# GameStop and the Rise of Retail Trading

*Jennifer J. Schulp*

In January 2021, a curious event in the stock market caught the attention of the media, regulators, and the public. A well-known struggling company dominated the headlines, not for its business model, but for the meteoric rise of its stock price. GameStop Corp. started the year trading around $19.00 a share, a pretty robust share price for a company that had been trading below $5.00 as recently as August 2020. Yet, by the end of January, GameStop's shares were trading at over $300, at one point hitting a high of $483. GameStop's stock price has receded from those meteoric highs, but, as of late May, it continues to trade between $160 and $180 a share.

Experts—and a significant number of nonexperts—raced to explain what happened. The media, at least, settled on a David and Goliath narrative, pitting a band of individual traders against Wall Street hedge funds that were betting against GameStop's success. The fact that many of these retail traders utilized a brokerage app named Robinhood only added to the narrative.

Mechanically, the rapid and dramatic rise in the stock's price was partly attributable to a "short squeeze" initiated by increased demand by retail traders who largely organized through the Reddit forum *WallStreetBets*. The rising stock price led some holding short positions, including certain prominent hedge funds, to buy the stock

---

*Cato Journal*, Vol. 41, No. 3 (Fall 2021).  DOI:10.36009/CJ.41.3.3.

Jennifer J. Schulp is Director of Financial Regulation Studies at the Cato Institute's Center for Monetary and Financial Alternatives. This article is based on her testimony before the U.S. House Committee on Financial Services (Schulp 2021a). The author thanks Nicholas Anthony, Zachary Cady, and Yaseen Morshed for their assistance with research supporting the testimony and this article.

to limit their losses, which put further upward pressure on the stock's price. A similar feedback loop attributable to options purchases also propelled the stock price. And strong demand for the stock was bolstered by the attention that the media showered on the phenomenon, pushing the stock even higher.

Easily compared to a law school issue-spotter exam question, or perhaps a Rorschach test, the GameStop phenomenon has raised questions and concerns regarding equity markets from just about every angle imaginable. Politicians from both parties found reasons for outrage, including the rare (and brief) unification of Rep. Alexandria Ocasio-Cortez (D-NY) with Sen. Ted Cruz (R-TX) in ire against Robinhood Financial's decision to restrict its users from opening new positions in GameStop at the height of the frenzy.

The incident has spawned three hearings by the House Financial Services Committee; one hearing by the Senate Banking Committee; one meeting of the heads of the Treasury Department, Securities and Exchange Commission (SEC), the Federal Reserve Board of Governors, and others; and a host of investigations by the SEC, Financial Industry Regulatory Authority (FINRA), and state securities regulators covering market manipulation, short selling, and other issues. The SEC is also preparing a request for public comment on the "gamification" of securities trading, considering recommendations about further disclosure on short selling, looking closely at the structure of equity markets, and drafting a proposal for shortening the equity settlement cycle (Gensler 2021).

One thread that runs through all of these inquiries is the protection of retail investors—the same retail investors who appear to have initiated the GameStop phenomenon in the first place. While it is hardly surprising that some individual investors lost money on trades they made—just as it is hardly surprising that some individual investors made money on their trades—the investor protection impulse of some legislators and regulators tends to overlook two key concepts: (1) the GameStop phenomenon is an example of retail investor strength, not a demonstration of weakness; and (2) increasing retail participation in equity markets should be encouraged, not restricted by burdensome regulation.

Retail investors are important and beneficial participants in equity markets, and recent innovations in the ways retail investors can access markets have brought more—and more diverse—investors into the fold. While an interesting event for any number of reasons, the GameStop phenomenon is not a sign that the markets are somehow broken or that more regulations are needed to protect investors. Ultimately, any regulatory response must be careful not to undo the benefits of wider retail participation in equity markets by introducing, or reintroducing, barriers to retail investor participation.

## Retail Participation Is Good for Equity Markets and Investors

At the outset, it is important to recognize that participation by retail investors in equity markets is beneficial to both the markets and investors. There is little academic consensus about the wholesale effect retail investors have on equity markets (Eaton et al. 2021; Friedman and Zeng 2021), but the lack of consensus is not surprising, in part, because retail investors themselves are a heterogenous bunch, varying in their levels of diligence, appetite for risk, and motivations. The fact that retail investors behave differently from institutional ones, and sometimes behave differently from each other, can be particularly valuable in times of market stress. Where institutional liquidity dries up, for example, retail trading can help to lower bid-ask spreads and dampen the price impact of trades (Ozik, Sadka, and Shen 2020).

In fact, retail investors may have been a market-stabilizing force during the March 2020 coronavirus-induced market crash by staying the course with their investments and buying when stock prices dipped dipped (Ozik, Sadka, and Shen 2020; Welch 2020). This type of behavior appears to have continued throughout the pandemic, with individual investors tending to buy more shares when the market was down 1 percent than when it was up by the same amount (Banerji 2021).

The maxim "more is better"—while not foolproof—generally applies when talking about participants in the stock market. Despite the derogatory nature of terms used for retail investors, including "dumb money," retail investors bring a lot to the table when investing. More investors mean more information, which benefits all market participants by helping to establish more efficient prices. More capital invested by those investors helps to fund the growth of the economy. And investors with greater risk tolerance, a feature often criticized when talking about retail investors, are necessary to fund the innovation and entrepreneurship to secure future economic growth (Coy 2021).

Finally, investing in the stock market is an important path to wealth for individual investors. While stocks do not always go up, the average annual return for the S&P 500 over the past 60 years has been approximately 8 percent (Maverick 2020). This type of return is far and away above returns of many other savings or investment vehicles available to individual investors, giving long-term investors good opportunities to grow wealth through equity investment.

## Retail Investing Reached the Masses in 2020

Retail participation in equity markets had been growing for several years, but that trend accelerated sharply during the pandemic. Approximately one-fifth of market trading volume was attributable to retail orders throughout 2020 and early 2021, a substantial increase over 2019 (Osipovich 2020; SIFMA 2021a). As 2021 has progressed, retail investor activity appears to be cooling somewhat, but it is expected to remain elevated above its prepandemic levels (McCabe 2021; SIFMA 2021a).

Most commentators pin the recent increase in retail participation to the availability of so-called zero-commission trading, where investors do not pay an upfront commission to trade.[1] Although Robinhood Financial began offering zero-commission trading in 2015, the model spread like wildfire in late 2019, ultimately becoming an industry norm among app-based trading platforms and large discount brokerages. While zero-commission trading is a significant innovation, it is important to place it in historical context: brokerage fees have been declining for the past 45 years as a result of regulatory changes and competition (Mihm 2020). In this way, zero-commission trading is simply a logical outgrowth of discount brokerages in the 1970s and self-directed online trading in the 1990s.

Not surprisingly, some brokerages reported significant increases in trading volume immediately following their move to zero-commission trading at the end of 2019 (Swanson 2020). But several other factors likely contributed to increased retail participation in equity markets

[1] In most zero-commission trading models, brokerages are instead compensated through what is known as "payment for order flow" (PFOF) where the broker receives payment from a third party to whom the broker routes the order for execution.

in 2020. After Robinhood Financial's early successes, app-based trading platforms with easy-to-use interfaces began to proliferate, including apps launched by legacy brokerages. Many brokers began allowing investors to open accounts with minimal, or no, account balance requirements. And fractional-share trading, which permits investors to buy a portion of a stock less than one share, became increasingly available during 2020 (Carpenter 2021). The pandemic, which forced people to stay at home and closed a lot of traditional entertainment options, also played a role in increasing retail trading throughout the year (SIFMA 2021a).

These factors together led to tremendous growth not just for Robinhood Financial—which added millions of users in 2020 and early 2021—but also for legacy brokerages, like Fidelity Investments, that similarly experienced a surge in new retail accounts (Baer 2021).

### *Retail Investing Has Been the Provence of the Few*

Although there is a history of strong retail participation in the U.S. equity markets, that participation has been largely limited to the comparatively few and the comparatively wealthy. In 2019, approximately 38 percent of total U.S. equities were held directly by households, but only 15 percent of U.S. households hold individual stocks (Board of Governors 2020a, 2020b; SIFMA 2021b). Even when pooled investment funds are included—which is how the vast majority of households indirectly hold stocks as a part of their retirement assets—ownership is similarly skewed toward the wealthy. In 2019, although 53 percent of all households had stock market investments, only 31 percent of families in the bottom half of the income distribution were invested compared to more than 70 percent in the top half (Board of Governors 2020a).

Stock ownership is also highly correlated with race, education, and age (Saad 2019). For example, in 2019, approximately 19 percent of white households directly held stock, compared to approximately 7 percent of Black households and 4 percent of Hispanic households (Board of Governors 2020c). Those with a college degree are about twice as likely to directly hold stock than those who just had some college education, and more than three times more likely than those with only a high school diploma (Board of Governors 2020d). And the older a person is, the more likely he or she is to own stock (Board of Governors 2020e).

Thus, despite a strong retail presence in U.S. equity markets, a substantial portion of Americans—especially those who are less wealthy, younger, and more racially diverse—have traditionally been left out of the opportunities to grow wealth afforded by the stock market.

### *Innovation Has Made Market Access Easier for Many Retail Investors*

Retail investors who have recently opened accounts are different than those who previously held brokerage accounts, which may portend, as one researcher noted, "a shift towards more equitable investment participation" (Williams and Young 2021). Whether this is called "democratization" of investing or something else, making it easier for all types of retail investors to access the market should be celebrated.

Multiple studies have confirmed that new retail investors represent a broader swath of the U.S. population than prior investors (Charles Schwab 2021; Broadridge 2020; FINRA 2021). For example, a study by the FINRA Investor Education Foundation and NORC at the University of Chicago found that investors who opened a taxable investment account for the first time in 2020 were younger, had lower incomes, and were more racially diverse than those who had previously opened such accounts (FINRA 2021). These new investors also held lower account balances, with about a third holding account balances less than $500. The ability to invest with a small amount of money was a commonly cited reason for opening an account, second only to investing for retirement. Black and Hispanic investors identified the ability to invest with a small amount most often as a reason for opening a new account. Interestingly, few new investors cited zero-commission trading as a primary reason for opening an account.

The 2020 Ariel-Schwab Black Investor Survey confirms the FINRA/NORC Study's findings with respect to investor diversity, finding that Black investors under the age of 40 are now participating in the stock market at a rate equal to their white counterparts (Charles Schwab 2021). Indeed, three times more young Black investors than young white investors entered the market for the first time in 2020.

And a study by Broadridge found that millennials were the fastest-growing share of the investor market in 2020, making up 14 percent of the market in the first half of 2020, up from 12 percent in 2019 (Broadridge 2020).

While individual investor motivations for opening an account can vary significantly, it appears that new investors were enticed by, or took advantage of, many recent innovations in the brokerage space that made trading easier or cheaper for them. In addition to the popularity of low or no balance accounts, the FINRA/NORC Study found that the majority of new investors opened accounts that offered zero-commission trading, nearly half accessed their accounts primarily through a mobile app, and one-third purchased fractional shares (FINRA 2021).

## *Criticism of Retail Investor Behavior May Be Misplaced*

Most acknowledge the benefits of broader retail access to equity markets, but a significant portion of commentators and regulators attempt to justify further regulation by pointing to what they see as reckless, uninformed, or otherwise harmful retail trading behavior (Fitzgerald 2020c; Greifeld and Ballentine 2021). Retail traders, especially those who entered the market in 2020, have been derided as uninformed speculators, who bring little value to the markets and will incur short-term trading losses. This narrative undoubtedly applies to some new retail investors, just as it applies to some experienced, and institutional, investors. But there is reason to believe that a lot of these new retail investors are not so easily categorized.

The FINRA/NORC Study calls into question the view that the rise in retail participation is fueled by those seeking to engaging in speculative behavior. New investors most often identified saving for retirement and learning about investing as goals (FINRA 2021). While about a third of investors who opened accounts in 2020 did cite speculation as a goal, and those who opened new accounts did trade more frequently than existing account holders, the self-reported trading behavior of these investors is not consistent with day trading or similar speculative strategies. Indeed, approximately 40 percent of new investors reported making no trades per month, and almost 90 percent made three or fewer trades a month. The study did not provide insight into investor's reasons for trading frequency, but it is easy to imagine how an investor seeking to invest only small amounts may make more frequent transactions when the cost per transaction is minimal. Such trading behavior can be entirely consistent with setting up a diversified portfolio for long-term investment or with learning how to invest.[2]

Building on the concept that retail investors are "dumb money," new investors are often painted as making poor investment decisions or being taken advantage of by bigger players. Again, though, it is not at all clear that these new retail investors are making systematically poor investment decisions. Rather, retail investors have received praise for identifying the market bottom in March 2020 and generating better performance than some hedge funds through the same volatile period (Fitzgerald 2020a, 2020b). Recent research studying investor holdings on Robinhood Financial found that, while Robinhood investors were overrepresented in certain odd stocks, those unconventional holdings were the exception, not the rule, characterizing the narrative that retail investors were "cannon fodder" for more sophisticated investors as "incomplete to the point of being misleading" (Welch 2020).

New retail investors are also characterized as being persuaded by poor quality information, but research suggests that research available through social media cannot be painted with such broad strokes. With respect to the Reddit *WallStreetBets* forum in particular, researchers rejected the conventional view that the forum attracts only uninformed investors and leads to less informative retail trading (Bradley et al. 2021). Instead, their analysis concluded that those providing due diligence research on the forum are skilled, forum participants can discern the quality of the reports, and retail investors are likely to benefit from recommendations made on the site.

This all suggests caution when relying on retail investors' supposed status as babes lost in the woods as a reason to impose higher barriers to entry for retail participation in the stock market. Indeed, one of the most criticized retail investor trends from early in the pandemic—piling in to besieged companies—has shown to have been less off-base than depicted. Retail traders heavily bought Hertz Global Holdings last year even though it had declared bankruptcy.

[2] In any event, young investors starting out in the market with a small amount of money probably are in the best positions to take speculative risks because there is less on the line for those who have years to build a portfolio. For investors seeking to learn about the market, this may be desirable behavior, as one Georgetown Business School professor put it by comparing losing $5,000 in the market to "the range of a cost of semester-long class in finance at our universities" (Angel 2021).

Seeing the investor interest, Hertz sought to issue shares, but stopped the plan after the SEC asked questions about the offering. Investor protection advocates praised the SEC's vigilance in ensuring that investors were not permitted to make what many viewed as a poor investment decision, because shares sold by a company in bankruptcy are likely to end up worthless. Now, it looks like Hertz will exit bankruptcy with shareholder value, and the retail investors had it right all along. But instead of gains for retail investors who had an appetite for more shares of the company, the value will be concentrated in the hedge funds that are backing the company's bankruptcy exit (Banerji and Osipovich 2021; Yerak and Scurria 2021). Hertz may be no more than anecdotal evidence of retail investors making a good pick, but it is a reminder that investor "protection" can have negative effects on investors.

## GameStop Should Not Lead to Retail Investor Limitations

Although many have tried to reduce the GameStop phenomenon to a story with heroes and villains, it is not that simple. While the popular narrative pits retail traders against hedge funds, the diverse motivations of individual investors who traded in GameStop are unlikely to coalesce around a single unifying theme. Moreover, retail traders and institutional investors alike were likely participating on both sides. The GameStop events are a particularly good example of the difficulty in assigning roles to market participants: retail investors were simultaneously called good and bad by media and regulators, many of whom praised the initiative of the "little guy" but balked at coordinated actions of the same "little guy" (Newmyer and Denham 2021; Phillips and Lorenz 2021).

Regardless of the way the story is presented, though, some things seem clear. Importantly, the temporary volatility in GameStop and others did not disrupt market function (Lee 2021) and seems to have presented little risk of financial contagion across the U.S. stock market (Aharon et al. 2021). This is not surprising. Despite the huge trading volume and rapid increase in value, the GameStop phenomenon affected a very small part of the market. GameStop's market capitalization, even at its peak, was around $24 billion in an approximately $50 trillion market (Siblis Research 2021; YCharts 2021). And short interests in general represent a small, and recently shrinking, portion of equity market value (Wang 2021). Even the wider market effects potentially attributable to the GameStop phenomenon, like the dip in the Dow Jones Industrial Average, were mild and short-lived (Tappe 2021).

The fact that GameStop traded temporarily, and perhaps still trades, above fair estimates of the company's value is not, by itself, a reason for concern or a sign that the market is broken. Stock prices move in and out of alignment all the time, and markets are no strangers to bubbles. If a company is valued by the market differently than a review of its "fundamentals" suggests, it might indicate that the analysis is missing relevant information about a company's prospects or it might indicate that the company's stock price is due for a correction. The market's mechanisms generally work well to handle both of these circumstances. Indeed, short-selling—which is often in the political cross-hairs—helps liquidity, price discovery, and price efficiency in just these circumstances (Alderighi and Gurrola-Perez 2021). Stepping in to prevent trading when a stock price soars (or declines) contrary to conventional wisdom could limit legitimate information important to the market.

So what, if anything, should be done in the aftermath of GameStop? First, and foremost, regulators should determine whether there was any misconduct that violated existing law. These inquiries are already in the works: the SEC, among a host of others, is reviewing the relevant trading and conducting a study of the events. The SEC will look at whether any trading violated federal securities laws prohibiting abusive or manipulative trading. Manipulation, as the Supreme Court has recognized, is "virtually a term of art when used in connection with the securities markets,"[3] and a finding of manipulation generally requires some sort of fraud or deception. There has been little evidence of such misconduct to this point, but the SEC will have access to more information to evaluate the legality of the trading. The SEC also will probe whether any actions by regulated entities, like brokerages or hedge funds, took actions that disadvantaged investors or otherwise inhibited their abilities to trade securities. Brokerages, in particular, operate in a highly regulated environment, and many rules apply to their capital requirements and their treatment of customer orders. Robinhood Financial's decision

[3] See Ernst & Ernst v. Hochfelder, 425 U.S. 185, 199 (1976).

to limit customer trading in GameStop will come under scrutiny for whether any conflicts of interest inappropriately influenced the brokerage's decisionmaking.

Plenty of reform ideas have been floated, and the SEC is undertaking several studies and considering several rule revisions, including short-selling and stock loan disclosure, equity market structure, and equity settlement cycle length (Gensler 2021). Many of these are long-standing questions and simply are enjoying a resurgence in attention by being adjacent to the GameStop action (Angel 2021).

But several newer proposals have been raised aimed specifically at addressing so-called problems of retail trading. A few examples of such proposals include eliminating payment for order flow (PFOF), stopping the "gamification" of trading, instituting a financial transactions tax, and regulating stock trading information on social media. What these new proposals have in common is that they seek to reduce retail participation in the equity markets. Proponents say that changes are needed to "protect" investors, but reestablishing barriers to market participation, or erecting new ones, has the potential to inflict damage on those same investors by raising their costs to participate or driving them out of the market entirely. Each of these proposals—and their pitfalls—deserves in-depth treatment, but a brief analysis of each follows.

Some have called for the elimination of PFOF, which has long been controversial and achieved greater notoriety as of late as the mechanism that makes zero-commission trading possible (Osipovich 2021a). Instead of charging commissions, brokers earn revenue by receiving compensation from wholesalers (also known as market makers, high frequency traders, and a host of other names) who execute the trades. PFOF thus creates a potential conflict between a broker and the retail investor, where the broker may be incentivized to route the investor's order to a wholesaler who pays the broker more but provides the investor worse execution for trade. Proponents of PFOF acknowledge the potential conflict but point to data showing high quality execution for retail orders (Swanson 2020). The SEC has condoned PFOF, instituting disclosure requirements for brokers. The SEC also examines brokers to determine whether they are meeting their statutory duties to provide best execution to the retail investor. Separate from the question of best execution, though, some see zero-commission trading, itself enabled by PFOF, as problematic for drawing in inexperienced retail investors who then trade too often without understanding the consequences.[4] But lowering per-trade costs has made investment more attractive and economical for retail investors with small amounts to invest.

The gamification of trading has also come under fire, with some arguing that app-based platforms have turned trading into a game that detrimentally influences investor behavior to the advantage of brokerages (Matthews 2021). These concerns tend to overlook the obvious point that brokerages are in the business of getting customers to trade stocks. But even more to the point, easy-to-use app interfaces that make trading more enjoyable can attract new investors to the markets. Gamified elements also can play a role in teaching investors. The ways in which brokers communicate with their customers is already a highly regulated area, where regulation focuses primarily on preventing deceptive conduct (Schulp 2021b). Any new regulation in this area must be careful not to import holdover views about how trading should look or feel to the investor—particularly now that younger generations are beginning to make their own investment decisions.

Others have called for a financial transaction tax as a means of limiting speculation in the markets (Osipovich 2021b). Often characterized as a way to punish Wall Street, any trading tax is just as likely to hurt retail investors. While such a tax may limit individual trading without regard to whether it is speculative, a financial transaction tax will have significant effects on retail investors' retirement funds, hardly a hot spot of speculative trading (Chambliss 2021).

Finally, some have called for regulation of social media, ostensibly to prevent mob-like retail trader behavior or to prevent the spread of misinformation (Khan 2021). There have been few specific proposals, but it is important to note that restrictions on sharing of information—through social media or otherwise—are more likely to harm, than help, markets. Moreover, such limitations walk a fine line with the First Amendment, especially where, as here, there may have been some expression of political speech in connection with the trading (Anderson 2021). Separate from First Amendment concerns,

[4] There is some debate as to whether zero-commission trading can persist without PFOF, as brokers can rely on other sources of revenue. Indeed, one app-based trading platform, Public.com, has announced—complete with a parody about PFOF sung by Michael Bolton—that it will offer zero-commission trading without accepting PFOF (Liffreing 2021).

however, the specific regulation of internet financial speech unfairly singles out retail investors who are engaging in remarkably similar behavior to their professional counterparts. Internet chat forums, for example, serve as a place where individual investors can share information and investment ideas. Professional investors, on the other hand, access research reports and investment conferences. Making it more acceptable for hedge funds to share investment views than *WallStreetBets* members rightly would add to the view that the markets are unfair for retail investors (Macey 2021).

## Conclusion

The GameStop phenomenon has focused a lot of attention on equity markets, particularly in how retail investors participate. Innovation in the retail investing space has made it easy to say that there has never been a better time to be a retail investor. Low-cost investment products like index funds and ETFs have been joined by low-cost access to the market itself in the form of zero-commission trading, fractional share trading, and low account minimums. The psychic cost of participation has fallen too, as investors now have access to trading in the palm of their hands with easy-to-use programs. Not surprisingly, more investors are trying their hand at investing. Reintroducing undue barriers to participation that have been removed, or introducing new restrictions, has the potential to undo the benefits of wider retail participation in our equity markets. Opportunities for individuals to grow their own wealth should be welcomed and expanded, not restricted.

## References

Aharon, D. Y.; Kizys, R.; Umar, Z.; and Zaremba, A. (2021) "Did David Win a Battle or the War against Goliath? Dynamic Return and Volatility Connectedness between the GameStop Stock and the High Short Interest Indices?" *SSRN* (February 18).

Alderighi, S., and Gurrola-Perez, P. (2021) "What Does Academic Research Say about Short-Selling Bans?" WFE Research Working Paper (April 29).

Anderson, J. P. (2021) "GameStop, Social Media, and the Phenomenon of Expressive Trading." *CLS Blue Sky Blog* (March 24).

Angel, J. J. (2021) "Gamestonk: What Happened and What to Do About It." *SSRN* (May 24).

Baer, J. (2021) "Fidelity's Retail Investor Accounts Rise 17% to 26 Million." *Wall Street Journal* (March 2).

Banerji, G. (2021) "Americans Can't Get Enough of the Stock Market." *Wall Street Journal* (May 2).

Banerji, G., and Osipovich, A. (2021) "'God Told Me to Put Money Into Hertz': Small Investors Are Winning Big Again." *Wall Street Journal* (May 27).

Board of Governors of the Federal Reserve System (2020a) "Changes in U.S. Family Finances from 2016 to 2019: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin* 106 (5): 1–42.

__________ (2020b) "Survey of Consumer Finances, 1989–2019: Percentile of Income." *Survey of Consumer Finances.*

__________ (2020c) "Survey of Consumer Finances, 1989–2019: Race or Ethnicity." *Survey of Consumer Finances.*

__________ (2020d) "Survey of Consumer Finances, 1989–2019: Education of Reference Person." *Survey of Consumer Finances*.

__________ (2020e) "Survey of Consumer Finances, 1989-2019: Age of Reference Person." *Survey of Consumer Finances.*

Bradley, D.; Hanousek, J.; Jame, R.; and Xio, Z. (2021) "Place Your Bets? The Market Consequences of Investment Advice on Reddit's Wallstreetbets." *SSRN* (March 22).

Broadridge (2020) "Insights on the U.S. Investor." *Broadridge Investor Data Study.* Available at www.broadridge.com/_assets/pdf/broadridge-insights-on-us-investor-data-study.pdf.

Carpenter, J. (2021) "When Some Investors Look at Stocks They See Dollars, Not Shares." *Wall Street Journal* (January 15).

Charles Schwab (2021) "New Ariel-Schwab Black Investor Survey Shows Black Americans Continue to Trail Their White Counterparts in Building Wealth." *Charles Schwab*. Available at www.aboutschwab.com/ariel-schwab-black-investor-survey-2021.

Chambliss, K. (2021) "Lawmakers Should Avoid Impulse to Tax All Stock Trades." *RealClear Politics* (February 7).

Coy, P. (2021) "Warren Buffett's Cautious Road to Riches Isn't Ideal for Society." *Bloomberg* (March 11).

Eaton, G. W.; Green, T. C.; Roseman, B.; and Wu, Y. (2021) "Zero-Commission Individual Investors, High Frequency Traders, and Stock Market Quality." *SSRN* (February 1).

FINRA (2021) "Investing 2020: New Accounts and the People Who Opened Them." *Consumer Insights: Money and Investing* (February).

Fitzgerald, M. (2020a) "Follow Robinhood Traders? Amateurs' Favorite Stocks Are Beating Hedge Fund Picks, Goldman Says." *CNBC* (June 15).

__________ (2020b) "Robinhood Traders Nailed the Market Bottom, Debunking Theory Retail Investors Are the Dumb Money." *CNBC* (June 15).

__________ (2020c) "Massachusetts Secretary of Commonwealth Galvin Says Robinhood Is a Reckless Company Gamifying Investing." *CNBC* (December 16).

Friedman, H. L., and Zeng, Z. (2021) "Retail Investor Trading and Market Reactions to Earnings Announcements." *SSRN* (April 8).

Gensler, G. (2021) "Testimony of Gary Gensler, Chair, Securities and Exchange Commission, before the House Committee on Financial Services" (May 6). Available at https://financialservices.house.gov/uploadedfiles/hhrg-117-ba00-wstate-genslerg-20210506.pdf.

Greifeld, K., and Ballentine, C. (2021) "GameStop Mania Is Delivering a Dangerous Rush to the Reddit Mob." *Bloomberg* (January 30).

Khan, R. (2021) "Social Media Fueled Stock Market Trading: The Unsuspecting Need To Be Protected." *Forbes* (March 8).

Lee, A. H. (2021) "Letter to the Honorable Elizabeth Warren." *Securities and Exchange Commission* (February 25). Available at www.warren.senate.gov/imo/media/doc/Warren%20-%20GameStop%20-%20ES159891%20Response.pdf.

Liffreing, I. (2021) "Michael Bolton Croons a Breakup Song for Investing App Public.com, Following Robinhood and Reddit Fiasco." *AdAge* (February 24).

Macey, J. R. (2021) "Securities Regulation as Class Warfare." *Columbia Business Law Review* (forthcoming).

Matthews, C. (2021) "As Robinhood IPO Nears, Critics Say App Design Includes 'Subliminal Messages' to Make Users Trade More." *MarketWatch* (March 25).

Maverick, J. B. (2020) "What Is the Average Annual Return for the S&P 500?" *Investopedia* (February 19).

McCabe, C. (2021) "Individual Investors Retreat from Markets after Show-Stopping Start to 2021." *Wall Street Journal* (April 4).

Mihm, S. (2020) "The Death of Brokerage Fees Was 50 Years in the Making." *Bloomberg* (January 3).

Newmyer, T., and Denham, H. (2021) "GameStop and Other Stocks Targeted by Reddit Users Plummet." *Washington Post* (January 28).

Osipovich, A. (2020) "Individual-Investor Boom Reshapes U.S. Stock Market." *Wall Street Journal* (August 31).

__________ (2021a) "GameStop Mania Drives Scrutiny of Payments to Online Brokers." *Wall Street Journal* (February 4).

__________ (2021b) "GameStop Frenzy Emboldens Supporters of Stock-Trading Tax." *Wall Street Journal* (March 7).

Ozik, G.; Sadka, R.; and Shen, S. (2020) "Flattening the Illiquidity Curve: Retail Trading during the COVID-19 Lockdown." *SSRN* (February 10).

Phillips, M., and Lorenz, T. (2021) "'Dumb Money' Is on GameStop, and It's Beating Wall Street at Its Own Game." *New York Times* (January 27).

Saad, L. (2019) "What Percentage of Americans Own Stock?" *Gallup* (September 13). Available at https://news.gallup.com/poll/266807/percentage-americans-owns-stock.aspx.

Schulp, J. J. (2021a) "Testimony of Jennifer J. Schulp, before the U.S. House Committee on Financial Services" (February 18). Available at www.cato.org/testimony/game-stopped-who-wins-loses-when-short-sellers-social-media-retail-investors-collide.

__________ (2021b) "The Trading Game." *The Regulatory Review* (May 3). Available at www.theregreview.org/2021/05/03/schulp-trading-game.

Siblis Research (2021) "Total Market Value of U.S. Stock Market." *Siblis Research Database*. Available at https://siblisresearch.com/data/us-stock-market-value.

SIFMA (2021a) "Gauging the New Normal for Volatility, Volumes, Market Levels and Retail Investor Participation." *SIFMA Insights* (May).

__________ (2021b) "Who Owns Stocks in America." *SIFMA Insights* (February).

Swanson, S. (2020) "The Impact of Zero Commissions on Retail Trading and Execution." *Greenwich* (February 25). Available at www.greenwich.com/equities/impact-zero-commissions-retail-trading-and-execution.

Tappe. A. (2021) "Dow Surges as Stocks Recover from GameStop Mania." *CNN* (February 2).

Wang, L. (2021) "GameStop Short Nightmare Shows Few Signs of Becoming a Contagion." *Bloomberg* (January 31).

Welch, I. (2020) "The Wisdom of the Robinhood Crowd." NBER Working Paper No. 27866 (December).

Williams, A., and Young, E. (2021) "New Research: Global Pandemic Brings Surge of New and Experienced Retail Investors into the Stock Market." *FINRA Media Center* (February 2).

YCharts. (2021) "GameStop Corp (GME)." *YCharts Data*. Available at https://ycharts.com/companies/GME/market_cap.

Yerak, B., and Scurria, A. (2021) "Hedge Funds Back Day Traders' Bet on Hertz. It's 'In the Money.'" *Wall Street Journal* (April 1).