: Greenwich Associates 2020

Critics complain that the practice of brokers accepting payment for order flow (PFOF) influences routing practices. However, PFOF is very similar to the rebates that exchanges pay for execution of non-marketable limit orders in their venues.[5] In addition, more than half of all retail broker-dealers do not accept PFOF. Firms that do accept PFOF have strict best execution regimes that require them to send orders to the destinations providing best execution, whether market maker, exchange or dark pool, not simply where PFOF is highest. Finally, PFOF has remained stable or even decreased over the past several years, while price improvement given to retail orders has increased more than four times during that same period. Today, the average PFOF per share is approximately 1/8 of the average price improvement per share.

Of course, with market makers providing so much price improvement as well as PFOF on some orders, how are they able to be profitable? The answer is simple—the characteristics of retail order flow make internalization a statistically valuable exercise. Retail orders are generally not oversized to the market (unlike institutional orders which may be multiples of market size or even ADV of a security). The risk for a market maker to internalize against such smaller orders is much less than against orders that can overrun their risk appetites. Further, the majority of retail orders do not have an informational advantage as compared to the market maker. Therefore, the market maker can internalize these orders to earn the spread, less their costs of obtaining the flow. Market makers can also trade with retail orders to naturally enter or exit positions, creating additional liquidity for the market.

[5] In maker/taker exchanges. In taker/maker exchanges, the rebate is paid to the firm that executes against the resting limit order. Other than that inversion, the underlying economics are similar, although the resulting trading behavior is often very different.

Market makers can also use retail order flow as part of a larger hedging strategy across different asset classes. That said, while the concept of handling retail order flow is simple in concept, it is extremely challenging in execution. As price improvement requirements have risen and spreads have fallen, a number of market makers have exited the business. The remaining firms have had to make considerable investments in infrastructure, technology and talent in order to remain competitive. They have also had to ensure that their balance sheet can weather fluctuations in trading, where their net revenue is often a fraction of the total payments made to obtain the flow.

In the current environment with zero commissions, the mix of order flow from retail brokers could become tilted toward more professional flow rather than true retail.

In light of this competitive environment, one possible challenge in the zero commission world is whether professional traders enter the market via these channels and change the nature of retail order flow.[6] Over the past decade, the average price of stocks has continued to rise, and stock splits have become more rare. When more than half of all trades are in odd lots in NMS securities,[7] orders representing over $100,000 of value may not even be a round lot in certain securities. In this environment with zero commissions, there is a concern that the mix of order flow from retail brokers could become tilted toward more professional flow rather than true retail. If this comes to pass, the markets will have to determine if differing designations and treatments should be applied to professional versus retail flow in the equities markets.[8] One major concern would be if professional traders captured a disproportionate amount of pricing improvement intended for retail traders, which could have the effect of negatively impacting the retail trading experience. We will continue to watch the evolution of this dynamic closely.

It must also be noted that the exchanges and their display of the public quotation are undoubtedly good for the market as a whole and for retail traders in particular. Without the NBBO to establish the proper price, the retail brokers would be hard pressed to justify their routing to the market makers. At times, concerns are raised that there is too much execution occurring in the dark, thereby impacting the public quote. However, data shows that the spreads on the most-liquid names have remained remarkably stable, other than in response to macro-market events like the financial crisis.[9] Certainly in thinly traded securities and high-priced stocks, the markets need to remain diligent to ensure that the public quote remains the proper benchmark for trading, internalized or otherwise.[10]

6 Indeed, recent data indicates that, at least for now, retail trading has increased fairly significantly. TD Ameritrade reported a 40% increase in trading volume post the zero commission move, while E*Trade noted a 21% increase in trading volume in the 4th quarter over 3rd quarter 2019.

7 The SEC MIDAS's system data shows that odd lots trades exceeded 50% in NMS securities and 30% in ETPs as of September 2019. See https://www.sec.gov/marketstructure/datavis/ma_overview.html#.XgeyZxdKgll and https://www.greenwich.com/equities/investors-take-market-structure-issues-20192020.

8 There are various methods that could be used to delineate between retail and professional traders, such as the professional trader designation in the options markets or the retail definition in certain exchange programs.

9 See, e.g., http://www.q-group.org/wp-content/uploads/2014/01/Equity-Trading-in-the-21st-Century-An-Update-FINAL.pdf.

10 The SEC has recently sought comment on how the market might be able to address some concerns related to thinly-traded and high-priced securities, including, among other ideas, the possibility of changing tick sizes on high-priced stocks, adding odd lots to the SIP feeds, suspending UTP privileges to centralize trading of thinly-traded securities, or some combination of these among other various proposals. https://www.sec.gov/rules/policy/2019/34-87327.pdf

Staying in Business While Charging Nothing

Historically, although retail brokers make money on commissions,[11] other services provided to their clients also generate significant revenues, such as:

- Interest on monies held with the broker (minus any interest paid to the client)
- Rehypothecation of securities held by the firm
- Borrowing charges for clients selling short
- Other account fees (inactivity fees, account minimums, etc.)
- Interexchange fees on credit/debit cards
- Payments for money sweeps to program banks
- Payment for order flow

Many of these services operate on economies of scale. The more assets that firms have under their control, the better. Consolidation will be a natural evolution, as evidenced by the recently announced proposed $26 billion acquisition of TD Ameritrade by Schwab and the $13 billion acquisition of E*Trade by Morgan Stanley.[12] Other firms are likely to be targets as well.[13]

Although today's retail brokers may consolidate into a smaller number, competitive forces and the threat of new entrants will prevent them from exerting excessive pressure on their market-making providers.

The largest retail brokers already have considerable "pricing power" in the requirements they seek from their market makers. Will we end up with only a few of these behemoths on the retail trading side? Again, a bit of history sheds some light here.

Prior to the introduction of electronic communication networks (ECNs) in the marketplace, and the ability of firms to trade more freely over-the-counter, costs of trading on exchanges were relatively high and innovation, particularly in technology, was not a significant driving force. Veteran traders will well remember the fears of there being a duopoly of only Nasdaq and NYSE. The concern was that such a limited competitive environment would lead to excessive pricing power by the exchanges and limited investment in innovative technologies. Those fears were proven overblown, with a surge of new venues coming into the market to drive change. Subsequently, there was a round of consolidation, reducing the majority of the exchanges to three main groups. Today, we see another round of new exchange entrants coming into the market. And so it goes.

[11] For example, commissions comprised about 7-8% of Schwab's revenues, 17% of E*Trade's revenues, and approximately 30% of TD Ameritrade's revenues.

[12] Not that these deals are necessarily a foregone conclusion. Both regulatory and anti-trust approval will have to be obtained for them to be consummated. However, if approved and consummated, it is estimated that the Schwab-TD Ameritrade firm will have $5 trillion in client assets and the Morgan Stanley-E*Trade firm will have $3.1 trillion in client assets.

[13] For example, firms such as Robinhood would appear to be an interesting target, particularly for the client base, although the recent valuations may be considered rich with zero commissions now being the norm. It will be very interesting to see how valuations might change over time in response to this change.

Although today's retail brokers may consolidate into a smaller number, competitive forces and the threat of new entrants will prevent them from exerting excessive pressure on their market-making providers. Similarly, if brokers fail to meet the needs of their clients, other firms will undoubtedly seek to capture their business, enabling yet another round of innovators to bring their ideas to the market.

Can It Get Any Better and What Are the Concerns Going Forward?

It might seem we have reached the apex for retail investors, and that it couldn't get any better. But there is still room to move their experience forward. Retail brokers will continue to provide differentiating services and develop new tools for their clients.

Of course, one possible negative of the zero-commission story would be if the retail brokers dial down the services and technology offered to their retail clients. However, we firmly believe that competition will require these firms to reestablish their value continuously. Of course, they may well offer additional services to these clients in order to provide value, and those new services will likely come at a cost.

We believe that even if there is a temporary over-concentration of retail brokers through consolidations, market forces will breed new entrants.

Another concern is whether or not the move to zero commissions will impact the execution quality provided to retail orders. Retail brokers have long touted their execution statistics. The post-zero-commission world has not proven any different. Firms still use their best execution statistics as a primary selling point, which means they will still have to seek best execution from their market makers and other destinations. As such, it is almost certain that execution quality demands will continue to be at the top of their list. Regulatory pressure and customer demand will also act to maintain execution quality standards.

We believe that even if there is a temporary over-concentration of retail brokers through consolidations, market forces will breed new entrants. If that happens, both the services offered and the execution quality provided will prove that trading is, again, "better than ever for retail traders."

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https://www.wsj.com/articles/instant-settlement-may-not-be-gratifying-for-all-11615890600

HEARD ON THE STREET

Instant Settlement May Not Be Gratifying for All

Trading halts in 'meme' stocks spur interest in real-time stock trade settlement, but not everyone sees the upside

The brief trading restrictions for 'meme' stocks like GameStop in January are continuing to draw attention to the nitty-gritty of how quickly stock trades settle.
PHOTO: JUSTIN SULLIVAN/GETTY IMAGES

By Telis Demos
March 16, 2021 6:30 am ET

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4 minutes

When it comes to settlement times, not everyone in the market may be feeling the need for the fastest speed.

The brief trading restrictions that happened in January for "meme" stocks like GameStop are continuing to draw attention to the nitty-gritty of how quickly stock trades settle in the U.S.

Robinhood Markets and others have argued that instant or real-time settlement, rather than it taking a couple of days as under the current system for stocks, would protect customers by not hitting brokers with huge or sudden cash requirementsat clearinghouses. Some lawmakers, including at a Senate hearing last week, have said faster settlement should be a priority.

Other players across the financial complex might have complicated feelings on the topic, though. Like Robinhood, big established firms also could free up liquidity and avoid the risk of settlement failure with instant settlement, because in theory there wouldn't need to be funds tied up to insure against the failure of a trading party to deliver cash or shares. But there are costs to such a move, too.

One thing about delayed settlement that is helpful to banks and brokers is the so-called netting of diverse flows. Firms have day traders as clients but also retirement accounts, fund managers and so on. These trades can all net against each other for a far lower ultimate settlement bill in the current system. The Depository Trust & Clearing Corp. says out of over $1.7 trillion in U.S. equities transactions passing through the system on a typical trading day in 2020, by the day's end the typical total value settled by the main stock clearinghouse was under $40 billion.

Size could work against big firms if instead those trillions have to change hands throughout the day as trades are agreed upon. This would necessitate upgrades to payments and other systems, such as firms' process for lending and borrowing shares, which is often part of how trades are settled. Securities financing is a key part of market-making and also generates a lot of revenue for lenders, almost $8 billion globally in 2020 by one measure, according to DataLend.

Some are advocating a middle ground for now. DTCC has backed a move from the current system, which is trade date-plus-two days, or T+2, to one day faster, or T+1. DTCC says that could reduce the volatility-related part of margin charges by 41%. Michael Piwowar, a former Securities and Exchange Commission commissioner and now executive director of the Milken Institute Center for Financial Markets, told the Senate last week that regulators should consider the move to T+1, but that "real-time settlement is just a bridge too far at this point."

At the moment, big firms in particular may not feel great urgency. Many banks and brokers are currently awash in cash with basically nowhere to go, so having to park some at a clearinghouse may be a relatively light burden for the time being. Meanwhile, tech budgets are already facing expensive upgrades to consumer software, regulatory compliance systems and more. "Investing heavily in operations technology would be necessary for faster settlement to occur," said Virginie O'Shea, an industry consultant and founder of Firebrand Research, but "it is not a revenue-generating part of the business" for many financial institutions.

Some will still argue that spending today is justified to move toward the ultimate goal of a broadly instantaneous financial system. Technology has evolved to potentially make such vast instant exchange possible, perhaps by using forms of blockchain. But what is possible isn't always probable.

Write to Telis Demos at telis.demos@wsj.com

MAXINE WATERS, CA
CHAIRWOMAN

United States House of Representatives
Committee on Financial Services
Washington, DC 20515

PATRICK McHENRY, NC
RANKING MEMBER

March 11, 2021

The Honorable Maxine Waters
Chair
House Committee on Financial Services
2129 Rayburn House Office Building
Washington, D.C. 20515

Dear Chair Waters:

The health and safety of the Members and staff of the Committee on Financial Services is a shared priority. For the last year, I have worked with you to ensure that all COVID protocols established by the House of Representatives were followed. Together, we have enforced the mask mandate as well as ensured the appropriate social distancing metrics were in place to protect Members and staff working in the Committee hearing room. These efforts made a difference in limiting Member and staff exposure, while at the same time getting our work completed during the 116th Congress.

Now, on March 11, 2021, a year later, all members of the House of Representatives and staff who support Member and Committee operations have been fully vaccinated. Moreover, earlier this week, the Center for Disease Control announced guidance indicating it is safe for fully vaccinated individuals to gather. As many state and local economies are safely reopening, it is time for this Committee to safely reopen for our constituents and the public.

To that end, I am requesting that we begin holding hearings in an in person and online format starting with the upcoming full committee hearing on March 17, 2021. As you have previously said, the situation with GameStop and retail investors is a serious issue and one that demands the full attention of the Committee. Our constituents and the public would be best served if this hearing were held in 2128 Rayburn rather than WebEx for those Members who want to attend.

I look forward to discussing our in person hearing schedule with you.

Sincerely,

Patrick T. McHenry

Patrick McHenry
Member of Congress

MAXINE WATERS, CA
CHAIRWOMAN

United States House of Representatives
Committee on Financial Services
Washington, DC 20515

PATRICK McHENRY, NC
RANKING MEMBER

March 15, 2021

The Honorable Maxine Waters
Chair
House Committee on Financial Services
2129 Rayburn House Office Building
Washington, D.C. 20515

Dear Chair Waters:

Thank you for your response. Additionally, I appreciate your outreach to the Office of the Attending Physician regarding updated guidance. However, you misunderstand the focus of my letter.

Since the start of the COVID-19 pandemic, the Committee has held four hybrid hearings, a hybrid organizational meeting, and a hybrid markup—all with Members participating online and in person. We have held these hybrid hearings and markups in accordance with current guidance from the Office of the Attending Physician. This guidance includes wearing masks and respecting social distancing metrics.

If we were able to conduct these Committee activities when the pandemic arguably posed an even greater threat to members and staff, with higher positivity rates in Washington D.C. and member home states prior to available vaccinations, it begs the question: what's changed?

As we work together to develop protocols to safely conduct full in-person hearings and markups, the Committee should allow Members who want to attend hearings and markup to do so. Students are starting to safely go back to classrooms and workers are going back to the office; it's time for our Committee to follow suit.

To that end, Members who would like to participate in the upcoming Committee hearings this week, next week, and in all future hearings that the Majority schedules should be able to do so.

Sincerely,

Patrick T. McHenry

Patrick McHenry

March 9, 2021

AMERICANS for TAX REFORM

NTU NATIONAL TAXPAYERS UNION

TAXPAYERS PROTECTION ALLIANCE

60 PLUS AMERICAN ASSOCIATION OF SENIOR CITIZENS

ALEC ACTION

AMERICANCOMMITMENT

AMERICANS FOR PROSPERITY

CAESAR RODNEY INSTITUTE

CFE CENTER FOR A FREE ECONOMY

CFIF CENTER FOR INDIVIDUAL FREEDOM

Dear Member of Congress,

On behalf of millions of taxpayers and investors across the country, we urge you to reject any proposal to implement a financial transactions tax (FTT) on American savers and investors.

The Left has seized on the recent GameStop trading controversy to call for a "small" FTT that could purportedly increase federal revenues by $1 trillion over the next decade. This would impose a 0.1 percent tax rate on all buying and selling of stocks, bonds, and other financial instruments.

While progressives such as Bernie Sanders (I-Vt.) and Representative Alexandria Ocasio-Cortez (D-NY) argue that an FTT is needed to reduce market volatility and make Wall Street pay "their fair share," this tax will actually harm millions of Americans that invest their lifesavings in the stock market and own 401(k)s, pensions, and index funds.

An FTT is a tax on American savers and investors. It will harm Americans across the country including the 53 percent of American households that own stock and the 80 to 100 million Americans that have a 401(k). This tax will fall especially hard on public sector pensions including those used by teachers, firefighters, and police officers.

In fact, an FTT would cost pension funds billions of dollars every year, leading to fewer savings, less retirement income for retirees, and underfunded pensions. According to a 2021 study conducted by the Modern Markets Initiative, an FTT could cost a 401(k) owner $45,000 to $65,000 in savings over the lifetime of the account.

An FTT might not raise the revenue supporters claim it does. The Congressional Budget Office found that imposing an FTT in the U.S. would "decrease the volume of transactions" and "probably reduce output and employment." Some have predicted that a financial transactions tax would raise little net revenue because of these negative impacts.

FTTs also cause capital to flee to jurisdictions that do not tax transactions, further reducing revenues. When Italy and France imposed FTTs in 2012, both countries **raised** less than a quarter of expected revenues.

FTTs have a history of failure. When Sweden imposed a financial transaction tax, it lasted just six years as trading migrated to London to avoid the tax. Not only did this mean the FTT raised little revenue, capital gains tax revenue also dropped because of a reduction in sales. When it was abolished in 1990, investment began to return to Sweden.

Sweden is not an isolated case. According to the Center for Capital Markets, Spain, the Netherlands, Germany, Norway, Portugal, Italy, Denmark, Japan, Austria, and France have all tried an FTT in past decades. In each case, the tax failed to raise revenue, reduced trades, and has since been repealed.

Advocates of an FTT falsely argue it is needed to curb short selling and market volatility. There is no evidence that short-selling would shrink relative to overall trading under an FTT, but even if it did, short selling is not responsible for market crashes and economic downturns. Instead, it is a function of the free market.

Some investors will short a stock when they think it is overvalued. Other investors, as shown as the recent rallies in GameStop and other companies, will buy a stock they think is too heavily shorted. Both practices help promote efficient investing and provide information to markets, ultimately softening the blow of a downturn.

For example, the 2008 market crash could have been far more widespread if short sellers hadn't recognized the housing market was overvalued.

Arbitrarily restricting this trading will likely lead to severe pain if the country experiences another crash. Rather than improving market volatility, an FTT could make this problem worse as there would be fewer buyers and sellers and therefore more price jumps.

Congress should reject any proposal to implement a financial transaction tax. An FTT is the latest attempt by the Left to take advantage of a "crisis" to implement a massive new tax on the American people. Contrary to their rhetoric, this tax would be borne by the American people, not Wall Street. It would punish investment, leading to lower returns for American retirees and savers and increased market volatility. It fails to raise as much revenue as supporters claim and has failed everywhere it has been tried in past decades.

Sincerely,

Grover Norquist
President, Americans for Tax Reform

Pete Sepp
President, National Taxpayers Union

David Williams
President, Taxpayers Protection Alliance

James L. Martin
Founder/Chairman, 60 Plus Association

COMPETITIVE ENTERPRISE INSTITUTE

Center for Freedom and Prosperity

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FreedomWorks

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HERITAGE ACTION FOR AMERICA

HLF HISPANIC LEADERSHIP FUND

INSTITUTE FOR LIBERTY
Defending America's Right To Be Free

The JAMES MADISON INSTITUTE

Saulius "Saul" Anuzis
President, 60 Plus Association

Phil Kerpen
President, American Commitment

Lisa B. Nelson
CEO, ALEC Action

Brent Wm. Gardner
Chief Government Affairs Officer, Americans for Prosperity

John Toedtman
Executive Director, Caesar Rodney Institute

Ryan Ellis
President, Center for a Free Economy

Andrew F. Quinlan
President, Center for Freedom and Prosperity

Jeffrey Mazzella
President, Center for Individual Freedom

Thomas A. Schatz
President, Citizens Against Government Waste

David McIntosh
President, Club for Growth

John Berlau
Senior Fellow, Competitive Enterprise Institute

Adam Brandon
President, FreedomWorks

George Landrith,
President, Frontiers of Freedom

Jessica Anderson
Executive Director, Heritage Action for America

Mario H. Lopez
President, Hispanic Leadership Fund

Andrew Langer
President, Institute for Liberty

Sal Nuzzo
Vice President of Policy, The James Madison Institute

Seton Motley
President, Less Government

Tim Jones
Fmr. Speaker, Missouri House of Representatives
Chair, Missouri Center-Right Coalition

Doug Kellogg
Executive Director, Ohioans for Tax Reform

Paul Gessing
President, Rio Grande Foundation

James L. Setterlund
Executive Director, Shareholder Advocacy Forum

Karen Kerrigan
President & CEO, Small Business & Entrepreneurship Council

STA

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March 17, 2021

The Honorable Maxine Waters
Chairwoman
U.S. House Committee on Financial Services
2129 Rayburn House Office Building
Washington, DC 20515

The Honorable Patrick McHenry
Ranking Member
U.S. House Committee on Financial Services
4340 O'Neill House Office Building
Washington, DC 20024

Dear Chairwoman Waters and Ranking Member McHenry,

The Security Traders Association[1] ("STA") appreciates the opportunity to provide comments in response to U.S. House Committee on Financial Services March 17, 2021, virtual hearing, "Game Stopped? Who Wins and Loses When Short Sellers, Social Media and Retail Investors Collide, Part II." STA is an organization comprised of individuals who are involved in the trading of financial securities in the U.S and Canada. Our members are employed at retail brokerage firms, agency only broker dealers, asset owners and managers, liquidity providers and exchanges. Our comments are in response to remarks made about potential benefits which a financial transaction tax (FTT) could provide to certain behavior deemed harmful to investors and the markets as a whole.

Background

In recent years, several state and federal proposals have sought to impose a financial transaction tax. While each attempt has varied slightly in design, they have all espoused a seemingly low rate and broad-based design to raise revenue while curbing behavior deemed threatening to the markets, such as high frequency trading engaged by proprietary trading firms.

STA opposes FTTs because they are paid by the end investor and result in higher trading costs due to wider spreads, decreased liquidity, increased price volatility, or lower performance on investment vehicles due to reduced trading volume. While most FTT proposals appear on the surface to have low rates, they add up to significant costs for individual investors, especially over time. These costs can be even more

[1] STA is a trade organization founded in 1934 for individual professionals in the securities industry. STA is comprised of 24 affiliate organizations in North America with individual members who are engaged in the buying, selling and trading of securities. STA is committed to promoting goodwill and fostering high standards of integrity in accord with the Association's founding principle, Dictum Meum Pactum – "My Word is My Bond." For more information, visit https://securitytraders.org/.

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significant to retail investors when the tax can be applied multiple times in their portfolio, including but not limited to the purchase of mutual funds, the mutual fund's purchase of individual stocks and bonds, the mutual fund rebalancing its funds, and individual investors rebalancing their portfolios. This same impact would be felt by pension funds, reducing returns for beneficiaries.

Recent Remarks

Most recently, calls for an FTT have made been under the guiding principle that by adding this additional cost, trading will slow down and it will discourage purported dangerous high frequency trading. STA believes that to the extent there are potentially problematic practices around high frequency trading, these are best addressed through SEC rulemaking, or if violations of current rules have occurred, through enforcement. While the markets are not perfect, they are highly competitive and serve individual investors well, as evidenced by the lower costs and barriers to accessing the markets. Attempts to improve overall safety or market functioning should be pursued through regulation and rulemaking rather than imposing costs associated with a financial transaction tax.

Some proponents of FTT proposals have suggested that an FTT would curb behavior deemed to be a threat AND raise reliable revenue. However, FTTs would certainly fail to achieve both objectives. If an FTT is effective in curbing perceived dangerous trading behavior, it would result in those participants engaging in this behavior to stop, reducing the overall trading volumes and therefore the revenues collected from the tax. The question then becomes, who is left to pay the FTT? Answer: the individual investor whose behavior was never deemed necessary to curb.

State Financial Transaction Taxes

As many states face fiscal issues due to the COVID 19 pandemic, some states are pursuing FTTs as a means to close budget gaps. While the details of each state's proposed tax are different, they too espouse seemingly low rates and broad-based designs which forecast reliable revenue with minimal impact to behavior. An FTT with any tax level will negatively impact the markets and investors' returns, but a question with state-imposed FTTs is whether any state, or group of states, should be allowed to impose a tax on the national markets for their own benefit. STA believes states should not impose an FTT. In addition to the negative impact FTTs would have on the returns of investors and the economies of the states imposing them, state FTTs would effectively subject the National Market System to each states' tax policy and would also have the potential to impose taxes on some residents of other states.

STA supports H.R. 1584, The Protecting Retirement Savers and Everyday Investors Act, which would prohibit states from imposing a Financial Transaction Tax (FTT) on certain industry participants that would be paid by out-of-state investors when the FTT is passed onto them.

Conclusion

In the end, an FTT is a tax on capital and the savings of individual investors that causes ripple effects detrimental to the economy. We oppose FTTs, as they would harm the markets and would fail to raise the revenues they project.

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March 22, 2021

The Honorable Maxine Waters
Chair
Committee on Financial Services
U.S. House of Representatives
Washington, DC 20515

The Honorable Patrick McHenry
Ranking Member
Committee on Financial Services
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Waters and Ranking Member McHenry:

The U.S. Chamber of Commerce's (the Chamber) Center for Capital Markets Competitiveness (CCMC) writes regarding the hearing on March 17, 2021 titled "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II." We submit this letter for the record to explain why a Financial Transaction Tax (FTT) is not a practical policy proposal.

Opposition to an FTT

The Chamber is concerned by proposals to impose an FTT, 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 Means[1] 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 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

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[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

[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

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. However, an FTT is actually borne by everyday investors. 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 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

[3] Virtu Global Cost Review, 4Q 2020.
https://www.virtu.com/uploads/documents/Virtu_EQ_GlobalCostReview_4Q20.pdf

$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 than forecast, which is why so many countries that have imposed FTTs have eventually eliminated them.[4]

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 Financial Services

[4] CCMC 2019 Report. Countries like Germany, Sweden, and Japan have all tried imposing financial transaction taxes, but ultimately eliminated them.

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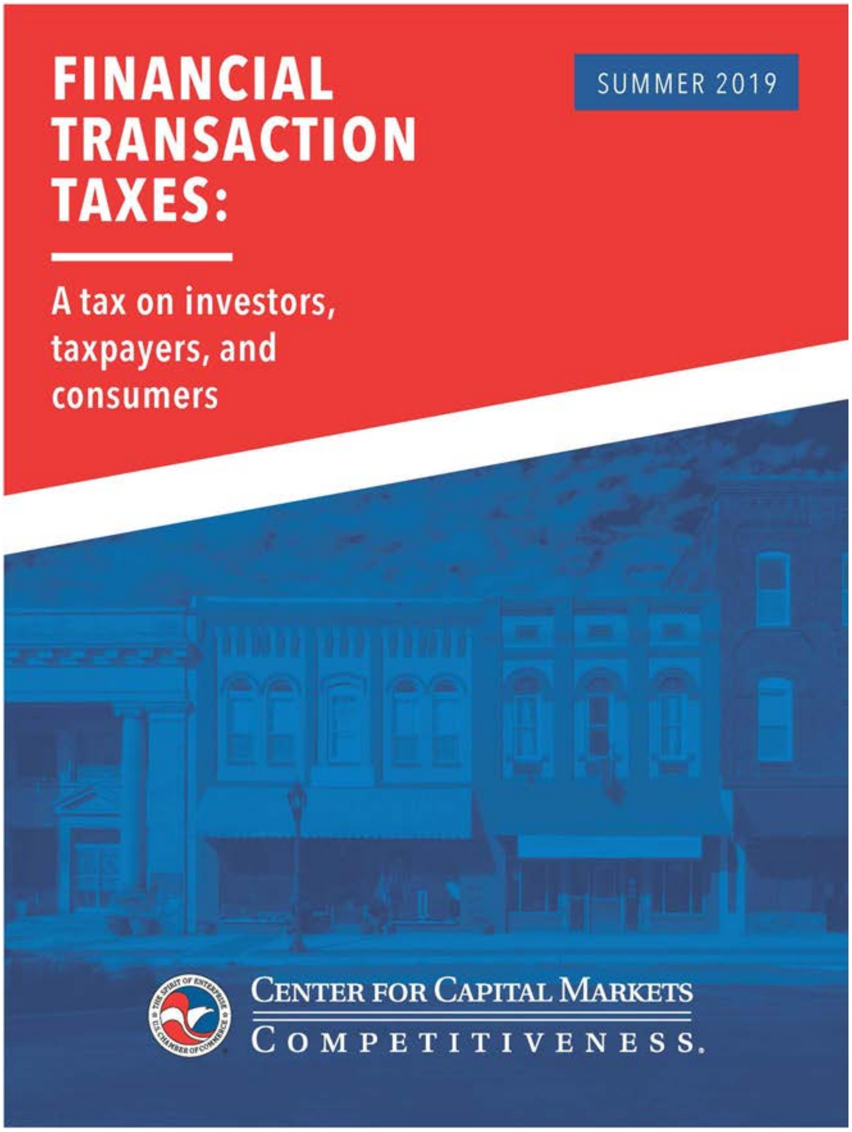
<u>Appendix A:</u> Executive Summary from "Financial Transaction Taxes: A tax on investors, taxpayers, and consumers," authored by the Center for Capital Markets Competitiveness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TRANSACTION
TAXES:
SUMMER 2019
A tax on investors,
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FINANCIAL TRANSACTION TAXES:

A tax on investors, taxpayers, and consumers

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The author gratefully acknowledges financial support for this project from the U.S. Chamber of Commerce.
All opinions are those of the author and do not necessarily reflect those of the Chamber or Georgetown University.

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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.

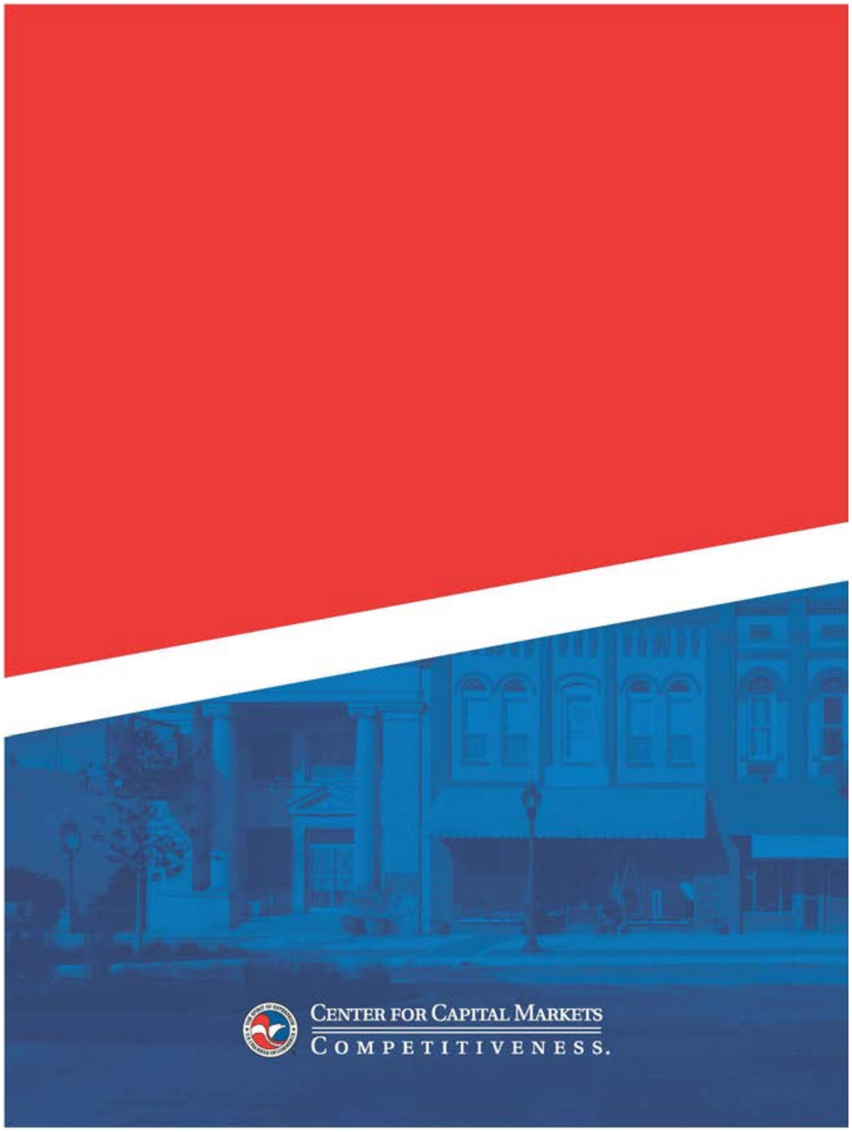
- **FTTs will not raise the revenue that proponents expect.**
  By suppressing economic and trading activity and driving more trading offshore, the amount of revenue raised will be far less than estimated. The experience in other countries is that FTTs collect far less than forecast.

- **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

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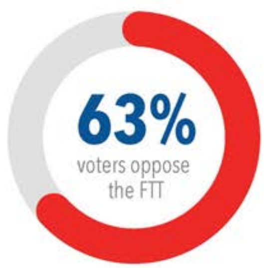
No matter how you approach a Financial Transaction Tax (FTT), the outcome will be the same: Main Street, consumers, taxpayers, retirees, states, and localities are the ones who will suffer. The U.S. Chamber of Commerce's Center for Capital Markets Competitiveness (CCMC) conducted a poll of 2,000 likely voters nationally to understand their views on a proposed FTT. According to the poll:

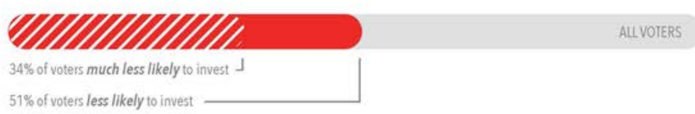


When voters learn about an FTT, nearly two-thirds oppose the tax:

- 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).

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:

ECONOMY

TOTAL VOTERS

- Growing the economy and jobs is the #1 priority voters have for the U.S. Government, but 63% said that an FTT would actually hurt efforts to restart the economy and bring back jobs (Democrats: 54% say it will hurt more than help. Republicans: 74% hurt more than help. Independents 70% hurt more than help).

COVID-19 RECOVERY

TOTAL VOTERS

- 64% say an FTT will hurt Americans as they're trying to get back on their feet following the COVID-19 pandemic (Democrats: 54% say it will hurt more than help. Republicans: 75% hurt more than help. Independents 72% hurt more than help).

RETIREMENT/EDUCATION

TOTAL VOTERS
RETIREMENT

- 65% say an FTT will harm efforts to ensure Americans have enough money saved for retirement.
- 63% even say an FTT will make it more difficult for Americans to pay for college.

TOTAL VOTERS
EDUCATION

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 Malinconico, Director, U.S. Chamber Center for Capital Markets Competitiveness, at kmalinconico@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 ±2.5% at the 95% confidence level.

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<u>Appendix C:</u> Retirement Investment Scenario

Retirement Investment Scenario

Center for Capital Markets Competitiveness.

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% * 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% * 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/bin-public/06_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

April 26, 2021

To: Representative Nikema Williams (GA-05)

From: Dr. Vicki Bogan, Ph.D.

RE: Response to Questions – House Committee on Financial Services Full Committee Hearing, "Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II", March 7, 2021

Dear Rep. Williams:

Online brokers are transforming the finance industry in a way that is increasing access for retail investors. Increased access is beneficial but, the manner in which investors' access the market must be managed to avoid significant deleterious consequences for retail investors.

There is an opportunity for increased consumer safeguards governing the investing app user interfaces and the online brokers that manage these investing apps. In order to mitigate the manipulation of investors through the gamification of finance, I would recommend the consideration of policy elements broadly grouped into two categories: 1) enhanced consumer information/disclosures and 2) protection of younger consumers.

Thank you for giving me the opportunity to address your questions. My responses to your specific questions outline the enhanced consumer information/disclosures and protection of younger consumer policy elements referenced above.

Questions and Responses

1. *How could online brokers design disclosures within their platforms so that retail investors understand the risks of a specific investment behavior before they go ahead with it?*

   Online brokers need to provide clear disclosure information to consumers with regard to risks. Specifically, I would recommend consideration of the following:

- The disclosures should incorporate specific language that discusses all of the potential risks (including the amplification of risks through the use of margin).
- The disclosures should be written in easy to understand language with key points highlighted up front.
- Attention checks should be included after disclosures to confirm the individual understands the key points related to the disclosures.

2. *How could online brokers incorporate broader financial education opportunities into their investing platforms? Additionally, how could Congress encourage this while also ensuring the information they provide is truthful, not misleading, and useful?*

Online brokers need to be required to provide accurate, up to date, and clear information regarding account status and trading information. Specifically, I would recommend consideration of the following:

- All information should be communicated in easy to understand language with key points highlighted up front.
- Updates to disclosures should be posted immediately.
- Disclosures should include information that provides transparency with regard to how the online broker is making money (payment for order flow model).
    - Consumers should be made aware that, despite the no fee per trade practice, online brokers, with a payment for order flow model, make more money the more the consumer trades.
    - Consumers should be made aware that they may or may not get the best prices for their trades.
- User interface design elements that belie the significance of the risks that are being taken should be regulated. For example, online brokers should be limited from presenting trading data and information in a manner similar to a gambling app or website.

3. *Finally, you mentioned protection of young consumers as a priority – what aspects of gamification most disproportionately impact young investors and what solutions should we be*

looking at from a regulatory perspective to help protect these investors?

Research shows that younger individuals often can be affected to a greater degree by behavioral influences. As a result, the gamification techniques used by online brokers could disproportionately affect younger investors. In the spirit of other consumer protection laws, I would suggest considering limiting access by younger consumers. For example, there was a younger consumer protection element in Title 3 of the Credit Card Accountability Responsibility and Disclosure Act of 2009.

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