

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

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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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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

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.

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-1-111-24_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](https://www.vice.com).