MEME INVESTORS AND RETAIL RISK

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Abstract: Dramatic trading in GameStop, AMC, and other "meme stocks" in early 2021 reignited debates about how efficient the stock market is, its purposes, and whose interests it should serve. Although understanding meme and retail trading is critical to evaluating responses to these recent trading episodes, rigorous study is still needed. This Article joins the call to thoroughly analyze the changing role of retail investors and their interaction with information, price discovery, and stock markets. First, this Article evaluates meme investing trends to frame important insights into broader retail investing patterns. Rather than engaging in idiosyncratic trades that cancel each other out in aggregate, this Article demonstrates that today's retail trades are increasingly sticky and may predict future stock price movements. Second, this Article reengages and updates the theoretical understanding of the interaction between retail investors and market prices. A careful evaluation of today's retail trading behavior and its effects on market prices leads to this Article's central insight: the influx of retail investors—either intentionally or unintentionally coordinated in their trading—introduces coordinated retail risk. This overlooked form of risk arises due to the growing potential for retail trades to impact or predict future price movements, irrespective of the information content of those trades. By categorizing retail investors as coordinated uninformed retail investors, coordinated informed retail investors, and coordinated meme investors, and evaluating responses by other market participants, this Article illuminates the harms and benefits of today's retail trading, details its impact on market efficiency, and clarifies the need for regulatory responses.

INTRODUCTION

Dramatic trading in GameStop, AMC, and other "meme stocks" in early 2021 reignited debates about the efficiency of the stock market, its purposes,

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and whose interests it should serve.[1] The changing role of retail investors and meme investors, which are a subset of retail investors that were involved in stock rallies fueled by social media, has raised questions around their need for protection by regulatory agencies.[2] These questions are increasingly urgent because retail trading is more active and robust than ever before.[3]

Calls for regulation usually reduce the role of retail investors by either dismissing retail investors as victims of suspect trading practices or, more recently, vilifying them as perpetrators of market instability.[4] Both conceptions oversimplify and fail to consider the nuanced and important ways in which retail and meme traders increasingly affect stock prices. This failure has resulted in regulation that does little to incentivize better trading behavior, "maintain fair, orderly, and efficient markets," or protect vulnerable market participants.[5]

Some of the confusion stems from the tendency to conflate retail investors with meme investors. This conflation masks important differences. For one, meme trading is just one subset of retail trading, whereas retail investors,

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[1] *See, e.g.*, The Journal, *To the Moon*, *Part 5: The Comedown*, WALL ST. J., at 5:15–33:58 (June 20, 2021), https://www.wsj.com/podcasts/the-journal/to-the-moon-part-5-the-comedown/5a297fee-3b7d-413a-87d3-274d140cbfc6 [https://perma.cc/B4K8-CVUD]; John C. Coffee, Jr., *Game Over: How Best to Regulate Betting on Wall Street*, CLS BLUE SKY BLOG (Feb. 8, 2021), https://clsbluesky.law.columbia.edu/2021/02/08/game-over-how-best-to-regulate-betting-on-wall-street/ [https://perma.cc/T388-LDEF]; VAL SRINIVAS & JILL GREGORIE, DELOITTE CTR. FOR FIN. SERVS., THE RISE OF NEWLY EMPOWERED RETAIL INVESTORS: HOW THEY'RE CHANGING CUSTOMER EXPECTATIONS AND INVESTING DYNAMICS 1–2 (2021), https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-the-rise-of-newly-empowered-retail-investors-2021.pdf [https://perma.cc/7X9N-YARK]; U.S. SEC. & EXCH. COMM'N, STAFF REPORT ON EQUITY AND OPTIONS MARKET STRUCTURE CONDITIONS IN EARLY 2021, at 15–43 (2021), https://www.sec.gov/files/staff-report-equity-options-market-struction-conditions-early-2021.pdf [https://perma.cc/4EU2-QD4N]; *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III: Virtual Hearing Before the H. Comm. on Fin. Servs.*, 117th Cong. 89–95 (2021) [hereinafter *GameStop Hearings*] (statement of Gary Gensler, Chairman, U.S. Sec. & Exch. Comm'n).

[2] *See* Dave Michaels, *GameStop Saga Prompts SEC to Weigh Review of Payment for Order Flow*, WALL ST. J. (Mar. 9, 2021) [hereinafter *Review of Payment for Order Flow*], https://www.wsj.com/articles/gamestop-saga-prompts-sec-to-weigh-review-of-payment-for-order-flow-11615316739 [https://perma.cc/GVC8-2FWY]; Michael Piwowar, Opinion, *It's T-0 to Go Faster Than T+2*, WALL ST. J. (Feb. 24, 2021), https://www.wsj.com/articles/its-t-0-to-go-faster-than-t-2-11614207705 [https://perma.cc/KC7B-QNTQ]; Dave Michaels, *GameStop Mania Is Focus of Federal Probes into Possible Manipulation*, WALL ST. J. (Feb. 11, 2021), https://www.wsj.com/articles/gamestop-mania-is-focus-of-federal-probes-into-possible-manipulation-11613066950 [https://perma.cc/FZJ8-7YVK]; Tucker Higgins, *Lawmakers from AOC to Ted Cruz Are Bashing Robinhood Over Its GameStop Trading Freeze*, CNBC (Jan. 28, 2021), https://www.cnbc.com/2021/01/28/gamestop-cruz-ocasio-cortez-blast-robinhood-over-trade-freeze.html [https://perma.cc/7XLQ-ELJH].

[3] *See* Jennifer J. Schulp, *GameStop and the Rise of Retail Trading*, 41 CATO J. 511, 514–15 (2021).

[4] *See, e.g.*, *GameStop Hearings*, *supra* note 1, at 89–95.

[5] *See* U.S. SEC. & EXCH. COMM'N, *supra* note 1, at 4 ("The Commission's mission is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation.").

broadly, are investors who directly trade in stock for individual accounts.[6] Meme investors involved in stock rallies fueled by social media, such as the rallies in GameStop and AMC stock, are distinguishable from generic retail investors.[7] Meme traders exhibit risk-seeking characteristics akin to gambling, seeking high-volatility stocks and often treating the stock market as a lottery.[8] This Article will refer to these two groups of investors accordingly.

Current debates largely overlook the interaction between meme and retail trading. Understanding this relationship is critical in evaluating responses to recent trading episodes and leads to this Article's central insight: the influx of retail investors—either intentionally or unintentionally coordinated in their trading—has introduced an overlooked form of risk to other market participants, which I call "coordinated retail risk."

Coordinated retail risk arises from the growing potential for retail trades to impact or predict future price movements. That potential stems from the increasing stickiness of retail trading, as retail traders are more numerous and more coordinated than ever before. Throughout this Article, references to "coordinated" trading will include both unintentional coordination, such as that which occurs through herding, as well as intentional coordination, for example, coordination through social media. Moreover, coordinated retail risk exists irrespective of the actual information content of retail trades. The likelihood that a single retail trade contains fundamental information about future stock prices may not have changed. Yet, the likelihood that *many* coordinated retail trades will tend to predict or impact future prices has increased.

This Article's contribution is twofold. First, it carefully evaluates contemporary retail trading patterns and assesses the resulting impact on stock prices and other market participants' behavior. This Article demonstrates that recent *meme investing* reveals the important but underappreciated way in which today's *retail investors* interact with and affect stock prices. Today's retail trades are increasingly sticky, or more likely to impact or predict future price movements—irrespective of their information content—as compared to idiosyncratic trades that tend to cancel each other out in aggregate. This is because today's retail traders are more numerous and coordinated than ever, have more direct

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[6] *See* Adam Hayes, *Retail Investor*, INVESTOPEDIA (Feb. 17, 2021), https://www.investopedia.com/terms/r/retailinvestor.asp [https://perma.cc/S2ZD-7NJH] (defining retail investors as "non-professional market participants who generally invest smaller amounts than larger, institutional investors"). Retail investors are generally distinguished from institutional investors, who trade for institutional accounts. *See* Donald C. Langevoort, *The SEC, Retail Investors, and the Institutionalization of the Securities Markets,* 95 VA. L. REV. 1025, 1025 (2009).

[7] The Journal, *supra* note 1.

[8] *See, e.g.*, Caitlin McCabe, *It Isn't Just AMC. Retail Traders Increase Pull on the Stock Market*, WALL ST. J. (June 18, 2021), https://www.wsj.com/articles/it-isnt-just-amc-retail-traders-increase-pull-on-the-stock-market-11624008602 [https://perma.cc/A6B7-CJMX].

market access, and use new, low-cost trading technology that promotes social aspects of trading.

Although retail investors primarily invested in diversified funds rather than individual equities throughout the 2000s and much of the 2010s, that trend has recently reversed.[9] Low-cost coordination, usually through social media or social trading platforms, spurred retail trading power. Social media substantially expanded retail investors' access to information and dramatically lowered their costs of acquiring information through investing sites ranging from SeekingAlpha.com to Reddit.com.[10] Investors join online communities for a sense of camaraderie and to take part in social movements and cultural protest.[11] Today's retail trading platforms significantly lower the costs of trading, while promoting social, coordinated trading, even encouraging retail investors to copy each other's portfolios.[12] Cognitive biases and phenomena such

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[9] *See* Jill E. Fisch, *GameStop and the Reemergence of the Retail Investor*, 102 B.U. L. REV. (forthcoming Oct. 2022) (manuscript at 3), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4049896 [https://perma.cc/KVC9-5CMC]; James Fallows Tierney, *Investment Games,* 72 DUKE L.J. (forthcoming 2022–2023) (manuscript at 13–15), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3916407 [https://perma.cc/64JT-4MR8] (noting that retail traders owned substantial portions of stock during the 1970s, but moved into diversified funds during the following decades). Retail traders have since moved back to owning large amounts of individual equities. *See* Tierney, *supra* (manuscript at 14).

[10] *See* Claudia Biancotti & Paolo Ciocca, *Financial Markets and Social Media: Lessons from Information Security* 1–2 (Carnegie Endowment for Int'l Peace, Working Paper No. 10, 2021); Enrique A. Gomez, Frank Heflin, James R. Moon, Jr. & James D. Warren, *Financial Analysis on Social Media and Disclosure Processing Costs: Evidence from Seeking Alpha* 1 (Ga. Tech. Scheller Coll. Bus., Rsch. Paper No. 18-45, 2022).

[11] *See* John P. Anderson, Jeremy Kidd & George A. Mocsary, Essay, *Social Media, Securities Markets, and the Phenomenon of Expressive Trading*, 25 LEWIS & CLARK L. REV. 1223, 1233–34 (2022) (citations omitted). During the GameStop short squeeze, Redditors repeatedly invoked a narrative that pitted everyday mom and pop investors (and their children) against the hedge funds and short sellers of Wall Street. *Id.* at 1234 (citing Kat Lonsdorf, *How the Financial Crisis of 2008 Appeared in the GameStop Trading Frenzy*, NPR (Feb. 8, 2021), https://www.npr.org/2021/02/08/965563614/how-the-financial-crisis-of-2008-appeared-in-the-gamestop-trading-frenzy [https://perma.cc/WS4B-7LRR]). Redditors believed that Wall Street needed to be punished for decades of inflicting losses upon ordinary Americans. *Id.* The Redditors' most common narrative involved the 2008 housing crash, where the government rushed to rescue banks and Wall Street but left ordinary Americans to shoulder catastrophic losses. *See id.* (first quoting Jedidajah Otte, *'Sending a Message':GameStop Investors on Why They Bought Shares,* THE GUARDIAN (Jan. 28, 2021), https://www.theguardian.com/business/2021/jan/28/sending-a-message-gamestop-investors-on-why-they-bought-shares [https://perma.cc/K953-YCGP]; and then citing Matt Phillips, *Short Squeeze: What Exactly Is Going on at GameStop*, IRISH TIMES (Jan. 29, 2021), https://www.irishtimes.com/business/markets/short-squeeze-what-exactly-is-going-on-at-gamestop-1.4470952 [https://perma.cc/SAD9-7L9M]). *See generally* Matt Phillips & Taylor Lorenz, *'Dumb Money' Is on GameStop, and It's Beating Wall Street at Its Own Game*, N.Y. TIMES, https://www.nytimes.com/2021/01/27/business/gamestop-wall-street-bets.html [https://perma.cc/C268-FB5S] (Oct. 18, 2021) (highlighting one individual's "sense of frustration at how well those in the financial sector have done since the financial crisis of 2008").

[12] *See, e.g.*, PUBLIC, https://public.com/about-us [https://perma.cc/X2QA-H5PU] (referring to Public.com as "a community of millions of investors, creators, and analysts"); ZULUTRADE, https://

as herding, known for decades to affect the investing decisions of all traders, have also been exacerbated, amplifying price impact.[13]

These insights are important because retail trading has traditionally been thought to have little effect on prices, markets, and the behavior of other traders. Even less attention has been paid to the consequences of impactful retail trading on market structure.

This Article's second contribution is its evaluation of the impact of coordinated retail risk on the mechanisms of market efficiency and its reengagement and updating of the theoretical understanding of the interaction between retail investors and stock prices. This Article maps retail investors into three categories: coordinated uninformed retail investors, coordinated informed retail investors, and coordinated meme investors. Then, this Article evaluates responses to coordinated retail risk by other market participants, including informed traders and liquidity suppliers.

By itself, coordinated retail risk reduces the profitability of other forms of socially beneficial trading, such as fundamental informed trading, because it drives a wedge between fundamental information about an underlying issuer and the issuer's stock price. Reduced profitability lowers the incidence of socially beneficial trading, reducing price accuracy and weakening market mechanisms that further optimal capital allocation and efficiency. Coordinated retail risk can also reduce liquidity by contributing to wider bid-ask spreads. This is because liquidity suppliers—that is, those who intermediate trades by buying from traders wishing to sell and selling to traders wishing to buy—anticipate greater losses to retail traders whose trades predict future price movements,

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www.zulutrade.com/ [https://perma.cc/2DR5-YLE3] ("Copy Top Performing Traders from different Brokers easily and reach your investment goals!"); FX JUNCTION, https://www.fxjunction.com/ [https://perma.cc/EDC4-Q7Q4] ("Become a Signal Provider to earn extra money or AutoCopy signals of our best performing members."); *see also* Christine Hall, *Public vs. Robinhood: Competitors Target Hottest Retail Trading App*, CRUNCHBASE NEWS (Feb. 18, 2021), https://news.crunchbase.com/news/public-vs-robinhood-competitors-take-aim-at-biggest-retail-trading-app/ [https://perma.cc/L99Z-894Q] (detailing Robinhood's competition in the stock-trading app market).

[13] *See generally, e.g.*, Sushil Bikhchandani & Sunil Sharma, *Herd Behavior in Financial Markets: A Review*, 47 IMF STAFF PAPERS 279 (2001) (detailing the effect that herd behavior has on the market); Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979) (laying out prospect theory for decision-making under risk). Robinhood, the most popular trading platform for retail investors, has come under significant scrutiny for the "gamification" of investing; for example, Robinhood previously displayed confetti animations to celebrate a trade. *See* Michael Wursthorn & Euirim Choi, *Does Robinhood Make It Too Easy to Trade? From Free Stocks to Confetti*, WALL ST. J., https://www.wsj.com/articles/confetti-free-stocks-does-robinhoods-design-make-trading-too-easy-11597915801 [https://perma.cc/9H34-93E6] (Aug. 20, 2020). Robinhood has since agreed to remove the confetti animation. Caitlin McCabe, *Robinhood to Remove Controversial Digital Confetti from Trading App*, WALL ST. J. (Mar. 31, 2021), https://www.wsj.com/articles/robinhood-to-remove-controversial-digital-confetti-from-trading-app-11617195612 [https://perma.cc/23HT-4QFN].

irrespective of those trades' actual information content. Thus, if not countered by the overall injection of liquidity provided by retail investors, the cost of trading increases for all market participants.

Whether today's retail trading ultimately helps or hurts the mechanisms of market efficiency depends on the type and amount of retail trading. It also depends on whether any negative effects caused by coordinated retail risk are counterbalanced by other benefits, including those from increased retail participation in the stock market.

The implications of coordinated retail investing are wide-ranging. Longer, more sustained episodes of mispricing may occur, as coordinated uninformed retail trades reduce the effectiveness of trades that seek to correct mispricing, thereby reducing the incentive to engage in such corrective trades. A fear of short-term losses has already reduced the number of short sellers who are willing to bet against meme stocks (and even some stocks popular with retail investors more broadly, such as Tesla), especially when retail motivations are not sensitive to changes in information about the underlying issuer.[14] It is well-established that a reduction in short sellers may lead to inflated share prices.[15] Through these and other mechanisms, as a result of uninformed meme and retail pricing, prices may remain less accurate for longer periods of time.[16]

Coordinated retail risk may also impact the mechanisms by which stock prices provide important signals to managers and help allocate resources in the economy. Stock prices play a critical role in corporate governance, from acting as a proxy for information about a company and its investment projects to signaling market reactions to its governance and management.[17] Coordinated retail investors also stand to affect stock prices keyed to, for example, shareholder litigation and index fund composition. Securities class actions depend on the fraud-on-the-market theory, which assumes that stocks trade in an efficient

[14] *See* Anna Hirtenstein, *Meme Stocks' Latest Frenzy Isn't About a Short Squeeze*, WALL ST. J. (June 11, 2021), https://www.wsj.com/articles/meme-stocks-latest-frenzy-isnt-about-a-short-squeeze-11623410018 [https://perma.cc/L7LK-8ZAV].

[15] *See* MERRITT B. FOX, LAWRENCE R. GLOSTEN & GABRIEL V. RAUTERBERG, THE NEW STOCK MARKET: LAW, ECONOMICS, AND POLICY 242–44 (2019) [hereinafter NEW STOCK MARKET] (describing two ways in which "[t]he free availability of short selling can improve share price accuracy"); Peter Molk & Frank Partnoy, *The Long-Term Effects of Short Selling and Negative Activism*, 2022 U. ILL. L. REV. 1, 53 (citing Peter Molk & Frank Partnoy, *Institutional Investors as Short Sellers?*, 99 B.U. L. REV. 837, 859–62 (2019)).

[16] *See* NEW STOCK MARKET, *supra* note 15, at 242–44 (citations omitted); *see also* Nicola Fusari, Robert Jarrow & Sujan Lamichhane, *Testing for Asset Price Bubbles Using Options Data* 1, 4 (Johns Hopkins Carey Bus. Sch., Rsch. Paper No. 20-12, 2022) (finding that pricing bubbles tend to be "associated with large volatility, large trading volume, and earning announcement days").

[17] *See* NEW STOCK MARKET, *supra* note 15, at 33–55 (discussing various ways in which more accurate stock prices influence corporate governance decisions).

market where public information about an issuer affects its stock price.[18] Appraisal actions that evaluate the fair value of a security during mergers and acquisitions also depend on stock prices.[19] A company's ability to raise capital is tied to its stock price.[20] Indices such as the Russell 1000, 2000, or 3000 that contain meme stocks may see dramatic swings in valuation, creating costly implications for funds and investments with billions of dollars pegged to those indices.[21] Opportunities may also arise for impact investing by retail investors, and retail investors may increasingly play larger roles in shareholder governance.[22]

The remainder of this Article proceeds as follows. Part I discusses the growing influence of retail investors.[23] Part II evaluates the impact of different forms of retail behavior and lays out the central insight: that retail and meme investors create coordinated retail risk.[24] Part III discusses broader market implications.[25] Finally, Part IV considers the path forward.[26] A brief conclusion follows.[27]

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[18] *See* Menesh Patel, *Fraud on the Cryptomarket*, HARV. J.L. TECH. 24–28 (forthcoming Jan. 2023); Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. 258, 272, 277 (2014).

[19] *See generally* Albert H. Choi & Eric L. Talley, *Appraising the 'Merger Price' Appraisal Rule*, 34 J.L. ECON. & ORG. 543, 543 (2018) (discussing the practice of using merger price to determine fair value in an appraisal proceeding); Guhan Subramanian, *Appraisal After* Dell (discussing the relationship between deal price and fair value), *in* THE CORPORATE CONTRACT IN CHANGING TIMES: IS THE LAW KEEPING UP? (Steven Davidoff Solomon & Randall Stuart Thomas eds., 2019).

[20] *See, e.g.*, Press Release, AMC Theatres Investor Relations, AMC Raises $917 Million of Fresh Investment Capital Since Mid-December of 2020 (Jan. 25, 2021), https://investor.amctheatres.com/newsroom/news-details/2021/AMC-Raises-917-Million-of-Fresh-Investment-Capital-Since-Mid-December-of-2020/default.aspx [https://perma.cc/2JXF-RUCW].

[21] *See* Kristine Owram, *Russell 2000 Swells; Investors Await Update on AMC, GameStop*, BLOOMBERG, https://www.bloomberg.com/news/articles/2021-06-05/russell-2000-swells-investors-await-update-on-amc-and-gamestop [https://perma.cc/E8J9-SSYG] (June 6, 2021); Sam Potter & Claire Ballentine, *AMC Drama Is Exposing Risks in $11 Trillion World of Indexing*, BLOOMBERG, https://www.bloomberg.com/news/articles/2021-06-05/amc-drama-is-exposing-risks-in-11-trillion-world-of-indexing [https://perma.cc/BN2D-NC5V] (June 5, 2021); Gunjan Banerji & Michael Wursthorn, *You May Own AMC Stock After Its 2,850% Gain and Not Even Know It*, WALL ST. J. (June 2, 2021), https://www.wsj.com/articles/amc-rally-accelerates-as-stock-price-more-than-doubles-11622656821 [https://perma.cc/7QGS-QR5U].

[22] *See, e.g.*, Sergio Alberto Gramitto Ricci & Christina M. Sautter, *Corporate Governance Gaming: The Collective Power of Retail Investors*, 22 NEV. L.J. 51, 86 (2021).

[23] *See infra* notes 28–112 and accompanying text.

[24] *See infra* notes 113–180 and accompanying text.

[25] *See infra* notes 181–270 and accompanying text.

[26] *See infra* notes 271–312 and accompanying text.

[27] *See infra* Conclusion.

I. WHAT MEME TRADING REVEALS ABOUT RETAIL TRADING

Traditional models of price discovery deem retail investors largely unable to affect price.[28] The conventional understanding is that most retail investors are uninformed traders who make trading decisions in idiosyncratic, individual ways.[29] It follows that, taken as a group, retail investors are just as likely to be buying or selling in any given moment, which means that, in aggregate, their trades tend to cancel each other out.[30]

But this understanding fails to fully explain recent trading and pricing phenomena. Retail investors today are less likely to act idiosyncratically. These investors are not necessarily just as likely to buy as they are to sell, such that their trades would cancel each other out in aggregate. Instead, retail investors increasingly coordinate their behavior through trading and following news platforms that encourage "social trading."[31] As a result, their trading is stickier and sustains a greater impact on prices.

This Part argues that today's investors are pioneering new technology and trading behaviors as well as solidifying retail investing trends that existed for years.[32] Section A describes recent meme stock trading episodes.[33] Section B examines the ways in which today's retail investors access information and trade.[34] Section C provides an analysis of coordination amongst these traders.[35] Section D details the role social tech plays in retail trading.[36] Section E discusses heuristic-based trading through modern trading technology.[37] Section F then demonstrates the important but overlooked ways that retail investors, not just meme investors, impact stock prices.[38] Lastly, Section G details how meme trading reveals long standing trends in retail trading.[39]

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[28] NEW STOCK MARKET, *supra* note 15, at 62.

[29] *Id.* An individual investor's need to pay an upcoming bill presents an example of an idiosyncratic, potentially uninformed reason to buy or sell stock. *Id.*

[30] *Id.* at 67.

[31] *See* Iris ten Teije, *The Rise and Evolution of Social Investing*, FORBES (Feb. 17, 2022), https://www.forbes.com/sites/forbesfinancecouncil/2022/02/17/the-rise-and-evolution-of-social-investing/?sh=29c9b8f462cc [https://perma.cc/5D8P-TM6S].

[32] *See infra* notes 33–112 and accompanying text.

[33] *See infra* notes 40–50 and accompanying text.

[34] *See infra* notes 51–58 and accompanying text.

[35] *See infra* notes 59–66 and accompanying text.

[36] *See infra* notes 67–75 and accompanying text

[37] *See infra* notes 76–92 and accompanying text.

[38] *See infra* notes 93–109 and accompanying text.

[39] *See infra* notes 110–112 and accompanying text.

A. "GameStonk!!"[40]

Beginning in early 2021, certain "meme" stocks experienced dramatic price swings fueled by coordinated retail investors on Reddit: GameStop,[41] Bed Bath & Beyond, Koss Corporation, Naked Technologies, AMC,[42] Black-

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[40] Elon Musk (@elonmusk), TWITTER (Jan. 26, 2021, 4:08 PM), https://twitter.com/elonmusk/status/1354174279894642703?lang=en [https://perma.cc/3UDV-TXVG]. This is a tweet that Elon Musk sent out on January 26, 2021. *Id.* GME (GameStop's stock ticker) soared around 40% on that tweet alone. "Stonk" is a common way that stocks are referred to on Reddit.

[41] GameStop provides a paradigmatic example. For most of 2020, the share price of GameStop (GME), a brick-and-mortar video game retailer many thought obsolete, was trading between $4 and $5. In early January 2021, the share price had reached about $19, a rise that many considered meteoric and unjustified. Then, over three days, from January 12 to January 15, 2021, GME jumped from $19 to $38. A week later, between January 21 and January 25, 2021, the price soared from $39 to $97. And then, between January 25 and January 29, 2021, GME skyrocketed, at one point touching a high of $483. A week later, it hit lows of $53. *See* GameStop Corp. (GME), YAHOO! FIN., https://finance.yahoo.com/quote/GME?p=GME [https://perma.cc/TXB3-KZEY]. GME crashed in large part due to Robinhood's sudden prohibition on trading various meme stocks, including GameStop. *See* Megan Leonhardt, *Robinhood Now Faces Roughly 90 Lawsuits After GameStop Trading Halt—Here's How Customers Might Actually Get Their Day in Court*, CNBC, https://www.cnbc.com/2021/02/17/robinhood-faces-lawsuits-after-gamestop-trading-halt.html [https://perma.cc/ZJ72-98K6] (Aug. 31, 2021). Robinhood investors' high volume of trading, especially in options, triggered large margin calls by the National Securities Clearing Corporation. *See* Jeff John Roberts, *The Real Story Behind Robinhood's Decision to Restrict GameStop Trading—and That 4 A.M. Call to Put Up $3 Billion*, FORTUNE (Feb. 2, 2021), https://fortune.com/2021/02/02/robinhood-gamestop-restricted-trading-meme-stocks-gme-amc-vlad-tenev-nscc/ [https://perma.cc/5N7N-DHTM]. Robinhood, unlike large banks such as JPMorgan Chase, did not have sufficient cash on hand. *Id.* Instead, it halted trading on its app to ensure its ability to meet its clearing requirements. *Id.*

The rules around clearing and settlement are designed to protect the security and certainty of trading in the United States. But retail investors did not see it that way. A backlash against Robinhood ensued, and users of the r/wallstreetbets subreddit filled Reddit with posts about switching trading platforms and joining Fidelity or TD Ameritrade, which did not restrict trading in any of the "meme" stocks. *See, e.g.*, u/reddefense, *Robinhood Is Toast....Fidelity Massive Transfer Volume*, REDDIT (Jan. 31, 2021), https://www.reddit.com/r/wallstreetbets/comments/l9of92/robinhood_is_toastfidelity_massive_transfer_volume/ [https://perma.cc/UCG5-UY2Y]; u/uwillmire, *Like This Post if You Are Holding!! The Real Squeeze Is Yet to Happen*, REDDIT (Jan. 28, 2021), https://www.reddit.com/r/wallstreetbets/comments/l71fl1/like_this_post_if_you_are_holding_the_real/ [https://perma.cc/F6ZV-3WDV] (listing trading platforms on which retail investors could trade meme stocks after the Robbinhood restrictions). Redditors also heavily criticized the practice of "payment for order flow." Payment for order flow refers to the process by which retail brokers sell retail order flow to internalizers such as Citadel. *See, e.g.*, *Review of Payment for Order Flow*, *supra* note 2. This raises concerns about conflicts of interest. *See* Juliet Chung, *Melvin Capital Lost 53% in January, Hurt by GameStop and Other Bets*, WALL ST. J., https://www.wsj.com/articles/melvin-capital-lost-53-in-january-hurt-by-gamestop-and-other-bets-11612103117 [https://perma.cc/9WA5-9PKV] (Jan. 31, 2021).

In early March 2021, GameStop surged once more to reach an intraday high of $348.50, a rise of roughly 800% over its value of around $40 two weeks prior. Throughout the rest of 2021, its share price hovered between $150 and $300. *See* GameStop Corp. (GME), *supra*.

[42] AMC, a large movie theater chain, provides another high-profile example. After collapsing in early 2020 due to COVID-19, AMC's share price spent most of 2020 trading in between $2 and $5. AMC), YAHOO! FIN., https://finance.yahoo.com/quote/AMC/ [https://perma.cc/JFV3-35XZ]. In 2021, it experienced a similar surge to GameStop, fueled by Redditors with the campaign #SaveAMC, even-

berry, Nokia, Clover Health, and Wendy's, among many others.[43] Frictionless, zero-commission trading, fractional trading capabilities, the gamification of investing, and the ability to invest in social ways, among other catalysts, including the desire to "squeeze" short sellers of these stocks, fueled these rallies.[44]

More broadly, retail investors cemented themselves as a sector with growing market power.[45] Retail trading volume, by some accounts, reached that of mutual funds and hedge funds combined, growing from roughly fifteen to eighteen percent of all trades in early 2020 to thirty percent of all trades by early 2021.[46] Retail traders now own significant portions of certain companies, owning upwards of eighty percent of AMC's stock, and more than thirty percent of Tesla.[47] Companies such as Costco and Apple also see significant retail

tually trading around $50 and touching a high of $72.62 in June 2021. *See* Alexander Gladstone, *How Reddit Renegades Helped Theater Giant AMC Avoid a Tragic Ending*, WALL ST. J., https://www.wsj.com/articles/how-reddit-renegades-helped-theater-giant-amc-avoid-a-tragic-ending-11614358803 [https://perma.cc/Q627-V2PL] (Feb. 26, 2021). It then hovered in the $30 to $40 range for the rest of 2021. With this campaign, so-called meme investors arguably "rescued" AMC from bankruptcy. *See id.*

[43] *See, e.g.*, Matt Turner, *A Meme Stock Is Born: How to Spot the Next Reddit Favorite*, BLOOMBERG (June 13, 2021), https://www.bloomberg.com/news/articles/2021-06-13/a-meme-stock-is-born-how-to-spot-the-next-reddit-favorite [https://perma.cc/S5LT-EQLW]; Erin Griffith, *No End to Whiplash in Meme Stocks, Crypto and More*, N.Y. TIMES, https://www.nytimes.com/2021/06/23/technology/no-end-to-whiplash-in-meme-stocks-crypto-and-more.html [https://perma.cc/4PC6-GXP6] (Nov. 8, 2021). *See generally WSB's Hottest Meme Stocks: "Wisdom" of the Crowd*, MEME STOCK TRACKER (Feb. 21, 2022), https://memestocks.org/ [https://perma.cc/USE5-HEN5] (listing stocks that are mentioned on r/wallstreetbets).

[44] Meme traders came together through online chat forums, most notably on r/wallstreetbets, and identified firms with a significant amount of short seller interest (i.e., a significant number of borrowed shares that had already sold, which would subsequently need to be purchased at prevailing market prices). This made short sellers vulnerable to a "short squeeze." In a short squeeze, traders hope that once the short seller needs to cover (or purchase the stock in the market), the stock price will have dropped below the price at which the short seller sold the borrowed shares. If a stock's price fails to drop, and instead rises, at some point, the short seller will need to cover to meet margin requirements or return the shares to the entity from which they were borrowed. A short squeeze is triggered when short sellers cannot cover at lower prices and rush to purchase the stock, seeking to cover before other short sellers do. This buying pressure pushes the stock price up, which triggers additional short sellers to cover and pushes the stock price up more. Most prominently, a hedge fund, Melvin Capital, lost approximately 50% of its value during the first GameStop short squeeze. *See, e.g.*, Katie Martin & Robin Wigglesworth, *Rise of the Retail Army: The Amateur Traders Transforming Markets*, FIN. TIMES (Mar. 9, 2021), https://www.ft.com/content/7a91e3ea-b9ec-4611-9a03-a8dd3b8bddb5 [https://perma.cc/SL5R-CWXC]; Phillips & Lorenz, *supra* note 11; Pippa Stevens & Leslie Picker, *Melvin Capital, Hedge Fund That Bet Against GameStop, Lost More Than 50% in January*, CNBC, https://www.cnbc.com/2021/01/31/melvin-capital-lost-more-than-50percent-after-betting-against-gamestop-wsj.html [https://perma.cc/4FTY-RK5S] (Jan. 31, 2021).

[45] *See* Martin & Wigglesworth, *supra* note 44.

[46] Ricci & Sautter, *supra* note 22, at 73.

[47] Alex Morrell, *How AMC CEO Adam Aron Conquered Twitter, Embraced the 'Apes' of Reddit, and Won Over a New Generation of Investors*, BUS. INSIDER (Dec. 14, 2021), https://www.businessinsider.com/amc-adam-aron-twitter-reddit-investors-meme-stock-2021-12 [https://perma.cc/6JJP-

ownership, with retail investors owning roughly thirty percent of Costco[48] and forty-three percent of Apple.[49]

Meme trading episodes raise a question about whether meme-fueled price swings are simply temporary episodes of noise or whether they reflect deeper shifts in the way that retail trading interacts with stock prices.[50] The following Sections explore this question, evaluating trading behavior pioneered by meme investors as well as clarifying what meme trading reveals about broader retail trading trends: that today's retail trading is increasingly coordinated.

B. Information and Market Access

At the broadest level, two key shifts in retail trading help frame this Article's understanding of retail price impact. First, retail trading today relies more on social media and social investing platforms, which provide retail investors with much greater direct access to investing information and allows them to communicate with each other and coordinate their investing power in extremely low-cost ways. Second, retail investors are moving away from traditional investment vehicles such as index and mutual funds and toward direct investment in specific stocks.

Retail traders increasingly receive investing information from peer-to-peer online social vehicles, including social media, online discussion forums, and other retail traders. These trends began years ago and are certainly not isolated to meme stocks.[51] Informational bottlenecks such as Reddit, or other

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ZTLU]; *Tesla Inc Stock Ownership—Who Owns Tesla?*, WALLSTREETZEN, https://www.wallstreetzen.com/stocks/us/nasdaq/tsla/ownership [https://perma.cc/MPW4-F7GW].

[48] *Costco Wholesale Corp Stock Ownership—Who Owns Costco?*, WALLSTREETZEN, https://www.wallstreetzen.com/stocks/us/nasdaq/cost/ownership [https://perma.cc/XHA2-WLDG].

[49] *Apple Inc Stock Ownership—Who Owns Apple?*, WALLSTREETZEN, https://www.wallstreetzen.com/stocks/us/nasdaq/aapl/ownership [https://perma.cc/D5D6-JPPK].

[50] *See* Matt Levine, Opinion, *The Meme Stocks Keep Coming*, BLOOMBERG (June 9, 2021), https://www.bloomberg.com/opinion/articles/2021-06-09/the-meme-stocks-keep-coming [https://perma.cc/L5J8-XKPT]. As one commentator puts it, a pattern of meme trading behavior has emerged. First, the stock price of a company falls due to some negative underlying fundamental, such as disclosure failures or even bankruptcy, like that of Hertz. This attracts short sellers, who believe the stock price will decrease further. Retail investors on Reddit decide instead that the stock is undervalued and that the short sellers deserve to be punished for being "evil and immoral." *Id.* The hope is that this will cause the stock to "rocket to the moon." *Id.* Those investors buy the stock and squeeze the short sellers, causing even more of a price spike, often exceeding the stock's all-time-high. If other investors suggest that underlying fundamentals do not justify the current all-time-high stock price, retail investors race to purchase even more of the stock, along with call options that additionally inflate the price. *Id.*

[51] *See, e.g.*, Jim Cramer, *"Mad Money Manifesto,"* CNBC, https://www.cnbc.com/104189752/ [https://perma.cc/MW27-UAU3]. Retail investors have long relied on sources such as the "Mad Money" show on CNBC, which seeks to provide advice to retail investors, "help[ing] people like [the viewer], who own stocks and feel like they're on the outside looking in, become better investors." *Id.*

online discussion fora and investing news websites such as Seeking Alpha funnel information to retail investors.[52] The subreddit r/wallstreetbets began in 2012,[53] and Seeking Alpha, which depends on crowd-sourced content to publish buy-side investment advice, began in 2004.[54] These and other low-cost information vehicles enable amateur investors to function as analysts for the larger retail investing community. This then enables more direct access to information and to each other.

Thus, retail trading amplifies the power of nontraditional news sources. For example, analyses have demonstrated that Twitter posts about stock news speed up price pressure and reversal around those stocks' prices, lowering bid-ask spreads and increasing liquidity.[55] Other studies have demonstrated that opinions on Seeking Alpha "strongly predict" stock returns and earnings surprises.[56]

Evidence further suggests that social media sites may, to some extent, displace, disrupt, or even preempt traditional financial news sources such as sell-side equity analyst research.[57] Others have noted that the growth of social media platforms focusing on financial markets might eventually mimic the creation of other grassroots information outlets like Wikipedia, similarly alter-

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[52] *See* Hailiang Chen, Prabuddha De, Yu (Jeffrey) Hu & Byoung-Hyoun Hwang, *Wisdom of Crowds: The Value of Stock Opinions Transmitted Through Social Media*, 27 REV. FIN. STUD. 1367, 1386 (2014).

[53] *See* The Journal, *An Oral History of WallStreetBets*, WALL ST. J., at 2:08–4:00 (Feb. 11, 2021), https://www.wsj.com/podcasts/the-journal/an-oral-history-of-wallstreetbets/4a6bd02d-e1e0-43b2-addc-8572640f8f0e [https://perma.cc/9VYN-RQXE].

[54] *Id.*; Gomez et al., *supra* note 10, at 12.

[55] *See* Nitesh Chawla, Zhi Da, Jian Xu & Mao Ye, Information Diffusion on Social Media: Does It Affect Trading, Return, and Liquidity? 3–4 (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2935138 [https://perma.cc/8BXF-YX85] (Feb. 14, 2022); *see also* Jim Kyung-Soo Liew & Tamás Budavári, Do Tweet Sentiments Still Predict the Stock Market? 13 (Aug. 8, 2016) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2820269 [https://perma.cc/F6BZ-FM57] (presenting evidence that Twitter sentiments predict market returns).

[56] Chen et al., *supra* note 52, at 1374–77, 1400; *see also* Shimon Kogan, Tobias J. Moskowitz & Marina Niessner, Social Media and Financial News Manipulation 2, 35 (Sept. 15, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3237763 (showing that fraudulent articles on social media networks increased retail trading volume and caused an 8% rise in prices on average).

[57] *See* Michael S. Drake, James R. Moon, Jr., Brady J. Twedt & James D. Warren, *Social Media Analysts and Sell-Side Analyst Research*, 27 REV. ACCT. STUD. (forthcoming 2022) (manuscript at 1, 7, 30–31) http://www.utah-wac.org/2020/Papers/moon_UWAC.pdf [https://perma.cc/8A7T-EH9P] (noting the "evolving role" of social media in markets and suggesting that equity research on social media may disrupt the impact of sell-side equity research); *see also* Theresa Kuchler & Johannes Stroebel, *Social Finance*, 13 ANN. REV. FIN. ECON. 37, 45 (2021) (describing the role of social interactions in financial decisions); Eric Chartier, Isaac Bowden, Michael Pinkerton & Alexander Townley, Behavioral Finance: The Impact of Artificial Intelligence and Social Media Analytics 2–3 (Feb. 27, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3794039 (discussing the role of social media influencers in the stock market).

ing how information is created, assessed, and delivered, and competing with mainstream information sources like established sell-side analysts.[58]

Information sources popular with retail investors are playing larger roles than ever before in markets. Combined with the changing methods of coordination discussed in the next Sections, this has led to greater retail influence on prices.

C. Coordinated Trading

Meme investing also underscores the sheer amount of coordination between retail traders and the subsequent price impact that is possible. It is easier than ever before for retail investors to trade as a group. Deliberate coordination based on some belief about the underlying value of a stock, which leads to a surplus of buying or selling that causes price movement, is the most obvious incarnation. In contrast to the traditional archetype of the retail investor, trading based on information about the value of the stock is the behavior of a fundamental value informed trader.[59] For example, some of the first posts about GameStop came from a Reddit user known online as "Roaring Kitty," who conducted an analysis of GameStop's fundamentals when it was a penny stock and concluded that it was severely undervalued.[60] Scores of Reddit users invoked Roaring Kitty's repeated mantra, "I like the stock," as they posted their purchases of GameStop stock in Reddit comments.[61] Once the activist investor Ryan Cohen took a stake in GameStop, Reddit users encouraged each other to follow Roaring Kitty's example by purchasing more and more shares of GameStop and out-of-the-money call options.[62]

Roaring Kitty's analysis is not an isolated retail investor phenomenon, though his cult-like following may be unique. This sort of discussion around due diligence and coordination is common on Reddit. An online discussion of

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[58] *See* Chen et al., *supra* note 52, at 1371–72.

[59] *See* NEW STOCK MARKET, *supra* note 15, at 60–61.

[60] *See* The Journal, *To The Moon, Part 4: Diamond Hands*, WALL ST. J. (June 13, 2021), https://www.wsj.com/podcasts/the-journal/to-the-moon-part-4-diamond-hands/c5e48f39-6ed6-414f-a0d6-0dc9986640ba [https://perma.cc/E5ES-NZUW].

[61] *See generally* Noel Randewich, *GameStop Fan 'Roaring Kitty' to Tell Congress: 'I Like the Stock,'* REUTERS (Feb. 17, 2021), https://www.reuters.com/article/us-retail-trading-testimony-reddit-idUSKBN2AH2Y2 [https://perma.cc/3ANC-79QZ] (discussing Roaring Kitty's upcoming congressional testimony and summing it up in the phrase "I like the stock").

[62] *See* The Journal, *supra* note 60, at 9:10–9:30. As a result, GME's price continued to rise, squeezing the short sellers. *See* Chung, *supra* note 41. Additionally, even as GME tanked back to $40, many Reddit users refused to sell GME so long as Roaring Kitty continued to hold his shares, stating "[Roaring Kitty] is still holding, I shall not sell." The Journal, *supra* note 60, at 24:44–24:51. This was also known as having strong or "diamond hands," in contrast to those who would sell, or those with weak or "paper hands." *Id.* at 9:50–10:10.

a company's fundamentals, at least in part, generated multiple Reddit-fueled buying rallies. For example, this was true for companies such as Wish, an e-commerce platform, and Aethlon Medical, a pharmaceutical company.[63]

Other forms of coordination are increasing as well. These do not necessarily reflect a view of the stock's underlying value, but they can nonetheless lead to buy and sell imbalances that erode the strength of the assumption that retail trades cancel each other out in aggregate. For example, investors join online communities for a sense of camaraderie and to take part in social movements or cultural protest. The "us against Wall Street" narrative that drove some of the initial GameStop rally provides one illustration. This can also be thought of as a far more extreme and coordinated incarnation of impact investing, which has roots as far back as the early twentieth century.[64] It also invites comparisons to activist investing. Further, scores of AMC investors reportedly discussed strategies on Reddit in advance of the AMC annual shareholder meeting, which was rescheduled so that more retail investors could attend.[65] These instances of investor coordination also underscore the influence of narrative in driving economic or trading behavior, creating feedback effects and amplifying price pressure.[66]

D. Social Tech

Recent technology also played a crucial role in expanding the social nature of retail trading and, consequently, retail trading's impact on prices. New

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[63] *See $WISH [Due Diligence]*, REDDIT (June 21, 2021), https://www.reddit.com/r/wallstreetbets/comments/o5bv5v/wish_due_diligence/ [https://perma.cc/N6M3-949T]; Emily Graffeo, *Aethlon Medical Stock Explodes 465% on Heavy Volume as New Report About COVID-19 Treatment Inspires Social-Media Discussion*, BUS. INSIDER (June 9, 2021), https://markets.businessinsider.com/news/stocks/aethlon-medical-stock-price-aemd-covid-19-hemopurifier-bloodstream-reddit-2021-6-1030508893 [https://perma.cc/4ZE9-7BR6].

[64] *See* Sarah C. Haan, *Corporate Governance and the Feminization of Capital*, 74 STAN. L. REV. 515, 528 (2022) (noting that female retail investors participated in the management of businesses as shareholders starting in the twentieth century); Ricci & Sautter, *supra* note 22, at 76–78 (describing younger generations' retail interest in ESG investing).

[65] AMC Ent. Holdings, Inc., AMC Entertainment Holdings, Inc., Reschedules Its Annual Meeting of Stockholders to July 29 (Schedule 14A) (May 4, 2021).

[66] *See generally, e.g.*, ROBERT J. SHILLER, NARRATIVE ECONOMICS: HOW STORIES GO VIRAL & DRIVE MAJOR ECONOMIC EVENTS (2019) (exploring how stories can impact the economy and move markets); GEORGE A. AKERLOF & ROBERT J. SHILLER, ANIMAL SPIRITS: HOW HUMAN PSYCHOLOGY DRIVES THE ECONOMY, AND WHY IT MATTERS FOR GLOBAL CAPITALISM (2009) (examining how psychology affects the economy); GEORGE A. AKERLOF & ROBERT J. SHILLER, PHISHING FOR PHOOLS: THE ECONOMICS OF MANIPULATION AND DECEPTION (2015) (exploring susceptibility to deception and manipulation in markets); Bradford Cornell, *Making Sense of Tesla's Run-up*, ADVISOR PERSPS. (July 19, 2021), https://www.advisorperspectives.com/articles/2021/07/19/making-sense-of-teslas-run-up [https://perma.cc/58SA-9ULJ] (discussing how narratives can drive stock prices through feedback effects, where investors interpret a stock price increase as evidence that the narrative is true).

trading platforms and technologies that explicitly promote social trading by encouraging retail investors to form communities and develop portfolios mimicking others' trades emerged, in a new confluence of fintech and known social aspects of retail trading.[67] Seamless "copy trading" or "mirror trading" is encouraged, allowing direct information access, feedback, and communication between retail investors.[68] These social trading platforms allow millions of retail investors to connect directly with one another, in contrast to traditional investment platforms.[69]

The Public Trading App expressly promotes the social aspect of trading, encouraging users to follow others in their social circles and mimic their investing portfolios.[70] Public boasts a "collaborative community of more than 3 million people."[71] Zulutrade and FX Junction, among other platforms, also offer "copy" or "mirror" services.[72]

Trading apps encourage social trading in more subtle ways as well. For example, retail investors often copy the trading choices made by other Robinhood users by trading based on Robinhood's list of its one hundred most popular stocks. Robinhood users are five to seven times more likely to purchase stocks newly added to Robinhood's "Top 100" list.[73] As trading technology and fintech dramatically reduce costs of trading and grow the retail userbase, trading platforms' influence on retail trading decisions can spill over to impacting asset prices more broadly in the market.[74] This is especially true as retail investors tend to look exclusively to specific apps or social media websites for trading information.[75]

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[67] *See* Dirk A. Zetzsche, Ross P. Buckley, Douglas W. Arner & Janos N. Barberis, *From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance*, 14 N.Y.U. J.L. & BUS. 393, 417 (2018) (describing newer financial platforms' opportunities for customer engagement); Jiaying Deng, Mingwen Yang, Matthias Pelster & Yong Tan, *Social Trading, Communication, and Networks* 1–2 (Paderborn Univ. Ctr. for Tax & Acct. Rsch., Taxation, Acct., & Fin. Working Paper, Paper No. 74, 2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3802038 (describing "copy trading" and "mirror trading," which allow newer investors to link their accounts to sophisticated investors, who can then disseminate their trading expertise to large numbers of followers).

[68] *See* Deng et al., *supra* note 67, at 1–2.

[69] *Id.* at 2.

[70] *See, e.g.*, PUBLIC, *supra* note 12 ("Members control how they invest with a suite of powerful tools and get insights from a community of millions of investors, creators, and analysts.").

[71] *Id.*

[72] *See* ZULUTRADE, *supra* note 12 ("Copy Top Performing Traders from different Brokers easily and reach your investment goals!"); FX JUNCTION, *supra* note 12 ("Become a Signal Provider to earn extra money or AutoCopy signals of our best performing members."); Hall, *supra* note 12 (discussing social and community-based competitors to Robinhood).

[73] *See* Roberto Stein, The Top 5 Predictable Effects of New Entries in Robinhood's '100 Most Popular' List 1 (Sept. 17, 2020) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3694588 [https://perma.cc/2G24-ZSPK].

[74] *Id.* at 24.

[75] *Id.*

E. Heuristic Trading

Coordination certainly does not need to be intentional. Retail trades that unintentionally coordinate with each other can also be powerful enough to affect prices. This could occur because retail traders receive information from the same sources, or because the social or coordinated nature of retail trading feeds cognitive biases and phenomena such as herding, which have long been known to affect economic decision-making in various contexts.[76]

Research focused on the dissemination of information through social networks demonstrates that when investors learn through a social network, "fanatic and rational views dominate over time, and their relative importance depends on their following by influencers."[77] This leads to "social network spillovers, large effects of influencers and thought leaders, bubbles, bursts of high volume, price momentum, fundamental momentum, and reversal."[78] Retail investors also tend to form "echo chambers" on discussion forums, following other bullish or bearish posters if they are bullish or bearish, respectively.[79] This limits the information they receive even further, skewing it one way or the other. This echo effect can also amplify their trading reactions in either direction.

In this way, access to financial data enabled by fintech can amplify the effects of feedback trading.[80] Increased access to and lowered cost of information acquisition may drive retail overconfidence and trading that is too fre-

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[76] *See generally* Bikhchandani & Sharma, *supra* note 13 (describing the influence of herd behavior on the market); Kahneman & Tversky, *supra* note 13 (discussing prospect theory and decision-making under risk); Jill E. Fisch & Tess Wilkinson-Ryan, *Why Do Retail Investors Make Costly Mistakes? An Experiment on Mutual Fund Choice*, 162 U. PA. L. REV. 605, 620–23 (2014) (exploring reasons for common mistakes in retail investing, such as underinvestment, "naïve diversification," and investing in excessive fee funds); Donald C. Langevoort, *Behavioral Approaches to Corporate Law* (examining behavioral biases in corporate law), *in* RESEARCH HANDBOOK ON THE ECONOMICS OF CORPORATE LAW 442 (Claire A. Hill & Brett H. McDonell eds., 2012); Claire A. Hill, *Why Financial Appearances Might Matter: An Explanation for "Dirty Pooling" and Some Other Types of Financial Cosmetics*, 22 DEL. J. CORP. L. 141 (1997) (noting that companies use accounting methods to improve their financial appearance).

[77] Lasse Heje Pedersen, Game On: Social Networks and Markets 1 (May 24, 2022) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3794616 [https://perma.cc/66XF-J7VD].

[78] *Id.*

[79] *See id.* at 4; J. Anthony Cookson, Joseph E. Engelberg & William Mullins, *Echo Chambers*, REV. FIN. STUD. (forthcoming 2022–2023) (manuscript at 1–6), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3603107 [https://perma.cc/EC65-A3R3].

[80] *See* Taha Havakhor, Mohammed S. Rahman, Tianjian Zhang & Chenqi Zhu, Tech-Enabled Financial Data Access, Retail Investors, and Gambling-like Behavior in the Stock Market 20–21 (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3434812 [https://perma.cc/6C2W-VM85] (Aug, 5 2022) (demonstrating the impact on retail trading of feedback trading enabled by the Yahoo! Finance Application Programming Interface).

quent or suboptimal.[81] Similarly, information that is repeated via a social network may be understood as new information by some.[82]

Technology can play an outsized role in fomenting bias in other ways as well. Robinhood's list of the top one hundred most popular stocks is an excellent example of inducing attention-driven trading.[83] Curated to deliver bite-sized pieces of easily digestible information to investors, this list has outsized influence on retail investors' decisions. The addition of new stocks to the list is often correlated directly with short-term gains in those newly listed stocks, which are often reversed shortly thereafter.[84] Anecdotal evidence also confirms that Robinhood users trade based on the "slope" of a stock's price on the Robinhood app—the graphic that charts a stock's price movements—often racing to pile into those stocks with the steepest slopes or the most dramatic increases in price.[85]

Robinhood also dominated the retail trading market through its gamification and fun user interface, with features ranging from colorful graphics to confetti that bursts onto the screen to celebrate a trade.[86] As one Robinhood user put it, he would stay with Robinhood despite its seemingly arbitrary trading restrictions because "Robinhood has the prettiest UI [user interface]."[87] By contrast, platforms such as Fidelity or Chase, although robust, can feel clunky to those who are used to frictionless interaction with their apps and websites.[88]

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[81] *Id.* at 31 (noting that an abundance of raw information tends to make retail investors overconfident, causing them to trade too much).

[82] *See* Peiran Jiao, André Veiga & Ansgar Walther, *Social Media, News Media and the Stock Market*, 176 J. ECON. BEHAV. & ORG. 63, 64 (2020).

[83] *See 100 Most Popular Stocks*, ROBINHOOD, https://robinhood.com/collections/100-most-popular (requires subscription); Brad M. Barber, Xing Huang, Terrance Odean & Christopher Schwarz, *Attention-Induced Trading and Returns: Evidence from Robinhood Users*, J. FIN. (forthcoming 2022–2023) (manuscript at 28–29), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3715077 [https://perma.cc/9V9C-V8EX] (showing that Robinhood features exacerbate attention-driven trading by its users).

[84] *See* Stein, *supra* note 73, at 23.

[85] Unstructured Interview with Robinhood User in San Francisco, Cal. (Jan. 28, 2021) (discussing reasons to use Robinhood and whether the user would switch platforms in the wake of Robinhood's halts on GameStop trading).

[86] *See* Wursthorn & Choi, *supra* note 13; Matt Levine, Opinion, *Playing the Game of Infinite Leverage*, BLOOMBERG (Nov. 5, 2019), https://www.bloomberg.com/opinion/articles/2019-11-05/playing-the-game-of-infinite-leverage [https://perma.cc/BJ8M-TA57].

[87] Unstructured Interview with Robinhood User, *supra* note 85; Nicole Casperson, *Robinhood Drops the Confetti, but Advisers Aren't Convinced*, INVESTMENTNEWS (Apr. 6, 2021), https://www.investmentnews.com/robinhood-drops-the-confetti-but-advisers-arent-convinced-204828 [https://perma.cc/673H-BMUD] ("If anything, it's the duller-than-dishwater experience of most financial platforms that has opened the door for dynamic and engaging platforms like Robinhood and Stash Invest to thrive." (quoting William Trout, Director, Javelin Wealth Management)).

[88] *See, e.g.*, Logan Robison, *Robinhood vs Fidelity 2021: Best Stock Brokerage?*, INVESTING SIMPLE, https://www.investingsimple.com/robinhood-vs-fidelity/ [https://perma.cc/BY3X-VDLZ] (Oct. 6, 2021).

Robinhood has also capitalized on stock lotteries and other methods to maximize user engagement.[89]

Other well-established cognitive failures also emerged. For example, there are a few memorable instances involving retail trading based on mistaken identity. In early 2020, as work-from-home became the norm, investors raced to purchase shares of stock with the ticker ZOOM, but Zoom's stock ticker is ZM.[90] ZOOM's shares skyrocketed.[91] Similarly, Ark Acquisition Corp., a SPAC, experienced a buying frenzy based on name similarity to the suite of exchange-traded funds (ETFs) managed by Cathie Wood, despite no relation to the ETFs.[92]

F. Price Impact

Through the mechanisms discussed above, retail trades are increasingly likely to impact or predict prices through coordination, irrespective of their informational content. Even if there is no increase in the likelihood that any given single retail trade contains fundamental information about future stock price, there is a greater likelihood that *many* coordinated retail trades will tend to predict or impact future prices.[93] This insight is important because the traditional understanding is that retail trading has little effect on prices, markets, and other traders' behavior.[94] Focusing on the coordinated nature of retail trades today reveals that the opposite is true.

Data confirms the price impact that retail investors today wield, beyond isolated meme stock rallies. A number of recent studies confirm that attention paid to social news platforms predicts trading patterns, including returns and increased volume, and that retail trading can affect markets.[95] Analyses

[89] *See, e.g.*, Tory Hobson, *Gamification in the Most Delightful Way*, MEDIUM: PINCH PULL PRESS (Jan. 25, 2018), https://medium.com/pinch-pull-press/gamification-in-the-most-delightful-way-504caf72c1bc [https://perma.cc/NEG5-8UJB].

[90] *See* Michael Sheetz, *Shares for Another Company Called Zoom Are Flying, but Some Might Be Trading The Wrong Stock*, CNBC (Apr. 18, 2019), https://www.cnbc.com/2019/04/18/investors-appear-to-trade-wrong-zoom-company-shares-before-ipo.html [https://perma.cc/4NXB-6DPW].

[91] *Id.*

[92] *See* Jason Zweig, *ARK Investment Pushes Back on Upstart SPAC with Similar Name*, WALL ST. J., https://www.wsj.com/articles/ark-investment-pushes-back-on-upstart-spac-with-similar-name-11613159368 [https://perma.cc/4VSM-82J8] (Feb. 12, 2021).

[93] This likelihood has existed for some time. Data from the 1990s has demonstrated the systematic and coordinated nature of retail trades. *See* Brad M. Barber, Terrance Odean & Ning Zhu, *Systematic Noise*, 12 J. FIN. MKTS. 547, 549–50 (2009). If retail traders introduce systematic noise, the theory holds that informed traders will be limited in their ability to correct that noise, meaning that prices will incorporate such noise. *See* J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers & Robert J. Waldmann, *Noise Trader Risk in Financial Markets*, 98 J. POL. ECON. 703, 705 (1990) (demonstrating the limits of arbitrage strategies in the face of noise traders).

[94] *See infra* Section II.A.

[95] *See, e.g.*, Ekkehart Boehmer, Charles M. Jones, Xiaoyan Zhang & Xinran Zhang, *Tracking Retail Investor Activity*, 76 J. FIN. 2249, 2303 (2021) (finding that "marketable retail order flow can

demonstrated that Twitter posts about stale stock news speed up price pressure and reversal around those stocks' prices, lowering bid-ask spreads and increasing liquidity.[96] Opinions expressed on Seeking Alpha can "strongly predict" stock returns and earnings surprises.[97] Retail trading contributed to price movements around earnings surprises, as well as broader stock market selloffs and reversals.[98] One study demonstrated that earnings that go viral on social media significantly affect market quality (usually negatively).[99] Considering Robinhood specifically, its traders contributed to "10% of the cross-sectional variation in stock returns during the second quarter of 2020" despite its tiny 0.2% market share.[100] Another study found that a trading strategy that purchases stocks right after they debut on the Robinhood Top 100 list and sells those stocks two days later generates a return of 458%, in contrast to a twenty-four percent market return.[101]

Newer investors tend to prefer direct investments in single stocks as opposed to traditional investment vehicles such as index funds.[102] New trading platforms encourage this type of direct investing and make it very easy and

predict the cross-section of future stock returns"); Selin Duz Tan & Oktay Tas, *Social Media Sentiment in International Stock Returns and Trading Activity*, 22 J. BEHAV. FIN. 221, 221 (2021) (finding that Twitter sentiment contains predictive power for stock returns); Robert Jarrow & Siguang Li, Media Trading Groups and Short Selling Manipulation 36 (Oct. 31, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3804130 [https://perma.cc/E9JJ-5HPE] (showing how chatroom traders can influence stock prices through impact trading); Michael S. Pagano, John Sedunov & Raisa Velthuis, *How Did Retail Investors Respond to the COVID-19 Pandemic? The Effect of Robinhood Brokerage Customers on Market Quality*, FIN. RSCH. LETTERS, Nov. 2021, at 1, 2–6 (demonstrating that collective Robinhood behavior can affect market quality); Jeremy Michels, Retail Investor Trade and the Pricing of Earnings 21–22 (unpublished manuscript), https://ssrn.com/abstract=3833565 [https://perma.cc/T447-YZVS] (Mar. 28, 2022) (showing that retail trade can significantly impact the price-earnings relation, regardless of information content).

[96] *See* Chawla et al., *supra* note 55, at 4–7; Liew & Budavári, *supra* note 55, at 12–13.

[97] Chen et al., *supra* note 52, at 1370, 1374–77; *see also* Kogan et al., *supra* note 56, at 2, 35 (showing that fraudulent articles on social media networks increased retail trading volume).

[98] *See* Michels, *supra* note 95, at 22 (demonstrating the impact of retail trading on price-earnings relation); Ethan Wolff-Mann, *Retail Investors Played a Big Role in Both Wild Market Rout and the Reversal, Data Suggests*, YAHOO! FIN. (Jan. 25, 2022), https://finance.yahoo.com/news/retail-investors-market-rout-and-reversal-160655523.html [https://perma.cc/6DGL-ZEWS].

[99] *See* Brett Campbell, Michael Drake, Jacob Thornock & Brady Twedt, *Earnings Virality*, 74 J. ACCT. & ECON. (forthcoming 2022) (manuscript at 6), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3800399 [https://perma.cc/6QSU-KB7Z] (finding that earnings announcements that go viral on social media negatively impact market quality, leading to excess retail trading, diminished price efficiency, and additional information asymmetry).

[100] Philippe van der Beck & Coralie Jaunin, *The Equity Market Implications of the Retail Investment Boom* 1 (Swiss Fin. Inst., Rsch. Paper Series, Paper No. 21-12, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3776421 [https://perma.cc/WLS4-P7NF].

[101] Stein, *supra* note 73, at 14.

[102] *See* Ricci & Sautter, *supra* note 22, at 73–76 (describing generational differences in investing preferences and attitudes).

low-cost. This means that more retail trading power can concentrate around the price of an individual stock, amplifying retail investors' influence.

One model sheds light on the mechanism through which social investing networks can impact prices. The influence of "rational" versus "irrational" agents as disseminated through social networks is important.[103] A thought leader's influence depends on network effects, and directly affects asset prices.[104] This can explain bubbles, volatility, price momentum and reversals.[105] Some theorized that the power of social media is even driving risk premia in some ways.[106] For instance, one study estimated social media risk premia of 7.2% because the risk of going viral is difficult to diversify.[107]

Finally, as discussed *infra* Part II, the reactions of other market participants who modify their trading behaviors to account for "sticky" retail trades and retail risk would amplify any price impact.[108] This is especially so if participants' perceptions of retail trading power shift sufficiently, in response to growing retail numbers and impact.[109]

G. Retail Trading New and Old

Meme trading sheds new light on the substantial impact that coordinated retail trading can wield in today's markets. Retail investors today are playing a qualitatively and quantitatively different role than the traditional model of price discovery in markets would suggest. In contrast with previous models where retail investors act individually, buy and sell in roughly equal amounts, and have little ability to directly affect prices, the reach of social media, chang-

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[103] Pedersen, *supra* note 77, at 3 (explaining that over time, agents' most stubborn views—rational or fanatic—have significant influence on other investors).

[104] *Id.*

[105] *Id.*

[106] *See* Amin Hosseini, Gergana Jostova, Alexander Philipov & Robert Savickas, The Social Media Risk Premium 26–27 (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3514826 [https://perma.cc/R8LZ-ZK3N] (Mar. 8, 2022).

[107] *Id.* at 1.

[108] *See infra* Part II.

[109] *See, e.g.*, Robert J. Shiller, *The Beauty Contest That's Shaking Wall St.*, N.Y. TIMES (Sept. 3, 2011), https://www.nytimes.com/2011/09/04/business/economy/on-wall-st-a-keynesian-beauty-contest.html [https://perma.cc/S9AG-CD55] (explaining that, according to Keynes, the best strategy in a speculative market is to select the stocks that others will select and the stocks that those others think still others will select, and so on). Retail investors' self-perceptions of their ability to affect the market are also important. A recent survey conducted by Charles Schwab indicates that most investors believe meme stocks will continue to impact markets. Thomas Hum, *Most Traders Believe Meme Stocks Will Impact Markets: Charles Schwab*, YAHOO! FIN. (Feb. 15, 2022), https://news.yahoo.com/most-traders-believe-meme-stocks-will-impact-markets-charles-schwab-175228598.html [https://perma.cc/NR27-X82R].

ing patterns in investments, and increased coordination mechanisms create significant potential for price impact.

Although some of these trends began decades ago, they have largely been overlooked.[110] Still, other behaviors, such as those catalyzed by new trading technology, only recently emerged.[111] Renewed focus on such behaviors will sharpen the understanding of retail trading, retail information, and the impact of retail trading on market prices—especially as retail engagement with equities will likely remain high and continue to grow.[112] The next Part evaluates how.

II. Coordinated Retail Risk

This Part assesses the impact of retail trading today. It argues that the effects of sustained retail trading extend far beyond isolated swings in the prices of individual stocks. Today's retail trading is increasingly likely to impact or predict prices through coordination, irrespective of the informational content

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[110] This is not the first time in history that retail investors have had influence on price or have been able to coordinate. *See, e.g.*, Haan, *supra* note 64, at 601–02 (describing women's participation in share voting in the twentieth century); Barber et al., *supra* note 93, at 553–55, 559–61 (collecting data from the 1990s that indicated the coordinated nature of retail trades); Pedersen, *supra* note 77, at 7 (noting the importance of social interaction and word-of-mouth in potentially propagating bubbles); André Betzer & Jan Philipp Harries, *How Online Discussion Board Activity Affects Stock Trading: The Case of GameStop*, FIN. MKTS. & PORTFOLIO MGMT. (forthcoming 2022–2023) (manuscript at 27–28) (observing a connection between activity on social media and retail trading). The scope and nature of such coordination, however, is qualitatively and quantitatively different given the volume and depth of capital markets today.

[111] Of course, some of these behaviors are also exhibited by sophisticated and institutional traders. *See, e.g.*, Bikhchandani & Sharma*, supra* note 13, at 290–300 (demonstrating how and why investment managers herd); Nerissa C. Brown, Kelsey D. Wei & Russell R. Wermers, *Analyst Recommendations, Mutual Fund Herding, and Overreaction in Stock Prices*, 60 MGMT. SCI. 1, 4 (2014) (demonstrating price-destabilizing effect of fund managers that herd in response to analyst revisions due to reputational concerns); Ryan Bubb & Prasad Krishnamurthy, *Regulating Against Bubbles: How Mortgage Regulation Can Keep Main Street and Wall Street Safe—from Themselves*, 163 U. PA. L. REV. 1539, 1545 (2015) (exploring the limits of rational behavior during bubbles); Dan Awrey & Kathryn Judge, *Why Financial Regulation Keeps Falling Short*, 61 B.C. L. REV. 2295, 2302–12 (2020) (demonstrating the pervasive dynamism, complexity, and uncertainty in the financial system, and observing the consequential limits faced by regulators).

[112] *See* Press Release, Robinhood Markets, Inc., Robinhood Reports Third Quarter 2021 Results (Oct. 26, 2021), https://investors.robinhood.com/news/news-details/2021/Robinhood-Reports-Third-Quarter-2021-Results/ [https://perma.cc/NE7U-9KRB]; Caitlin McCabe, *Individual Investors Retreat from Markets After Show-Stopping Start to 2021*, WALL ST. J., https://www.wsj.com/articles/individual-investors-retreat-from-markets-after-show-stopping-start-to-2021-11617528781 [https://perma.cc/K8H6-5DQR] (Apr. 4, 2021) (noting that, despite a slowdown in investments, retail traders will likely remain highly engaged in the stock market); Gideon Ozik, Ronnie Sadka & Siyi Shen, *Flattening the Illiquidity Curve: Retail Trading During the COVID-19 Lockdown*, 56 J. FIN. & QUANTITATIVE ANALYSIS 2356, 2362 (2021) (noting that retail broker user activity, such as that of Robinhood, E-Trade, Fidelity, TD Ameritrade, and Charles Schwab, increased by over 80% from late 2020 to early 2021).

of any individual retail trade. In particular, today's retail trading introduces coordinated retail risk.

Coordinated retail risk, by itself, reduces the incidence of socially beneficial trading, such as fundamental-informed trading. It does so by reducing the expected profitability of such socially beneficial trading. Traders who would otherwise engage in trades that seek to benefit from fundamental information about the underlying issuer may engage in fewer such transactions due to anticipated losses or reduced gains caused by retail trades. This is especially true if the retail price impact proves less sensitive to corrective trades by informed traders, sustaining longer periods of mispricing. Crucially, informed traders will be less incentivized to generate new information about an issuer that is not yet reflected in price. A lower level of robust information generation will reduce price accuracy and weaken market mechanisms that further optimal capital allocation over the long run.

Coordinated retail risk also reduces liquidity by leading to wider spreads as liquidity suppliers anticipate greater losses to retail traders whose trades predict future price movements, irrespective of their information content. This increases the costs of trading across all market participants.

Section A details the traditional theoretical framework for understanding retail trades.[113] Sections B, C, and D assess the impact of coordinated retail trading today by mapping retail investors into three categories: (1) coordinated informed retail investors,[114] (2) coordinated uninformed retail investors,[115] and (3) coordinated meme investors, respectively.[116] Section E evaluates the effect on other market participants, including liquidity suppliers and other traders for each kind of retail investor, and their ultimate impact on price accuracy, liquidity, and market efficiency.[117] Finally, Section F considers the incidence of informed retail trading.[118]

A. The Traditional Theoretical Framework

At the broadest level, stock prices and their regulation play critical roles in advancing important economic and social goals. The more accurate prices are and the more liquid the market is, the easier it is to advance these goals. Retail investors, long thought of as uninformed traders largely irrelevant to the

[113] *See infra* notes 119–135 and accompanying text.
[114] *See infra* notes 136–138 and accompanying text.
[115] *See infra* notes 139–142 and accompanying text.
[116] *See infra* notes 143–147 and accompanying text.
[117] *See infra* notes 148–157 and accompanying text.
[118] *See infra* notes 158–180 and accompanying text.

price discovery mechanism, are now interacting with these mechanisms and goals in dramatic and sustained ways.

Regulation of the equities markets centers around a few key social goals, namely:

> (1) promoting the efficient allocation of capital to the best new investment projects in the economy; (2) promoting the efficient operation of the economy's existing productive capacity; (3) promoting the efficient allocation of resources between current and future periods so as to best satisfy the needs of firms seeking financing for real investments [trading the promise of future dollars to obtain current dollars], and the needs of savers seeking to forgo current consumption in order to enjoy future consumption [trading current dollars to obtain the promise of future dollars]; (4) promoting the efficient allocation among investors of the risks associated with holding securities so that risk-averse investors bear their volatility with minimal disutility; and (5) operating fairly and fostering an overall sense of fairness.[119]

Trading in markets interacts with these goals in several ways, each of which stems from two characteristics of the stock market: share price accuracy and market liquidity.[120] Price accuracy refers to whether share price reflects the future cash flows of the issuer.[121] In general, greater price accuracy will promote more socially beneficial investment projects, help identify good and bad managers, and promote the other goals mentioned above.[122] Liquidity generally refers to transaction costs and the ease with which a trade can be accomplished.[123] The greater the market liquidity, the easier it is to trade without suffering trade-offs; for example, a larger-sized trade often worsens the price of the transaction.[124]

Price discovery, or the means through which stock prices reach more accurate levels, is largely driven by the information asymmetries between informed traders and the liquidity suppliers with whom they interact.[125] Informed

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[119] Merritt B. Fox, Lawrence R. Glosten & Gabriel V. Rauterberg, *Informed Trading and Its Regulation*, 43 J. CORP. L. 817, 833 (2018).

[120] *See id.* (citing THIERRY FOUCAULT, MARCO PAGANO & AILSA RÖELL, MARKET LIQUIDITY: THEORY, EVIDENCE, AND POLICY 31 (2013)).

[121] *Id.*

[122] *See* Merritt B. Fox, Lawrence R. Glosten & Gabriel V. Rauterberg, *Stock Market Manipulation and Its Regulation*, 35 YALE J. ON REG. 67, 83 (2018) (observing that more accurate stock market prices will, inter alia, direct capital toward more promising real investment projects and help reveal poorly performing managers). More accurate stock prices also incentivize better management decisions in response to stock compensation schemes, hostile takeover threats, and hedge fund pressures, in addition to improving investors' sense of fairness. *Id.*

[123] NEW STOCK MARKET, *supra* note 15, at 34.

[124] *Id.*

[125] *Id.* at 65–66.

traders are those who trade based on superior information, vis-à-vis the rest of the market, about the underlying company.[126] These traders' informational advantages allow them to identify mispriced equities and trade to make profits based on their views.[127] Their trading then pushes prices toward a more accurate value.[128] Moreover, their ability to seek out and generate information, usually from bits of publicly available information about an issuer that are not yet reflected in price, is crucial to long term price accuracy in markets.[129] By contrast, uninformed traders do not trade based on information about a company, but instead trade for reasons such as managing savings or rebalancing portfolios.[130]

In most conceptions of equities markets and their participants, retail investors are characterized as uninformed traders.[131] Uninformed traders are assumed to buy and sell roughly in the same quantities in aggregate.[132] This is because their reasons for trading are idiosyncratic and unrelated to information, such as deferred consumption or rebalancing portfolios.[133] They may also be categorized as "mistake" traders, who trade on incorrect information.[134] Although mistake traders may in aggregate move stock prices, their trades are often counteracted by "anti-mistake" traders, who trade when they do not believe any new information has surfaced about the issuer.[135]

This framework essentially eliminates the possibility that retail trading has any significant impact on price. Yet as discussed in Part I, recent events and new forms of coordination have eroded the strength of these assumptions. Instead, retail investors may trade with sustained impact on prices, or at least their trades may predict future prices. The next Sections consider how their trades affect prices, for each type of coordinated retail investor: informed, uninformed, and meme.

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[126] *Id.* at 60 (citing RICHARD BREALEY, STEWART MYERS & FRANKLIN ALLEN, PRINCIPLES OF CORPORATE FINANCE 80–84 (11th ed. 2013).

[127] *Id.*

[128] *See id.* at 70 (explaining how informed trading leads to more accurate stock prices as liquidity suppliers adjust their quotes in response to private information).

[129] *See id.* at 140 ("The distinguishing feature of fundamental value informed trading is that, unlike the other . . . kinds of informed trading, the information on which it is based did not exist before it was generated as the result of the trader's own actions.").

[130] *Id.* at 134–42 (comparing different types of traders, including informed traders, uninformed traders, and liquidity suppliers, in hypothetical trading contexts).

[131] *See id.* at 62–63.

[132] *Id.* at 67.

[133] *Id.* at 62.

[134] *Id.* at 63.

[135] *Id.*

B. Coordinated Informed Retail Traders

The first possibility is that coordinated retail investors act as fundamental informed traders that generate information about a company and identify mispricing in stocks. Social media makes information increasingly available. To the extent that certain retail investors can seek out fundamental information about a company and trade to profit off it, coordinated individuals trading on that same information may contribute to more accurate stock prices. As such, they would be engaging in socially beneficial activity.[136]

It is worth noting that even if only a few retail investors are informed, the extent to which other retail traders engage in follow-on trades may amplify the price effect of the information. Consider the following example. A stock is trading for ten dollars. Informed retail investors, after conducting due diligence, determine that the stock is currently underpriced. Those informed retail investors engage in purchases of the stock. Then, due to the stock purchases of other retail investors, either through deliberate coordination in online fora or through herding behavior encouraged by trading platforms, retail purchases occur in numbers significant enough such that the imbalance of purchase orders over sale orders will lead to a price increase. The stock price adjusts accordingly to reflect the new information, reaching a more accurate level.

If trades of coordinated retail investors are informed, there are implications for other participants' interactions with retail investors. These must be evaluated when considering the impact of coordinated informed retail trading occurring over the long run.

1. Other Informed Traders

Informed retail trades contribute to price accuracy. If enough informed retail trading occurs, this may reduce other informed traders' incentives to seek out fundamental information, because it is less profitable to do so, as retail traders have already profited off the information and traded to move price toward a more accurate level.

As an example, consider an electric vehicle company stock priced at ten dollars. Informed retail investors correctly believe that the company's success

[136] Although the influx of informed traders is generally associated with a reduction in liquidity, retail investors are generally thought to contribute to liquidity. To illustrate how much liquidity retail investors stand to contribute, Robinhood earned "$331 million in payment for order flow during the first three months of 2021." Peter Rudegeair, *Robinhood's Biggest Business More Than Tripled Amid Trading Frenzy*, WALL ST. J. (May 2, 2021), https://www.wsj.com/articles/robinhoods-biggest-business-more-than-tripled-in-the-first-quarter-11619975534 [https://perma.cc/GH6X-BYW5]; *see also* Ozik et al., *supra* note 112, at 2362 (finding that retail trading improved liquidity during the COVID-19 lockdown).

in the electric vehicle market will be greater than currently implied by the stock price. Those traders purchase the stock, and through follow-on trading by other retail traders, engage in sufficient purchases to drive the stock price up to twelve dollars. Assume that the most accurate price would be thirteen dollars. Other informed traders know this, and similarly purchase shares of the stock, driving its price up to thirteen dollars. The key is that non-retail informed traders will only stand to make one dollar per share, rather than three dollars. As a result, these non-retail, fundamental informed traders may engage in less information-generating activities, as expected profits will be reduced.

The overall effect of coordinated informed retail traders on prices depends on whether they engage in socially beneficial information generation at a level that will offset the potential reduction in such information generation from other informed traders. Ultimately, that is an empirical question.

2. Liquidity Suppliers

In general, a liquidity supplier widens bid-ask spreads when faced with an increased likelihood that the liquidity supplier's counterparty is trading based on information.[137] This is because, to stay in business, a liquidity supplier's spread must be wide enough such that profits from transacting with uninformed traders offset losses to informed traders.[138]

If enough coordinated informed retail trading is occurring, liquidity suppliers may widen spreads due to the higher likelihood that any given counterparty may be an informed retail trader. To the extent that liquidity suppliers face a reduced number of other non-retail informed traders because informed retail traders crowd out other non-retail informed traders, any widened spread may in fact be offset, such that no overall change in the spread occurs.

By contrast, consider a world where retail investors are largely uncoordinated and unable to affect price. Here, the baseline assumption is that retail trades generally lack information, meaning liquidity suppliers need not adjust their spreads in anticipation of trading with a retail trader. If retail traders increasingly trade with information, then that may change. Moreover, liquidity suppliers may widen spreads irrespective of whether retail trades are truly informed or uninformed, as uninformed retail trades can masquerade as informed trades through the uninformed retail trades' correlation with short-term price movements. This may reduce liquidity suppliers' ability to discern the informational content of their counterparties' trades, leading to wider spreads.

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[137] *See* NEW STOCK MARKET, *supra* note 15, at 65–69 (explaining how information asymmetries drive bid-ask spreads).

[138] *Id.*

C. Coordinated Uninformed Retail Traders

The next possibility is that retail investors act as uninformed traders. As discussed, unlike the traditional conception of uninformed traders, today's retail trading is less likely to cancel out in the aggregate. Instead, coordinated uninformed retail trading can have a significant impact on prices, introducing coordinated retail risk. Coordinated retail risk occurs irrespective of the actual information content of retail trades. Even if the likelihood has not increased that any given single retail trade contains fundamental information about future stock price, the likelihood that *many* coordinated retail trades will tend to predict or impact future prices has increased.

Coordinated retail risk, by itself, reduces the incidence of fundamental informed trading by lowering its expected profitability. It also reduces the ability of informed traders to counteract any irrationality fueled and made stickier by coordinated aspects of retail trading. In other words, it drives a wedge between fundamental information about an underlying issuer and the issuer's stock price.

Unlike fundamental value informed traders, uninformed retail investors do not generate any valuable information. Their activities have little socially beneficial value. Instead, they impede socially beneficial information generation by fundamental value informed traders. This then harms market mechanisms that further optimal capital allocation more broadly.

1. Informed Traders

Consider informed traders in a world with a sizable population of retail traders who can and do affect price through coordination, despite lack of information. In this world, fundamental informed traders now face substantial coordinated retail risk.

If retail trades are uninformed but correlated with future price movements, they will tend to muddy the information signal from truly informed trades. The degree to which coordinated uninformed retail trades impact or predict future price movements may also cause others to inaccurately perceive their trades as containing information. The expected profitability of informed trading will decrease. This will reduce those truly informed traders' incentives to seek out fundamental information because it is less profitable to do so, as prices are less responsive to their information.

As an example, consider the same electric vehicle company stock discussed *supra*, priced at ten dollars. Uninformed retail investors inaccurately believe that the company will be a leader in the electric vehicle boom. As such, they buy as a pack, driving the share price up to fifteen dollars. Assume that the most accurate price would be thirteen dollars. Informed investors know this, and normally, would engage in purchases to drive the stock up from ten dollars to thirteen dollars. That profit would be completely cannibalized, however, by uninformed, coordinated retail investors. Informed investors would be less incentivized *ex ante* to seek out the information suggesting that the stock was undervalued in the first place.

Similarly, anti-mistake traders may see reduced expected profitability and therefore reduced incentives to correct mispricing. This may be due to uninformed retail investors' irrationality, insensitivity to new information, stubborn reliance on out-of-date information, or non-profit-seeking trading motivations.

Returning to the electric vehicle example, assume that the price is driven up to fifteen dollars by uninformed retail investors. Absent the staying power of coordinated retail trades, informed anti-mistake traders in this case would sell the stock until its price went down to thirteen dollars. Yet informed traders know that uninformed retail investors can be stubborn, such that informed sales may not impact the price, and that the price could even continue to rise irrationally, despite the informed traders' sell orders. A rational informed trader would choose *not* to sell in this situation, resulting in the electric vehicle stock remaining at an inflated price for a longer time.[139]

In these ways, coordinated uninformed retail trading disincentivizes informed traders to seek out and generate fundamental information because doing so *ex ante* is riskier and appears less profitable. In either scenario presented, the activities of uninformed retail traders cannibalize the expected profits of informed traders. The more likely these scenarios are, the less fundamental informed trading will occur. Most harmfully, fundamental value traders will be less likely to seek out and generate information about an issuer that is not already reflected in price. The greater this effect, the more serious the long-term negative effects on market functioning.

2. Liquidity Suppliers

Liquidity suppliers also face coordinated retail risk from coordinated uninformed retail traders. Faced with the increased likelihood that any given retail trade will predict future price movements regardless of its information content, the liquidity supplier will rationally widen its bid-ask spreads.[140] In other words, spreads may widen due to the higher likelihood that an incoming trade is correlated with future price movements due to coordination, *irrespective of the information content of that trade*.

[139] *See* Nicolae B. Gârleanu, Stavros Panageas & Geoffery X. Zheng, *A Long and a Short Leg Make for a Wobbly Equilibrium* 30–31 (Nat'l Bureau of Econ. Rsch., Working Paper No. 28824, 2021) (clarifying how short sellers can be induced to abandon their shorting positions when prices rise).

[140] NEW STOCK MARKET, *supra* note 15, at 64–75.

Even if retail trades are uninformed, it is often not possible for a liquidity supplier to discern *ex ante* whether its counterparty has information. From the perspective of a liquidity supplier, coordinated retail trading disguises uninformed trading as informed trading because that uninformed trading still may predict future price movements. The greater the correlation with future price movements, the larger the losses anticipated by liquidity suppliers. Anticipating more losses will lead to a widened spread, a cost that will be passed on to all traders.[141] This cost can lead to less trading, which also acts as a drag on liquidity.[142]

D. Coordinated Meme Traders

Coordinated meme traders are an extreme subset of uninformed retail traders.[143] Meme traders engage in more deliberate coordination and trade with exaggerated impact.[144] To the extent their trades predict short-term price fluctuations, they will also reduce the profitability of informed trading and reduce price accuracy. Yet coordinated meme traders are worth discussing separately because of the extreme nature of their impact, as well as the unpredictability of their trading episodes.

As an example, consider the same electric vehicle company stock priced at ten dollars. Assume that there is significant short sale interest. Perhaps the company's CEO is an icon to meme investors or meme investors want to save the company from bankruptcy because of its cultural significance.[145] Coordinated meme investors believe that if they can "take the stock to the moon," then the stock's price will skyrocket, short sellers will be forced to cover, and the resulting short squeeze will be very profitable for meme investors.[146] They engage in a rash of purchases, and the share price shoots up to thirty dollars.

Assume, again, that the most accurate price of the stock would be thirteen dollars. Informed investors know this, and otherwise would engage in purchases to drive the stock up to that price. Yet, again, uninformed, coordinated meme investors would completely cannibalize that profit. Further, anti-mistake

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[141] *See* Merritt B. Fox, Lawrence R. Glosten & Sue S. Guan, *Spoofing and Its Regulation*, 2021 COLUM. BUS. L. REV. 1244, 1311.

[142] *Id.* at 1285 (footnotes omitted).

[143] *See generally* Adam Hayes, *Meme Stock*, INVESTOPEDIA, https://www.investopedia.com/meme-stock-5206762 [https://perma.cc/62KQ-9HJ7] (Feb. 22, 2022) (describing meme stocks and the "cult-like following" these stocks gained from meme traders).

[144] *See id.* (explaining the importance of online communities to the existence of meme stocks).

[145] *See, e.g.*, The Journal, *How the 'Apes' Took Over AMC*, WALL ST. J. (Dec. 23, 2021), https://www.wsj.com/podcasts/the-journal/how-the-apes-took-over-amc/a7366483-a497-4cf6-99b1-25128c890ecd [https://perma.cc/5QFZ-3AUA].

[146] *See supra* Section I.A (explaining the recent rise in retail trading); The Journal, *supra* note 1 (describing GME traders' "to the moon" sentiment).

traders would otherwise sell the stock, under the assumption that it would come back to Earth. Yet they know that meme investors can be extremely stubborn. A rational informed trader would choose *not* to sell in this situation, leading to inflated prices for the electric vehicle stock for a longer period. The informed trader may even choose to buy the stock as well, driving the price up further, to cash in on the meme trading episode.[147]

The extreme impact also extends to other market participants. Informed traders would be disincentivized to seek out and generate fundamental information, because doing so would *ex ante* seem less profitable. Further, in the scenario presented here, the risk is not simply one of reduced or zero profits. Informed traders may suffer large, even extreme losses if they trade against meme investors. This makes it even riskier for informed traders to trade against meme investors, as does the difficulty of predicting how long a given meme trading episode might last. The more likely these scenarios are, and the less predictable they are, the less fundamental informed trading will occur. As discussed above, this will reduce the amount of socially beneficial information generated by fundamental value informed traders, leading to the negative consequences for market functioning discussed previously.

E. Efficiency Implications

Whether today's retail trading helps or hurts the mechanisms of market efficiency depends ultimately on the incidence of each type of retail trading. It is likely that the introduction of coordinated retail risk, by itself, harms price accuracy, but this depends on the mix of informed and uninformed retail trading.[148] The more that coordinated uninformed retail trading impacts or predicts future prices, and the more that other market participants are disincentivized to engage in socially beneficial trading, the worse the outcome for price accuracy.[149] The effects on liquidity, however, are more ambiguous.

1. Price Accuracy

Although price accuracy would likely benefit from informed retail trading, existing evidence does not compellingly demonstrate that informed retail

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[147] *See, e.g.*, Markus K. Brunnermeier & Stefan Nagel, *Hedge Funds and the Technology Bubble*, 59 J. FIN. 2013, 2013–15 (2004) (showing that rational investors may choose to ride bubbles due to predictable investor sentiment and the limits of arbitrage).

[148] *See generally* NEW STOCK MARKET, *supra* note 15, at 60–63 (explaining the motivations of informed and uniformed traders and their impact on the market).

[149] *See id.* at 140–41 (explaining that fundamental value traders are incentivized by potential profit to generate information).

trading consistently occurs.[150] Instead, the introduction of coordinated retail risk is more likely to act as a drag on price accuracy.

Faced with coordinated retail risk, informed traders will account for the decreased likelihood that stock prices move to reflect information, meaning that their information will have a lower expected profitability. That will, in turn, reduce their incentives to seek out and generate valuable fundamental information. This will reduce price accuracy, especially to the extent that such information would not otherwise be generated and thus not be reflected in a stock's price. This, in turn, will negatively affect the capital allocation mechanisms in the market over the long run.

Wider bid-ask spreads, to the extent they occur, would also indirectly hurt price accuracy, as wider spreads make it more expensive for fundamental informed traders to trade.[151] This will reduce the expected profitability from their information-generating activities even further, disincentivizing such activity and harming price accuracy.[152]

2. Liquidity

Coordinated retail risk, by itself, will likely reduce liquidity by leading to wider bid-ask spreads. This will likely be true irrespective of whether retail traders are informed or uninformed. As discussed, if retail trades are informed, liquidity suppliers may widen spreads in anticipation, depending on the overall incidence of information they anticipate. If retail trades are uninformed but still correlated with future price movements, liquidity suppliers will be less able to discern the incidence of information *ex ante* and will also widen their spreads in anticipation.

Widened spreads increase the cost of trading, meaning that it will be more expensive for both informed and uninformed traders to trade. This cost then leads to less trading, which further lowers liquidity.[153] As mentioned, increased cost of trading will also reduce informed trading and price accuracy in the long run.[154] Finally, the anticipation of the wider spread will lead to a discount for shares issued in an initial public offering, meaning that entrepreneurs and early investors will suffer.[155] Any reduction in liquidity ultimately reduces social welfare because it impedes the optimal allocation of resources and risk in the

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[150] The potential empirical incidence of each is addressed in the next Section. *See infra* notes 158–180 and accompanying text. This could change in the future, of course.

[151] NEW STOCK MARKET, *supra* note 15, at 145, 156.

[152] *Id.*

[153] Fox et al., *supra* note 141, at 1311.

[154] NEW STOCK MARKET, *supra* note 15, at 145, 156.

[155] *See id.* at 138.

economy.[156] When trading is costlier, some socially beneficial transactions will not take place, reducing optimal portfolio allocation and making firms' cost of capital more expensive.[157]

Nevertheless, the ultimate empirical effect on liquidity is more ambiguous. This ambiguity exists because increased retail participation generally injects liquidity into markets. Large numbers of retail traders entering the markets might generate enough additional liquidity to counter any reduction in liquidity caused by coordinated retail risk and even benefit markets.

F. Incidence of Informed Retail Trading

Because coordinated retail risk poses the greatest threat to market mechanisms when retail traders are uninformed but coordinated, the potential that retail investors are informed is important to consider. Are retail investors, in aggregate, skilled? The evidence is mixed, and highlights the difficulties in identifying "good" or "bad" information.[158] Overall, there is limited evidence today that retail traders are trading consistently on fundamental information in the traditional sense. This is especially true when accounting for how difficult it is for anyone, including institutional and more sophisticated investors, to consistently identify good information.[159]

1. Retail Skill

Research indicates that retail investors may be skilled in some circumstances, with the ability to select "good" information about stock value and trade on it,[160] even outperforming "smart" money in some cases.[161] This evi-

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[156] Fox et al., *supra* note 141, at 1311.

[157] *Id.*

[158] *See* Chen et al., *supra* note 52, at 1400; Michels, *supra* note 95, at 22–24; Ivo Welch, *The Wisdom of the Robinhood Crowd*, 77 J. FIN. 1489, 1523 (2022) (showing that from 2018 to 2020, Robinhood consensus portfolios generally performed well); Xuejun Jin, Rui Li & Yu Zhu, *Could Social Interaction Reduce the Disposition Effect? Evidence from Retail Investors in a Directed Social Trading Network*, 16 PLOS ONE, no. 2, 2021, at 1 (observing that social trading could improve retail trading decisions). Although retail investors tend to rely on different sources of information than traditional institutional investors, this Article does not attempt to categorically dismiss those sources as "bad." It simply points out the risks of such platforms.

[159] *See, e.g.*, Michael Hiltzik, Column, *Legendary Investment Guru Peter Lynch Says the Move to Index Funds Is a 'Mistake.' He's Wrong*, L.A. TIMES (Dec. 8, 2021), https://www.latimes.com/business/story/2021-12-08/peter-lynch-index-fund-investing [https://perma.cc/3NXU-KCR9] (stating that passively managed index funds tend to outperform actively managed funds). Historically, individual traders have tended to underperform in the market, often significantly. *See, e.g.*, Brad M. Barber, Yi-Tsung Lee, Yu-Jane Liu & Terrance Odean, *Just How Much Do Individual Investors Lose by Trading?*, 22 REV. FIN. STUD. 609, 630 (2009).

[160] *See* Daniel Bradley, Jan Hanousek Jr., Russel Jame & Zicheng Xiao, Place Your Bets? The Market Consequences of Investment Research on Reddit's Wallstreetbets 1, 25–26 (Mar. 2022) (un-

dence, however, may simply indicate that retail investors tend to pile into the stocks that skilled information signalers select, not that retail investors themselves are skilled. For example, evidence around intraday trading patterns shows that following publication of reports on Seeking Alpha, there is "a substantial increase in the ability of retail order imbalances to predict both future stocks returns and cash flow news, consistent with [Seeking Alpha] research informing retail trading."[162] Such retail trades are "especially informative" following reports written by "more capable contributors" or reports with more comments, which some argue indicates that retail investors can be informed.[163]

There is also ample evidence demonstrating that retail investors lack skill and are simply noise traders.[164] For one, the informativeness of Seeking Alpha reports may not translate to other social media sites, such as StockTwits.[165] Of course, there is plenty of evidence indicating that sophisticated or institutional investors also lack skill.[166] This is especially so because within social media

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published manuscript), http://russelljame.com/wsb_3_15_2022.pdf [https://perma.cc/6ZQK-JU5P] (finding evidence of retail skill); Gomez et al., *supra* note 10, at 1 (presenting evidence that social media analysis helps less informed investors process earnings announcement news more effectively).

[161] *See* Gunjan Banerji & Alexander Osipovich, *'God Told Me to Put Money into Hertz': Small Investors Are Winning Big Again*, WALL ST. J., https://www.wsj.com/articles/god-told-me-to-put-money-into-hertz-how-small-investors-are-upending-wall-street-11622113200 [https://perma.cc/9HPQ-CSP5] (May 27, 2021). This may become more likely as retail investors improve their financial literacy. *See* Tony Klein, *A Note on GameStop, Short Squeezes, and Autodidactic Herding: An Evolution in Financial Literacy?*, FIN. RSCH. LETTERS, May 2022, at 1, 7 (demonstrating the increased role of financial literacy in meme trading episodes).

[162] Michael Farrell, T. Clifton Green, Russell Jame & Stanimir Markov, The Democratization of Investment Research and the Informativeness of Retail Investor Trading 30 (July 21, 2020) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3222841 [https://perma.cc/V5V8-PUPR]; *see also* Henry L. Friedman & Zitong Zeng, Retail Investor Trading and Market Reactions to Earnings Announcements 1, 11 (July 1, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3817979 [https://perma.cc/32J8-JQXD] (suggesting that retail investors can benefit price efficiency and that they are not pure noise); Bradley et al., *supra* note 160, at 19–20 (discussing the value and influence of r/wallstreetbets comments on returns); Welch, *supra* note 158, at 1523; Devin Shanthikumar, Qiao Annie Wang & Shijia Wu, Does Interaction on Social Media Increase or Moderate Extremeness? 4 (Aug. 23, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3879175 [https://perma.cc/2TFY-46KZ] (showing that Seeking Alpha exerts a moderating effect on users' opinions).

[163] Farrell et al., *supra* note 162, at 31.

[164] *See, e.g.*, Gregory W. Eaton, T. Clifton Green, Brian Roseman & Yanbin Wu, *Retail Trader Sophistication and Stock Market Quality: Evidence from Brokerage Outages*, J. FIN. ECON. (forthcoming 2022–2023) (manuscript at 1, 37) (noting that unsophisticated retail investors act as noise traders); Pedersen, *supra* note 77, at 3, 7–8.

[165] *See* Farrell et al., *supra* note 162, at 30.

[166] *See, e.g.*, Hiltzik, *supra* note 159 (stating that passively managed index funds tend to outperform actively managed funds); James K. Choi & Kevin Zhao, *Did Mutual Fund Return Persistence Persist?* 4 (Nat'l Bureau of Econ. Rsch., Working Paper No. 26707, 2020) (showing that mutual fund performance did not persist from 1994 to 2018).

sources, it is difficult to locate good signal providers.[167] At any given time, only a few analysts have "good" information. Even for sophisticated investors, selecting these analysts is difficult. And those with inferior information may take advantage of the influence their information can have on price fluctuations. Some studies thus pointed out that fake news is more likely to garner attention, and that Seeking Alpha editors are often unable to identify fake news.[168] In other words, the potential amount of noise introduced through social media is vast.

2. Manipulation and Misinformation

Within these environments, manipulation may seem particularly tempting and relatively costless to perpetrate. Indeed, a recent study revealed the ongoing distortions caused by manipulative behavior through social media websites such as Seeking Alpha.[169] There is also a body of enforcement around manipulators on message boards that caused large options activity and price movements in small-cap stocks.[170] For example, the SEC previously uncovered evidence that authors on Seeking Alpha published fraud and fake news to manipulate stock prices.[171]

The risks of misinformation and manipulation in modern day securities markets, which are highly interconnected and feature seamless information dissemination, is a common topic of scholarship.[172] Pump-and-dump schemes

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[167] *See* Alexander Deneke, *Skill Among Retail Online Traders—A Bootstrap Analysis* 32 (Aug. 2019) (unpublished manuscript) (on file with author) (arguing that signal followers need warnings about the high likelihood of losing money, because most signal providers are insufficiently skilled).

[168] *E.g.*, Jonathan Clarke, Hailiang Chen, Ding Du & Yu Jeffrey Hu, *Fake News, Investor Attention, and Market Reaction*, 32 INFO. SYS. RSCH. 35, 49–51 (2021).

[169] Joshua Mitts, *Short and Distort*, 49 J. LEGAL STUD. 287, 330 (2020) (demonstrating that pseudonymous authors can manipulate stock prices through pseudonymous attacks and manipulative options trading); *see also* Petition for Rulemaking on Short and Distort from John C. Coffee Jr., Joshua Mitts, James D. Cox, Peter Molk et al., to Vanessa Countryman, Sec'y, U.S. Sec. & Exch. Comm'n 3–7 (Feb. 12, 2020), https://www.sec.gov/rules/petitions/2020/petn4-758.pdf [https://perma.cc/LJ66-R366] (petitioning the SEC to promulgate rules to curb manipulative short selling).

[170] *See* Kogan et al., *supra* note 56, at 2, 35 (using one data set of 171 fraudulent articles to show that fraudulent articles on social media networks increased retail trading volume and caused an 8% rise in prices on average).

[171] *Id.* at 1, 2, 7–8. The SEC uncovered evidence that authors were paid by companies to write fraudulent promotional articles about their stock prices. *Id.* at 8.

[172] *See, e.g.*, Fox et al., *supra* note 122, at 111–12 (analyzing various forms of stock market manipulation); Tom C.W. Lin, *The New Market Manipulation*, 66 EMORY L.J. 1253, 1292 (2017) ("Unscrupulous parties can now leverage the mechanisms of new media technology and new financial technology to disrupt and distort financial markets on an unprecedented scale by disseminating bad data, fake news, and faulty information into a marketplace that thrives on accurate information." (first citing Zohar Goshen & Gideon Parchomovsky, *The Essential Role of Securities Regulation*, 55 DUKE L.J. 711, 714 (2006); and then citing Sabrina Tavernise, *As Fake News Spreads Lies, More Readers*

are among the most obvious and salient examples of manipulation.[173] The reach of social media investing websites, however, may also incentivize a more insidious kind of predatory behavior. Due to the importance of social media "signalers" in mediating disclosure and public information, those with less accurate or valuable information may have more incentives to post information that targets investing heuristics, directly adding to the noise that retail investors must sift through, especially for thinly traded stocks. More sensational news may reach a larger audience.[174] This could skew the incentives of media signalers who then "gamify" investing, such as on Robinhood, or to include sensational details, such as on Seeking Alpha. For instance, one recent Seeking Alpha article written about a pharmaceutical company in the wake of trading around GameStop was titled "Hey Redditors, Redirect Your Attention To Marker."[175]

The reach of misinformation also risks reducing the effectiveness of good information. Studies have demonstrated that fake articles lead investors to discount all articles, including legitimate ones.[176] Additionally, as news disseminated through social media or social trading platforms encroaches on traditional information analyses, it is not hard to imagine that the role of heuristics and proxies will grow, diluting information value even further.

3. Other "Information"

There is an intriguing possibility that retail traders are "informed," but not in traditionally defined ways. For example, even if retail traders are not motivated by fundamental information, the sheer force and impact of coordinated retail trading can spur value-creating decisions by management that arguably bring the company's underlying value closer to the new, higher stock price. That subsequent price movement may make the initial trades seem "informed." For example, GameStop's surging prices motivated the company to hire new

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Shrug at the Truth, N.Y. TIMES (Dec. 6, 2016), https://www.nytimes.com/2016/12/06/us/fake-news-partisan-republican-democrat.html [https://perma.cc/JS37-A5HW])).

[173] *See* Lin, *supra* note 172, at 1282–85 (describing various processes, including pump-and-dump schemes, through which parties may manipulate the markets).

[174] *See* Stein, *supra* note 73, at 4 (noting that investors are more likely to purchase attention-grabbing stocks, either through news, extreme returns, or volume).

[175] Daniel Waserman, *Hey Redditors, Redirect Your Attention to Marker*, SEEKING ALPHA (Feb. 7, 2021), https://seekingalpha.com/article/4404194-hey-redditors-redirect-your-attention-to-marker [https://perma.cc/2BY9-Q3HR].

[176] *See, e.g.*, Kogan et al., *supra* note 56, at 28–29, 41 ("[W]e find significant spillover effects from investors discounting their response to all news from these platforms, including legitimate news . . . .").

management, potentially creating value for shareholders.[177] Some meme stocks also attracted value traders in addition to fueling momentum-based trading.[178]

It is also possible that retail investors are informed, but such information pertains to nonpecuniary characteristics of the company or is otherwise unrelated to future cash flows. Rather than trading on information about an issuer's future cash flows, retail investors may trade on information with respect to an issuer's sustainability or cultural relevance, for example. Even though this may not be "information" as traditional theory understands it, it could be conceived of as information about the value of a company, defined to include nonpecuniary value or information. In some circumstances, such information can predict future price movements, thereby making these retail traders "informed" in a broader sense.

Relatedly, other investors' perceptions play important roles in trading decisions.[179] If other traders grow to view retail investors as "informed," still other traders will tend to treat those retail traders as such, reacting based on market perception. Through this feedback mechanism, retail traders would tend to appear even more informed, and the preferences they trade on, such as cultural, distributional, or social characteristics, may gradually become embedded in the market's understanding of "information." This could then complement retail investors' potentially increasing participation in shareholder governance.

Other market participants would do well to take this into account. The market's ability to expand to absorb a more capacious definition of "information" may become increasingly important, especially when considering investor access and distributional consequences of equity markets. The rise of nontraditional asset classes such as cryptocurrency also raises questions around the continued viability of traditional, narrow notions of fundamental value or information.[180]

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[177] Sarah E. Needleman, *GameStop Remakes C-Suite, Board in Turnaround Push*, WALL ST. J., https://www.wsj.com/articles/gamestop-set-to-complete-board-overhaul-with-ryan-cohens-election-as-chairman-11623231002 [https://perma.cc/GG9L-JLPY] (June 9, 2021).

[178] *See* Joe Wallace, *AMC Shares Sink on Stock Sale Plan and Warning to Buyers*, WALL ST. J., https://www.wsj.com/articles/meme-stocks-gyrate-after-amc-files-to-sell-more-shares-11622721750 [https://perma.cc/X9E7-GGML] (June 3, 2021).

[179] *See* Shiller, *supra* note 109 (explaining that, according to Keynes, the best strategy in speculative markets is to select the stocks that others will select, the stocks that those others think still others will select, and so on).

[180] *See, e.g.*, Bruno Biais, Christophe Bisière, Matthieu Bouvard, Catherine Casamatta et al., *Equilibrium Bitcoin Pricing*, J. FIN. (forthcoming 2022–2023) (manuscript at 1) (presenting an analysis of cryptocurrency pricing that shows that "in addition to fundamentals, equilibrium prices reflect sunspots").

III. Market-Wide Implications

The foregoing analysis demonstrates the increasing potential for retail trades to impact or predict future price movements, irrespective of those retail trades' information content. This introduces coordinated retail risk. But coordinated retail risk's impact on market functioning more broadly raises complex questions.

By diluting the information signal from fundamental informed traders, coordinated retail risk presents the greatest danger to market efficiency that arises from today's retail and meme trading. This is because coordinated retail risk, by itself, reduces price accuracy by lowering the expected profitability and incidence of socially beneficial informed trading. It can also reduce liquidity.

This is not to say, however, that retail trading, overall, necessarily negatively impacts markets. Coordinated retail *risk* likely does, but it may be offset by other positive consequences from increased retail trading more broadly. For example, any negative impact from coordinated retail risk could be counterbalanced by the added liquidity from increased participation in the stock markets.[181] Retail investors may contribute to the heterogeneity of traders, which can improve market functioning by counteracting problematic behavior in other trading groups, such as herding by active managers or speculative trading by hedge funds or day traders.[182]

This Part assesses implications for markets more broadly. First, Section A of this Part discusses exit of informed traders.[183] Next, Section B discusses extended periods of mispricing.[184] Section C then looks at implications for market volatility.[185] Section D discusses the effects on market confidence.[186] Section E reviews the effects on payment for order flow.[187] Section F looks at the impacts on corporate governance.[188] Finally, Section G considers further downstream consequences for index pricing, securities litigation, capital raises, and acquisitions.[189]

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[181] *See* Eaton et al., *supra* note 164, at 6 (finding that "unsophisticated retail traders can have negative effects on stock market quality . . . [but] more experienced retail traders, who tend to be contrarian and are less likely to herd, have beneficial effects").

[182] *See, e.g.*, Bikhchandani & Sharma, *supra* note 13, at 279–80, 282; Brown et al., *supra* note 111, at 4; Bubb & Krishnamurthy, *supra* note 111, at 1540, 1545; Fisch, *supra* note 9 (manuscript at 3).

[183] *See infra* notes 190–208 and accompanying text.

[184] *See infra* notes 209–214 and accompanying text.

[185] *See infra* notes 215–221 and accompanying text.

[186] *See infra* notes 222–225 and accompanying text.

[187] *See infra* notes 226–227 and accompanying text.

[188] *See infra* notes 228–248 and accompanying text.

[189] *See infra* notes 249–270 and accompanying text.

A. Informed Trader Exit

Noisy information signals in stock markets are not new. Episodes of mispricing are arguably not that concerning, so long as the market's overall mechanisms are working properly. That is, noise is inevitable and tolerable, especially if the influx of retail investors benefits the market through added liquidity.[190] This argument depends on the ability of more rational investors, such as anti-mistake traders, to countermove to balance out the irrational investors, which usually occurs through acquiring and trading on superior information.

This Article demonstrates that the introduction of coordinated retail risk can substantially reduce informed traders' incentives and ability to correct irrational price movements.[191] If uninformed retail investors' trades cause a stock's price to deviate away from its accurate value, today's mispricing episodes may be less profitable to counteract. Sufficient deviations can lead to an exit of fundamental informed traders and longer periods of mispricing.

In this vein, an exit by short sellers, one form of informed trader, already occurred with respect to certain equities. Short sellers play an important role in asset pricing, identifying overvalued companies, correcting price bubbles, and even sniffing out potential wrongdoing.[192] With respect to meme stocks specifically, fear of short-term losses reduced the number of short sellers who bet against GameStop.[193] Evidence shows that higher attention on Reddit correlates with greater retail order flow and lower shorting order flow.[194] More recent rounds of meme stock trading saw sharp drops in the amount of short interest, as hedge funds grow increasingly wary of short selling against meme traders.[195] Notably, Jefferies banned short selling through its prime brokerage

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[190] *See, e.g.*, Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393, 393–408 (1980); Eaton et al., *supra* note 164, at 6 (noting the beneficial effects of experienced retail investors on stock market quality).

[191] *See supra* notes 150–152 and accompanying text.

[192] Molk & Partnoy, *supra* note 15, at 11–13. Short selling can also help detect misconduct and motivate improvements to corporate governance. *See* Matthew Wansley, *Taming Unicorns*, 97 IND. L.J. 1203, 1226–28 (2022).

[193] *See* Lorien Stice-Lawrence, Yu Ting Forester Wong & Wuyang Zhao, Cost of Information Dissemination: Short Squeezes After Short-Selling Attacks 4–5 (Mar. 2022) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3849581 [https://perma.cc/UX4Z-GT9Z] (noting that short sellers suffered significant costs, with an average of $69–88 million loss per short squeeze versus estimated $27–39 million profit per successful short sale campaign); Danqi Hu, Charles M. Jones, Valerie Zhang & Xiaoyan Zhang, The Rise of Reddit: How Social Media Affects Retail Investors and Short-Sellers' Roles in Price Discovery 5 (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3807655 [https://perma.cc/V636-EAAP] (Aug. 27, 2021) (studying short seller behavior in the context of the GameStop short squeeze).

[194] Hu et al., *supra* note 193, at 2.

[195] *See* Hirtenstein, *supra* note 14; Julie Steinberg & Juliet Chung, *GameStop Resurgence Reinforces New Reality for Hedge Funds*, WALL ST. J. (Feb. 26, 2021), https://www.wsj.com/articles/gamestop-resurgence-reinforces-new-reality-for-hedge-funds-11614335400 [https://perma.cc/WY6C-

arm after surges in AMC.[196] One activist short seller, after conducting research that indicated that Cassava Sciences, a biotech meme stock that had risen 700 percent, had significant problems with its clinical studies, took a significant short position.[197] After the short seller published a research report, the stock declined about 10 percent, but only briefly.[198] The short seller covered and exited his position, noting that "[i]f we had not exited that position when we did, I probably would've had to shut down my fund now . . . [w]e would have had career-ending losses."[199] Concerns over the risk of publicizing short interest for fear of attracting the attention of meme investors also emerged.[200]

In addition to the reduced power of arbitrageurs and exit by short sellers, another mechanism may be at work. As one commentator pointed out, the exit of long sellers, or fundamental value informed sellers, likely helped fuel the sustained rally in GameStop.[201] During the rally, those who had a ceiling for GameStop's value already sold their shares.[202] Remaining shareholders were either insiders who could not sell, price-insensitive index funds, or gamblers and retail traders without a view as to fundamental value.[203] None of these investors had any reason to sell, which kept the price inflated.[204] Such a scenario would further reduce the incentives of fundamental informed traders to trade.

The exit of informed traders is not limited to meme stocks. A similar phenomenon occurred in Tesla, a stock beloved by retail investors. As of March 2022, around thirty-eight percent of Tesla is owned by retail investors.[205] Tesla's years' long battle with short sellers provides a good example of the impact of coordinated retail trading. Tesla's stock price history can be understood as a gradual rise in the impact of coordinated retail trading causing a slow decrease in the incidence of informed trading due to lowered expected profitability of

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9FF8] (noting that, following meme stock surges in January 2021, U.S. hedge funds were "more tilted toward bullish bets than in any other period since 2010").

[196] Luke McGrath & Gillian Tan, *Jefferies Blocks Short Sells in GameStop, AMC, MicroVision*, BLOOMBERG (June 3, 2021), https://www.bloomberg.com/news/articles/2021-06-03/jefferies-blocks-short-sells-in-gamestop-amc-microvision [https://perma.cc/C4XW-ABQQ].

[197] *See* Michelle Celarier, *Are Activist Short Sellers Misunderstood?*, N.Y. TIMES (Feb. 12, 2022), https://www.nytimes.com/2022/02/12/business/dealbook/are-activist-short-sellers-misunderstood.html [https://perma.cc/5N3F-E2HT].

[198] *Id.*

[199] *Id.*

[200] Steinberg & Chung, *supra* note 195.

[201] *See* Matt Levine, Opinion, *Fidelity Manager Lacked Diamond Hands*, BLOOMBERG (June 24, 2021), https://www.bloomberg.com/opinion/articles/2021-06-24/fidelity-manager-owned-gamestop-but-lacked-diamond-hands [https://perma.cc/PP93-D7LC].

[202] *Id.*

[203] *Id.*

[204] *Id.*

[205] *Tesla Inc Stock Ownership—Who Owns Tesla?*, *supra* note 47.

such trading. Indeed, many short sellers of Tesla are "giving up."[206] Short interest in Tesla bottomed at 1.1%–3.2% by recent measurements, the lowest since Tesla went public in 2010.[207] This is despite traditional metrics indicating that Tesla's stock is grossly overpriced.[208]

B. Longer Periods of Irrationality

The exit of fundamental informed traders bodes ill for irrationality levels in stock prices. As mentioned, price accuracy depends on the activities of informed traders, including short sellers. But as episodes of mispricing become less profitable to counteract, they also become more difficult or riskier to counteract. The dilution in efficacy of anti-mistake trading in counteracting irrational prices can lead to more sustained episodes of mispricing.[209]

First, as discussed, if uninformed retail investors' trades correlate with future price movements, this reduces the profitability of informed trading. There would be less of an incentive and ability to counteract irrational price movements caused by retail trading.[210] Indeed, a reduction in short sellers can often lead to inflated share prices.[211] Rational informed traders may also choose to

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[206] *See* Thyagaraju Adinarayan & Esha Dey, *Many Tesla Short Sellers Are Giving Up*, BLOOMBERG (Oct. 4, 2021), https://www.bloomberg.com/news/articles/2021-10-04/tesla-short-sellers-flee-as-musk-s-carmaker-sets-delivery-record [https://perma.cc/7J3Z-7PCK].

[207] *Id.*

[208] Ian Bezek, *Tesla Vanquished the Short Sellers, but Risks Remain*, NASDAQ (Oct. 1, 2021), https://www.nasdaq.com/articles/tesla-vanquished-the-short-sellers-but-risks-remain-2021-10-01 [https://perma.cc/N4JM-RYNK] (comparing Tesla's $690 million net income, which translated into $0.64 per share with a market capitalization of $750 billion, to Toyota's $21 billion net income, which translated into $15 per share with a market capitalization of $250 billion).

[209] This relates to a substantial literature on the limited ability of arbitrageurs to bet against noise traders when arbitrageurs are faced with longer-horizon noise risk or fundamental risk. *See, e.g.*, De Long et al., *supra* note 93, at 705. Specifically, arbitrageurs' risk aversion and short time horizons limit their appetite for betting against noise traders. *Id.* This is because those noise traders might remain irrational for longer than the arbitrageur can maintain their opposing position. Fear of any resulting loss will rationally limit the arbitrageur's position. Moreover, noise traders' unpredictability can deter arbitrage even further. This means that prices can shift substantially away from fundamental values even without fundamental risk. Thus, "arbitrage does not eliminate the effects of noise because noise itself creates risk." *Id.* (first citing Oliver D. Hart & David M. Kreps, *Price Destabilizing Speculation*, 94 J. POL. ECON. 927 (1986); then citing Beth Fisher Ingram, *Equilibrium Modeling of Asset Prices; Rationality Versus Rules of Thumb*, 8 J. BUS. & ECON. STAT. 115 (1990); then citing Jeremy C. Stein, *Information Externalities and Welfare-Reducing Speculation*, 95 J. POL. ECON. 1123 (1987); then citing John C. Haltiwanger & Michael Waldman, *Rational Expectations and the Limits of Rationality: An Analysis of Heterogeneity*, 75 AM. ECON. REV. 326 (1985); and then citing Thomas Russell & Richard H. Thaler, *The Relevance of Quasi Rationality in Competitive Markets*, 75 AM. ECON. REV. 1071 (1985)). Excessive volatility is likely to result. *Id.*

[210] *See* Garleanu et al., *supra* note 139, at 40–41, 47 (demonstrating how short sellers may be induced to abandon their shorting positions when prices rise).

[211] *See* Molk & Partnoy, *supra* note 15, at 53.

ride a meme stock or retail-driven bubble, exacerbating it in some circumstances.[212] Second, if retail investors are not trading solely to maximize profits based on new information, acquiring better information may not be sufficient to counteract irrational price movements in all cases.

These effects increase the likelihood that prices remain at irrational levels for longer periods. Tesla provides yet another example. By many traditional metrics, Tesla's stock price is now, and was for the past few years, significantly overvalued.[213] Tesla is barely profitable yet has an extraordinarily high price-to-earnings ratio, as well as one of the largest market capitalizations.[214] Yet Tesla's stock price seems impervious to significant long-term reversion. If coordinated retail investors are contributing to Tesla's inflated price and continue to inject buying pressure without real basis in underlying information about Tesla's future cash flows—and they encounter no real selling pressure—there is an increased likelihood of an even more sustained bubble in Tesla pricing. Any decoupling of Tesla's future cash flows from its stock price means that Tesla will experience sustained price inaccuracy, skewing capital allocation as well as managerial incentives.

C. Volatility

Episodes of irrationality may exist for longer and be more difficult to counteract, and they may also be more volatile and more unpredictable. This is especially true as social or cultural trading motivations make retail trading less predictable. This imposes significant costs on the markets and economy more broadly.[215] As others have noted, volatility can exacerbate uninformed trading, lower liquidity levels, and negatively impact other market functions.[216]

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[212] *See* Brunnermeier & Nagel, *supra* note 147, at 2012–15 (showing that rational investors may choose to ride bubbles due to predictable investor sentiment as well as limits to arbitrage).

[213] *See generally* Charley Grant, *Tesla Stock Price Still Makes No Sense*, WALL ST. J. (Oct. 22, 2020), https://www.wsj.com/articles/tesla-stock-price-still-makes-no-sense-11603360922 [https://perma.cc/3GF7-2ADL] (discussing Tesla's overvaluation in 2020, with "shares trad[ing] at more than 800 times trailing earnings").

[214] *See* Bezek, *supra* note 208 (comparing Tesla's significantly higher market capitalization to Toyota's significantly larger earnings per share).

[215] These considerations are important in light of evidence demonstrating that investors with meme stock-heavy portfolios may have worse diversification benefits, as herding significantly drives meme stock pricing behavior. *See* Arash Aloosh, Hyung-Eun Choi & Samuel Ouzan, Meme Stocks and Herd Behavior 2–5 (Aug. 23, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3909945 [https://perma.cc/F7LB-TP52]. Additionally, engaging in momentum trading can lead to overreaction in prices, resulting in negative externalities imposed on later momentum traders by earlier momentum traders. *See* Harrison Hong & Jeremy C. Stein, *A Unified Theory of Underreaction, Momentum Trading, and Overreaction in Asset Markets*, 54 J. FIN. 2143, 2143, 2146 (1999).

[216] Fisch, *supra* note 9 (manuscript at 15).

Greater volatility is especially likely with respect to meme trading, as meme traders often trade with options, seeking immediate rewards by taking huge risks.[217] Meme trading already significantly heightened volatility in certain market sectors, such as options trading.[218] As one example, trading in GameStop was halted multiple times on a single day in early 2021 due to volatility.[219] To the extent that more "rational" traders choose to pile in and cash in on a meme trading episode, volatility could increase even more. There is also the possibility that retail investors could coordinate to tank the price of a stock, just as much as they might coordinate to "take it to the moon."

On the flip side, retail investors might contribute to the heterogeneity of traders, which could improve market functioning. Retail investors could, for example, counteract problematic behavior by other trading groups, such as herding by active managers or speculative trading by hedge funds or day traders.[220] Retail traders could thus potentially reduce volatility, a possibility raised by retail traders' buying activity during market dips throughout the past few years.[221]

D. Market Confidence

The existence of coordinated retail risk may also impact market confidence. This refers to investors' belief in or experience of the market as "fair."[222]

On one hand, retail participants may view their own ability to impact prices and gain greater access to the markets as increasing market fairness.[223] This perception would likely spur increased confidence and participation in markets. On the other hand, any sustained losses suffered by retail investors might decrease market confidence. For example, with respect to uninformed

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[217] Carleton English, *Meme Stock Mania Gave Options Trading a Spotlight. Barron's Took the Plunge.*, BARRON'S (Nov. 11, 2021), https://www.barrons.com/articles/unboxed-meme-stocks-options-trading-51636646947 [https://perma.cc/6DFC-AV9D]; Gunjan Banerji, *Options Activity Tied to Avis, Meme Stocks Explodes*, WALL ST. J., https://www.wsj.com/articles/options-activity-tied-to-avis-meme-stocks-explodes-11635962468 [https://perma.cc/P9D5-DXDF] (Nov. 3, 2021).

[218] *See* Gunjan Banerji, *AMC, Other Meme Stocks Turn Options Market Upside Down*, WALL ST. J. (June 8, 2021), https://www.wsj.com/articles/amc-other-meme-stocks-turn-options-market-upside-down-11623144602 [https://perma.cc/NM7C-MUZB]; Betzer & Harries, *supra* note 110, at 27–28.

[219] *See* Yun Li & Jesse Pound, *GameStop's Stock Closes Down More Than 40% After Brokers Place Restrictions on Trades*, CNBC (Jan. 28, 2021), https://www.cnbc.com/2021/01/28/gamestop-reverses-losses-and-surges-another-30percent-in-the-premarket-to-450-as-mania-continues.html [https://perma.cc/9ZL3-NTSD].

[220] *See, e.g.*, Bikhchandani & Sharma, *supra* note 13, at 279–80, 303; Brown et al., *supra* note 111, at 4; Bubb & Krishnamurthy, *supra* note 111, at 1540, 1545; Fisch, *supra* note 9 (manuscript at 3).

[221] Wolff-Mann, *supra* note 98.

[222] Fox et al., *supra* note 141, at 1290.

[223] *See generally* Sarah O'Brien, *More Than Half of Individual Investors Think the Stock Market Is Rigged Against Them, Survey Finds*, CNBC (Mar. 25, 2021), https://www.cnbc.com/2021/03/25/more-than-half-of-retail-investors-say-market-is-rigged-against-them.html [https://perma.cc/L8HT-LZBX] ("It's not investing that is viewed skeptically, it's the system.").

traders, it is possible that those who are not coordinated with a set of retail investors who are all buying may end up being sellers, which means that they lose, and vice versa.

Moreover, any perceived increase in volatility or decrease in predictability may negatively impact perceived fairness. Even if other uninformed traders are not, as a group, harmed or helped by coordinated retail investors, they may more negatively view the markets. Negative externalities may result, including exit from the market by retail traders who lose substantial amounts of money.[224] Exit in sufficient numbers may lead to a reduction in savings for those who otherwise would invest in the stock market, with attendant negative macroeconomic implications.[225]

E. Payment for Order Flow

If retail trades exhibit greater correlation with future price movements, liquidity suppliers may also be less willing to engage in practices such as payment for order flow, whereby retail brokers sell their customers' orders to certain liquidity suppliers. Those liquidity suppliers offer slight price improvement for the retail trades and are willing to purchase them on the premise that they are uninformed and do not predict future price movements.[226] This is because liquidity providers prefer to transact with uninformed traders, and their ability to make a profit hinges on transacting with more uninformed than informed traders.[227]

If, however, retail order flow does predict future price movements in some instances, then there is some question as to the continued viability of practices such as payment for order flow. Liquidity providers may be less willing to purchase retail flow that appears to be informed.

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[224] *See* Fox et al., *supra* note 141, at 1290–91 (explaining how negative market perceptions may reduce retail participation in markets); *see also* Lydia Saad, *U.S. Stock Ownership Stays at Record Low*, GALLUP (May 8, 2013), http://news.gallup.com/poll/162353/stock-ownership-stays-record-low.aspx [http://perma.cc/FU35-QUMR] (describing significant lows in stock ownership, resulting, at least in part, from "fear the market is still too risky as long as joblessness remains a national problem"); MICHAEL LEWIS, FLASH BOYS: A WALL STREET REVOLT 200–01 (2014) (attributing low stock ownership to perceptions of market unfairness); *see also* Editorial, *The Hidden Cost of Trading Stocks*, N.Y. TIMES (June 22, 2014), http://www.nytimes.com/2014/06/23/opinion/best-execution-and-rebates-for-brokers.html [https://perma.cc/A29T-4KCS] (arguing that the stock market does not treat sophisticated and everyday investors equally); Bradley Hope, *Five Things to Know About Spoofing in Financial Markets*, WALL ST. J., https://www.wsj.com/articles/BL-263B-3591 [https://perma.cc/NW94-J9X8] (Feb. 22, 2015).

[225] Fox et al., *supra* note 141, at 1290–91 (noting that if public perception is hard enough to eradicate and is damaging market functioning, that perception may by itself warrant some policy response).

[226] NEW STOCK MARKET, *supra* note 15, at 289.

[227] *Id.* at 65–66 (citing LARRY HARRIS, TRADING AND EXCHANGES 320–21 (2002)).

F. Corporate Governance

The impact of retail investors on prices can also interact in substantial ways with corporate governance—both positively and negatively. Although managerial incentives may be significantly skewed, retail investors may newly embrace impact investing and even encourage socially beneficial decisions by companies.

1. Managerial Incentives

A vast literature has explored the degree to which stock prices produce signals for capital allocation, investment projects, the identification of good and bad managers, and the promotion of other related social goals.[228] Generally, more accurate prices guide managerial decisions so that the most socially beneficial projects receive society's limited capital.[229] Episodes of mispricing may misdirect management decisions.[230]

Facing the impact of coordinated retail and meme trading, managers might attempt to raise stock prices, not by seeking out better projects, but by seeking out retail order flow specifically.[231] They could do this by becoming a meme stock or attracting the attention of large groups of coordinated retail investors by choosing projects more likely to appeal to retail investors.[232]

Two recent examples bear mentioning. In November 2021, an activist investor sent a letter to Macy's containing the following excerpt:

> Macy's share price is materially undervalued and requires urgent action to unlock value. We believe that by adopting the strategies discussed below, Macy's would be worth more than $75 per share.
>
> Macy's should form partnerships with EV car companies (e.g., Tesla, Lucid or Rivian) to showcase their products on the ground floor of Macy's 100 top landmark stores (e.g., Herald Square, Marshall Field, Union

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[228] *See, e.g.*, Fox et al., *supra* note 122, at 83 (citations omitted).

[229] *Id.* (citing Merrit B. Fox, *Civil Liability and Mandatory Disclosure*, 109 COLUM. L. REV. 237, 258–60 (2009)).

[230] *Id.*

[231] *See* James Mackintosh, *AMC's Meme-Stock Traders Mess with Corporate Theory*, WALL ST. J. (June 8, 2021), https://www.wsj.com/articles/amcs-meme-stock-traders-mess-with-corporate-theory-11623107259 [https://perma.cc/SGD2-GWW6].

[232] *See, e.g.*, Matt Levine, Opinion, *Meme Activists Come for Macy's*, BLOOMBERG (Nov. 4, 2021), https://www.bloomberg.com/opinion/articles/2021-11-04/macy-s-targeted-by-meme-activists [https://perma.cc/MYR6-FU2W] (describing how companies can engage in behavior that appeals to meme investors, such as partnering with electric vehicle companies and cryptocurrencies (citing Letter from Guy Phillips, Managing Member, NuOrion Advisors, LLC, to Jeffrey Gennette, Chairman & Chief Exec. Officer, Macy's, Inc. (Nov. 4, 2021), https://nuorionadvisorsbusiness.files.wordpress.com/2021/11/letter-to-m-chairman-3.pdf [https://perma.cc/W7JK-VD38])).

> Square) and to use their massive parking footprint to build an EV charging network. . . . We believe that direct association with EV companies will drive enormous traffic to Macy's stores.
>
> In addition, Macy's should announce immediately that they are partnering with various Crypto platforms to allow digital payments.[233]

Whether partnering with EV car companies or crypto platforms will increase shareholder value is perhaps an open question, but the activist investor's letter appears to be essentially seeking meme stock status for Macy's.[234] As another example, GameStop announced on January 6, 2022 that it would launch cryptocurrency partnerships and a marketplace for nonfungible tokens ("NFTs"), which led its stock price to soar thirty percent higher.[235]

2. Impact Investing and Retail Governance

Today's retail investing may also signal a resurgence of retail influence on capital allocation. Specifically, as retail investors increasingly coordinate in easier and less costly ways, they can engage in impact investing and direct shareholder governance. Examples of this behavior are already available. Thousands of AMC's investors coordinated on Reddit prior to AMC's 2021 annual shareholders' meeting to discuss voting strategies.[236] Those investors had the potential to significantly impact the company, as retail investors owned over eighty percent of AMC's shares.[237] Those same investors also began adopting gorillas in 2021, driven by their self-termed nicknames, "apes."[238]

Retail governance, however, is certainly not limited to meme stocks. Retail investors markedly increased their capacity to become actively involved in any given company.[239] Their trading platforms of choice significantly lowered

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[233] Letter from Guy Phillips to Jeffrey Gennette, *supra* note 232, at 1.

[234] *See* Levine, *supra* note 232.

[235] Sarah E. Needleman, *GameStop Entering NFT and Cryptocurrency Markets as Part of Turnaround Plan*, WALL ST. J., https://www.wsj.com/articles/gamestop-entering-nft-and-cryptocurrency-markets-as-part-of-turnaround-plan-11641504417 [https://perma.cc/AR3N-A2ST] (Jan. 6, 2022).

[236] *See* Ricci & Sautter, *supra* note 22, at 83 n.276.

[237] *AMC Entertainment Holdings, Inc.'s (AMC) CEO Adam Aron on Q1 2021 Results—Earnings Call Transcript*, SEEKING ALPHA (May 6, 2021), https://seekingalpha.com/article/4425374-amc-entertainment-holdings-inc-s-amc-ceoadam-aron-on-q1-2021-results-earnings-call [https://perma.cc/N4QL-X93U].

[238] *See* Jason Murdock, *WallStreetBets Users Adopt 3,500 Gorillas, Raise $377,000 for Charity*, NEWSWEEK (Mar. 18, 2021), https://www.newsweek.com/reddit-wallstreetbets-members-adopt-gorillas-charity-raisemoney-update-1577148 [https://perma.cc/835P-7EBB].

[239] Historically, retail investors have been "rationally apathetic" and disinclined to vote. *See* Ricci & Sautter, *supra* note 22, at 80–81. Recently, scholars have begun questioning that assumption. *See* Haan, *supra* note 64, at 601; Jacob Hale Russell, *Which Investors to Protect? Evolving Conceptions of the American Shareholder, 1900–Present*, *in* CAMBRIDGE HANDBOOK OF INVESTOR PROTECTION (Arthur B. Laby ed., forthcoming 2022) (manuscript at 43–44). Social media is also certainly chang-

the cost of acquiring information that may shape retail voting or participation, and perhaps facilitated more direct participation in shareholder governance.[240] Some commentators, therefore, argued that today's retail investors may bring significant changes in corporate governance.[241] Another commentator pointed out the benefits of increased retail participation in economic development, including improvements in managerial accountability through direct investment and engagement with companies.[242] Increased retail participation also has implications for ongoing debates around stakeholder governance.[243] Meme and retail trading could also contribute to socially oriented divestment and investment movements—and can be used for good. Some speculate that retail blocs can even act as activist investors, bringing value like that of activist hedge funds.[244]

Companies will increasingly need to understand their retail investing base as a core part of their broader shareholder base. Some companies are already doing so, reaching out directly to retail investors and communicating with them on platforms such as Clubhouse.[245] Robinhood recently acquired Say Technologies to provide its users with a platform to communicate with other shareholders as well as with managers.[246] Retail investors have already used the platform to ask questions during earnings calls. During Tesla's second quarter 2021 earnings call, more than two thousand users upvoted one ques-

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ing that assumption. *See* Seth C. Oranburg, *A Little Birdie Said: How Twitter Is Disrupting Shareholder Activism,* 20 FORDHAM J. CORP. & FIN. L. 695, 696 (2015). Additionally, others have noted that shares may become more dispersed across a broader shareholder base as a result. *See* Ricci & Sautter, *supra* note 22, at 85.

[240] *See* Ricci & Sautter, *supra* note 22, at 83–88; Katja Langenbucher & Fizza Hasan, *GameStop—A Case for Empowering Retail Investors?: A Comparative Glance at the U.S. and the EU* (exploring the possibility that retail investors coordinate to monitor management and engage in shareholder governance), *in* SELBSTBESTIMMUNG: FREIHEIT UND GRENZEN 400–01 (Antje G.I. Tölle et al. eds., 2021).

[241] *See* Langenbucher & Hasan, *supra* note 240.

[242] *See* Fisch*, supra* note 9 (manuscript at 4).

[243] *See id.* (manuscript at 32) (discussing retail shareholders' role in stakeholder governance, given that "[r]etail shareholders do not simply represent, they embody the interests of employees, customers, the community and society at large").

[244] *See* Ricci & Sautter, *supra* note 22, at 91–92.

[245] *See* Matt Phillips, *Hungry for Investors, Some Companies Woo the Little Guy*, N.Y. TIMES, https://www.nytimes.com/2021/04/13/business/stock-market-investors.html [https://perma.cc/4VVM-JU4M] (Apr. 14, 2021); *AMC Entertainment Holdings, Inc.'s (AMC) CEO Adam Aron on Q1 2021 Results—Earnings Call Transcript*, *supra* note 237.

[246] *See* Lauren Solberg, *Robinhood Enters the Realm of Proxy Voting*, MORNINGSTAR (Oct. 6, 2021), https://www.morningstar.com/articles/1060879/robinhood-enters-the-realm-of-proxy-voting [https://perma.cc/5C7F-SY46].

tion, which represented 367,000 shares of Tesla.[247] Elon Musk answered the question, which was later posted by Tesla on the Say platform.[248]

G. Downstream Pricing Implications

Impactful or sticky retail trading also has implications for downstream market aspects that depend on accurate pricing. Securities class actions depend on a generalized conception of market efficiency. Appraisals during mergers and acquisitions turn on the ability to determine a fair value for shares. A company's ability to raise capital is tied to its share price. Additionally, indices that contain stocks popular with retail investors may see dramatic swings in valuation, with downstream implications for funds and investments pegged to those indices.

This Section provides an overview of some of the most important implications.[249] These relate specifically to the accuracy of prices, which, as this Article demonstrates, is increasingly affected by meme trading, retail trading, and the incidence of coordinated retail risk.

1. Securities Litigation

The ability of persons to proceed as a class in securities litigation is closely bound to the premise that stock prices reflect publicly available information, such that once a misstatement is revealed, the company's stock price will react and presumably lose value, harming investors who relied on the misstatement. This logic generated the fraud-on-the-market theory, which assumes that stocks trade in an efficient market where public information about an issuer affects its stock price.[250] Under the theory, courts may assume that a purchaser of the security relied on that information in making their purchase.[251] Because a plaintiff must show reliance on a misstatement by the defendant to succeed in a securities fraud action, individual questions of reliance would otherwise preclude

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[247] *Id.* The question was: "Elon has said that Tesla will be opening up the Supercharger network to other EVs later this year. Can you share more details on how this will be structured? Will this be select brands? Will they contribute to the growth of the network?" *Id.* (quoting Robert M., Retail Investor, Tesla).

[248] *Id.*

[249] *See infra* notes 250–270 and accompanying text.

[250] *See* Patel, *supra* note 18, at 24–28; Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. 258, 272, 277 (2014).

[251] *See* Lucian A. Bebchuk & Allen Ferrell, *Rethinking* Basic, 69 BUS. LAW. 671, 672 (2014). *See generally* Paul A. Griffin, Joseph A. Grundfest & Michael A. Perino, *Stock Price Response to News of Securities Fraud Litigation: An Analysis of Sequential and Conditional Information*, 40 ABACUS 21 (2004) (studying the impact of class action securities fraud litigation announcements on stock prices).

class certification. This means that reliance on market prices is a proxy for reliance on the misstatement.[252]

The merits of the fraud-on-the-market theory, the role of price impact in determining misconduct, and the underlying premise of market efficiency have been debated for decades.[253] A sustained episode of mispricing caused by retail or meme traders presents one more fact pattern that may impact the theoretical reach of the fraud-on-the-market theory by reducing the link between price and information.[254] For a stock experiencing a sustained episode of retail trading that is information-inelastic, a misstatement or the discovery thereof may have little to no impact on price, undercutting courts' abilities to determine reliance.

Consider the following meme stock trading example: AMC misstates its earnings during an SEC filing and AMC subsequently discloses the misstatement. Both of these events take place during a Reddit rally around AMC. Neither the misstatement nor its disclosure causes a price reaction in AMC's stock price, which continuously increased during this period. The lack of a price reaction may lead to the conclusion that no class-wide reliance occurred under the fraud-on-the-market theory.[255] Ongoing Reddit trading, however, may be masking market-wide reliance on AMC's earnings. The sustained and repeated nature of such meme prices raises the likelihood of such interference, especially as meme trading often targets smaller cap companies with prices that are more easily influenced.

2. Mergers & Acquisitions

Stock prices also play significant roles in mergers and acquisitions. For example, post-merger appraisal proceedings that seek to assess a stock's "fair value" have become increasingly common.[256] When presented with an acquisition's deal terms, including a merger price, shareholders of a target company's appraisal right allows them to opt to reject the deal terms and receive a judicially determined share cash valuation instead.[257] This appraisal right is in-

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[252] *See* Goshen & Parchomovsky, *supra* note 172, at 766.

[253] *See* Patel, *supra* note 18, at 24–28; Goldman Sachs Grp., Inc. v. Ark. Tchr. Ret. Sys., 141 S. Ct. 1951, 1958–59 (2021); *Halliburton II*, 573 U.S. at 258; Amgen Inc. v. Conn. Ret. Plans & Tr. Funds, 568 U.S. 455, 458–59 (2013); Erica P. John Fund, Inc. v. Halliburton Co. (*Halliburton I*), 563 U.S. 804, 810–12 (2011); Basic Inc. v. Levinson, 485 U.S. 224, 229–30 (1988); Bebchuk & Ferrell, *supra* note 251, at 672 (citing *Basic Inc.*, 485 U.S. 224).

[254] *See, e.g.*, Bebchuk & Ferrell, *supra* note 251, at 682–84 (identifying a number of hypotheticals where market price reaction is not the best proxy for class-wide reliance).

[255] *See id.* at 688.

[256] Choi & Talley, *supra* note 19, at 543–44.

[257] *Id.* (first citing DEL. CODE ANN. tit. 8 § 262(b) (2022); and then citing MODEL BUS. CORP. ACT §§ 13.01–.02 (AM. BAR ASS'N 2021)).

creasingly common in recent years and allows dissenting shareholders to oppose unsatisfactory deal terms more powerfully.[258]

The difficulties in determining a single number representing fair value during appraisal proceedings, including vagaries with the burden of proof and wide-ranging disagreements between valuation experts, led to a growing willingness among courts to simply use the merger price itself as indicative of fair value.[259] Commentators have questioned the wisdom of doing so.[260]

Within this environment, the fluctuating value of a retail-influenced stock can play a significant role. It could inflate the deal price and thus inflate the appraisal price if a court defers to the deal price as the indication of fair value, and vice versa. It could also create a higher reserve price that may lead to higher premiums paid in the acquisition, or simply confuse the ability of courts to determine fair value even further.

3. Capital Raises

The ability of companies to raise capital is also keyed to stock prices. If an issuer's share price is distorted by retail investors, its cost of capital will be affected. A meme stock experiencing a rally might be able to raise capital very easily even if it has weak underlying fundamentals, as both AMC and GameStop did.[261] Conversely, companies with stronger fundamentals may find it harder to raise capital.[262]

4. Stock Market Funds and ETFs

Retail-driven prices can have a significant impact on stock indices that contain those stocks, as well as funds that incorporate those stocks. For example, GameStop and AMC can be found in a range of ETFs, from value funds to growth funds and social-media-focused funds. The twenty-five billion dollar Vanguard Small Cap Value ETF has positions in AMC and GameStop, as does the SPDR S&P 1500 Momentum Tilt ETF.[263] In late 2020, the S&P 500 added Tesla, which means that billions of dollars in index-held assets will now also

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[258] *See id.*

[259] *Id.*

[260] *E.g.*, *id.* at 546.

[261] AMC raised $1 billion, while GameStop raised $1.7 million. Press Release, AMC Theatres Investor Relations, *supra* note 20; Myles Udland, *GameStop Gives Investors 1.6 Billion Reasons to Care About the Meme Trade: Morning Brief*, YAHOO! NEWS (June 23, 2021), https://news.yahoo.com/game-stop-gives-investors-16-billion-reasons-to-care-about-the-meme-trade-morning-brief-091020855.html [https://perma.cc/74GU-EGK5].

[262] *See* Fisch, *supra* note 9 (manuscript at 16–17).

[263] *See* Banerji & Wursthorn, *supra* note 21.

hold Tesla.[264] As another example, the Russell 2000 recently skyrocketed due to surges in AMC and other meme stocks that are in the index.[265] Huge values of these funds are traded; passive investing in many ways still dominates the U.S. investing landscape.[266] Some ETFs even actively chase meme returns, betting that momentum and sentiment indicate future returns.[267] Four of these funds—SFYF, FOMO, BUZZ, and MEME—rely on online social media chatter and high short interest, among other indicators, to pick stocks.[268]

Changes to such indices have significant downstream implications for funds whose holdings are tied to such indices.[269] Those funds are susceptible to distortions caused by retail-loved stocks, for example, due to the need to rebalance as those stocks drift in and out of major indices. This means that scores of investors who never participated in meme trading may own shares of meme stocks in their index-based portfolios and face additional volatility and uncertainty.[270]

IV. THE WAY FORWARD

To be clear, this Article does not posit that retail trading will topple markets. As discussed, retail trading may significantly benefit market functioning. Retail access to and participation in markets benefit society. Moreover, pockets of inefficiency, or irrational pricing, have always existed—caused by both sophisticated and unsophisticated investors alike.[271] And noise is an inevitable part of markets.[272] Instead, this Article focuses on how meme trading and retail

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[264] *See* Peter Santilli, *Tesla Stock Joins the S&P 500: A Game Changer*, WALL ST. J. (Dec. 21, 2020), https://www.wsj.com/graphics/tesla-stock-joins-the-sp500/ [https://perma.cc/YD7N-238D].

[265] Owram, *supra* note 21; Banerji & Wursthorn, *supra* note 21.

[266] *SPDR S&P 1500 Momentum Tilt ETF*, WALL ST. J., https://www.wsj.com/market-data/quotes/etf/MMTM [https://perma.cc/P2CK-QS5L]; Dawn Lim, *Index Funds Are the New Kings of Wall Street*, WALL ST. J. (Sept. 18, 2019), https://www.wsj.com/articles/index-funds-are-the-new-kings-of-wall-street-11568799004 [https://perma.cc/J59J-8BXK].

[267] *See* Michael Wursthorn, *Meet the ETF Portfolio Managers Trying Their Luck with Meme Stocks AMC and GameStop*, WALL ST. J. (June 19, 2021), https://www.wsj.com/articles/meet-the-etf-portfolio-managers-trying-their-luck-with-meme-stocks-amc-and-gamestop-11624110383 [https://perma.cc/DT4L-9YUC]; Lan Anh Tran, *What's in a Meme ETF?*, MORNINGSTAR (Oct. 8, 2021), https://www.morningstar.com/articles/1060452/whats-in-a-meme-etf [https://perma.cc/2VX3-E7F7].

[268] Tran, *supra* note 267 (explaining that SFYF has the 50 most-popular stocks held by its self-directed brokerage customers, BUZZ and MEME select stocks based on social media presence, and MEME also considers high short interest).

[269] Potter & Ballentine, *supra* note 21.

[270] *See* Banerji & Wursthorn, *supra* note 21.

[271] *See, e.g.*, Awrey & Judge, *supra* note 111, at 2302–12; Bikhchandani & Sharma, *supra* note 13, at 282, 289–90; Bubb & Krishnamurthy, *supra* note 111, at 1548; Brunnermeier & Nagel, *supra* note 147, at 2013–15.

[272] *See* Grossman & Stiglitz, *supra* note 190, at 404–05.

trading impact stock prices, the overlooked risks they add to the complex market ecosystem, and the potential consequences for efficiency.[273]

Recognizing this, it is more urgent than ever to incentivize better information. Doing so will lead to more informed trading and less uninformed trading. This broad goal is certainly nothing new. Increasing the proportion of good relative to bad information underlies nearly all of the disclosure-based securities regulation regime.[274] Yet for the same reasons that society overlooks retail investors' impact on prices, securities laws inadequately focus on retail-specific aspects of disclosure, such as the information that actually reaches retail investors and drives their trading decisions.[275] Greater retail participation in shareholder governance may also increase retail informativeness. It is also crucial to consider the role of brokers as well as trading platforms through aspects such as their behavioral design. Finally, it is important to keep in mind the value of retail participation in markets, from increasing market diversity to providing ordinary citizens a voice and stake in corporate outcomes.[276]

Although a full explication of reforms is beyond the scope of this Article, this Part provides a tentative treatment. It considers three categories of reforms: (1) improving information relied on by retail investors,[277] (2) enhancing retail participation in shareholder governance,[278] and (3) behavioral reforms.[279]

A. Better Retail Information

Increased attention must be given to incentivizing better information. At the outset, it should be noted that the rise of social media makes understanding what constitutes "good" information a greater challenge than ever before. The sorts of information relied upon even by traditional investors continues to evolve beyond information confined to financial statements.[280] And as dis-

[273] In some sense, it may be argued that retail investors exhibit some of the same, although overlooked, characteristics of sophisticated investors; for example, market power, fundamental value trading, peer observation and herding, behavioral biases, and susceptibility to bubbles. It arguably can have just as much influence on prices as sophisticated investors, for good or for bad.

[274] *See, e.g.*, Goshen & Parchomovsky, *supra* note 172, at 756–57.

[275] *See, e.g.*, Robert A. Prentice, *Moral Equilibrium: Stock Brokers and the Limits of Disclosure*, 2011 WIS. L. REV. 1059, 1061–68 (discussing the inadequacies of stockbroker disclosure); Tierney, *supra* note 9 (manuscript at 6) (arguing that modern securities law has left investor protection to "sophisticated financial intermediaries").

[276] *See* Fisch, *supra* note 9 (manuscript at 25–26).

[277] *See infra* notes 280–285 and accompanying text.

[278] *See infra* notes 286–292 and accompanying text.

[279] *See infra* notes 293–312 and accompanying text.

[280] *See, e.g.*, Press Release, U.S. Sec. & Exch. Comm'n, SEC Says Social Media OK for Company Announcements if Investors Are Alerted (Apr. 2, 2013), https://www.sec.gov/news/press-release/2013-2013-51htm [https://perma.cc/FZ5Y-3CDW].

cussed *supra*, the borders of the market's understanding of "information" itself may merit expansion.

To the extent that social media or social trading networks drive retail trading and even displace the role of traditional sell-side analyses, it is crucial to incentivize better social media analyses. If deployed productively, social media and new trading platforms can play a substantial role in funneling good information to retail investors, which would expand the retail investor base and help address broader fairness concerns.[281] It is also important to consider the degree to which any reform can incentivize retail investors to *generate* good information that contributes to price accuracy. Doing so will benefit not only the retail investors who seek to trade on good information but will also benefit the market's price discovery mechanisms.

Reforms in this area should not be limited to surface level, *ex post* reforms such as reducing the "gamification" of investing. Rather, reforms should also consider the drivers of information and attendant retail trading. Information signalers, or those with the most influence over retail trading, deserve closer scrutiny. This applies both to trading platforms as well as to social media influencers. For example, analysts' incentives to bolster their reputations and attract additional viewers or followers may in turn incentivize "better" analyses. If readers pay more attention to Seeking Alpha authors that have historically provided valuable information, it might encourage those authors to continue to provide valuable information and discourage them from providing bad information.[282] There is some encouraging research in analogous contexts demonstrating that social monitoring may lead to better informational content in financial reports. Because obtaining more followers or views incentivizes authors, they will adjust their behavior based on appropriate feedback.[283] To be sure, social monitoring can also impede rational decision-making, as others

[281] An increase in valuable information disseminated by social media may also reduce fairness concerns and other structural disadvantages around retail investing. Traditional definitions of "fairness" in stock prices have little to do with ensuring that each investor nets a positive return. Instead, the fairness of a given practice is generally evaluated based on its effects on market participants' wealth positions *ex ante*. *See* Fox et al., *supra* note 141, at 1263. Fair prices, moreover, are often defined simply as prices that reflect all publicly available information. *See* NEW STOCK MARKET, *supra* note 15, at 49–54. Of course, *perceived* fairness certainly plays a large role in retail investing behavior. *Id.* at 49; *see also* Jonathan R. Macey, *Securities Regulation and Class Warfare*, 2021 COLUM. BUS. L. REV. 796, 805 ("If this saga shows anything, it is that outside of [large, elite, or institutional actors], the financial markets are not perceived as fair, orderly, or efficient—for good reason.").

[282] *See* Chen et al., *supra* note 52, at 1368–70, 1374–77.

[283] *Id.* at 1368 (describing the incentives of Seeking Alpha contributors to contribute good information); *see also* Clarke et al., *supra* note 168, at 49–50; Paulo B. Goes, Mingfeng Lin & Ching-man Au Yeung, *"Popularity Effect" in User-Generated Content: Evidence from Online Product Reviews*, 25 INFO. SYS. RSCH. 222, 236 (2014) (noting that increased viewership leads to more objective reviews).

demonstrated in the context of disclosure.[284] Peer activity may incentivize better self-monitoring and lead to better outcomes, but it can also exacerbate irrational behavior.[285]

B. Retail Voting

It is also worth considering reforms that enhance retail investors' participation in shareholder voting. This is because greater retail participation could lead to better information dissemination. As one commentator argued, direct investment in companies by retail investors makes them significantly more likely to be informed about those companies,[286] and creating voting platforms for largely excluded retail investors would improve the shareholder voting process.[287] This would make it easier for retail traders to actually vote and would incentivize companies and proxy solicitation firms to reach out directly to share information with traders.[288] A feedback loop would enhance the effect, as increased retail participation would lead to more information-sharing by companies, which would tend to make retail participants more informed and more likely to participate.[289] Facilitating retail voting and encouraging more informed investor participation could have additional benefits, from increasing financial literacy to improving perceptions of market fairness and access.

Retail investors have repeatedly demonstrated eagerness to engage with information, as evidenced by "due diligence" posts and online discussions prior to shareholder meetings on Reddit.[290] There is further evidence that retail investors would welcome more direct participation in shareholder voting. As discussed *supra*, Robinhood recently acquired Say Technologies to provide its users with a platform to communicate with other shareholders as well as with

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[284] *See* Steven M. Davidoff & Claire A. Hill, *Limits of Disclosure*, 36 SEATTLE U. L. REV. 599, 599–604 (2013) (exploring the limits of disclosure, including for sophisticated investors).

[285] *Id.* at 603 (citing Judith Chevalier & Glenn Ellison, *Career Concerns of Mutual Fund Managers*, 114 Q.J. ECON. 389, 389 (1999)).

[286] Fisch, *supra* note 9 (manuscript at 31).

[287] Jill E. Fisch, *Standing Voting Instructions: Empowering the Excluded Retail Investor*, 102 MINN. L. REV. 11, 12–19 (2017).

[288] *Id.* at 46.

[289] *Id.* The fear that facilitating retail participation would encourage uninformed voting is largely unfounded, not least because such risk is not confined to retail investors. *Id.* at 52.

[290] *See $WISH [Due Diligence]*, *supra* note 63; Graffeo, *supra* note 63.

managers.[291] Moreover, two-thousand Tesla shareholders used the platform to ask Elon Musk a question during an earnings call.[292]

C. Disclosure and Behavioral Reforms

Other proposed reforms range from additional disclosures to restrictions that target behavioral biases.[293] As other commentators pointed out, behavioral design in today's securities markets often encourages excessive trading in poor investments in self-directed accounts.[294]

Any potential reforms should take into account the conflict between the various philosophies that inform investor protection, as one commentator pointed out.[295] "Investor-choice protection" facilitates choice through increasing available information.[296] "Paternalistic investor protection" focuses on actively attempting to better or curtail investor choices.[297] "Investor access protection" attempts to facilitate investor access to markets.[298] Understanding

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[291] *See* Kate Dore, *Few Individual Investors Participate in Shareholder Voting. Here's How That May Be Changing*, CNBC (Oct. 12, 2021), https://www.cnbc.com/2021/10/12/few-individuals-participate-in-shareholder-voting-but-that-may-change.html [https://perma.cc/WD2P-G62U]; Solberg, *supra* note 246.

[292] *See supra* notes 247–248 and accompanying text (describing retail investors' online engagement with companies).

[293] *See* Thomas Franck, *'You've Got to Have a Cop on the Beat': Elizabeth Warren Slams SEC Over GameStop Chaos*, CNBC (Jan. 28, 2021), https://www.cnbc.com/2021/01/28/elizabeth-warren-gamestop-robinhood-market-manipulation.html [https://perma.cc/F7A8-HUFM] (demanding increased enforcement from the SEC); *GameStop Hearings*, *supra* note 1, at 89–95; Abraham J.B. Cable, *Regulating Democratized Investing*, 83 OHIO STATE L.J (forthcoming 2022) (manuscript at 1, 37) (proposing a limit on account size for "ultra-retail" investors); Fisch, *supra* note 9 (manuscript at 34–41) (advocating for certain improvements to the retail investing experience); Tierney, *supra* note 9 (manuscript at 49–51, 56) (considering fiduciary duty and market structure-based regulatory reforms); James J. Angel, *GameStonk: What Happened and What to Do About It* 37–38 (Geo. Univ. McDonough Sch. Bus., Rsch. Paper No. 3782195, 2021) (proposing market structure reforms targeting settlement cycles, short selling, and retail execution reporting); *see also* Bochuan Dai, Ben R. Marshall, Nhut H. Nguyen & Nuttawat Visaltanachoti, *Lottery Stocks and Stop-Loss Rules*, GLOB. FIN. J. (forthcoming 2022) (manuscript at 19) (demonstrating the effectiveness of stop-loss rules for lottery stocks).

[294] Tierney, *supra* note 9 (manuscript at 8–9) (explaining that behavioral design focuses on how to present information to appeal to cognitive bias, which can "encourage intuitive, habitual, and uncritical responses rather than deliberation over preferences and choices" (citing Jamie Luguri & Lior Jacob Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. LEGAL ANALYSIS 43, 57 (2021))); *see also* Sayan Chaudhry & Chinmay Kulkarni, Conference Paper, *Design Patterns of Investing Apps and Their Effects on Investing Behaviors*, 2021 DESIGNING INTERACTIVE SYS. 777, 785 (exploring Robinhood's effects on healthy trading behaviors); Charles F. Hofacker, Ko de Ruyter, Nicholas H. Lurie, Puneet Manchanda et al., *Gamification and Mobile Marketing Effectiveness*, 34 J. INTERACTIVE MKTG. 25, 27–32 (2016) (discussing how game design can affect mobile marketing); Levine, *supra* note 86.

[295] *See* Cable, *supra* note 293 (manuscript at 7–9).

[296] *Id.* (manuscript at 8).

[297] *Id.* (manuscript at 8–9).

[298] *Id.* (manuscript at 9).

these goals is crucial, as is understanding retail investors' potential responses or buy-in to any policy reforms.

Trade-level disclosure, or warnings that attach to individual trades, require cautious evaluation. Most retail trading platforms have gatekeeping points where investors must indicate that they are willing and able to tolerate a certain amount of risk. One example of this is submitting applications to engage in options trading.[299] Trading in certain equities, such as those traded in over-the-counter venues, may come with restrictions or with generic warnings about volatility.[300] Increasing the specificity of such warnings attached to certain stocks may not have any real benefit given the vast literature on these types of warnings, at least a substantial portion of which indicate that such warnings are either counterproductive or ineffective.[301] For example, companies like AMC and Hertz explicitly warned that their shares might be worthless.[302] That did not stop retail investors from piling in.[303]

Financial literacy remains a critical goal, however. Thus, if the consensus is that retail trading controls are appropriate, it may be worth considering delivery of any such warnings or disclosures in the same user-friendly way that trading platforms such as Robinhood already deliver other information, to maximize impact. For example, trading platforms could disclose clear and immediately digestible statistics as to individual equities' past performance over some time period prior to allowing a trade. Trading platforms could also make financial learning more "delightful,"[304] by incorporating quizzes or even

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[299] *See, e.g.*, *How to Start Trading Options*, FIDELITY, https://www.fidelity.com/options-trading/start-trading-options [https://perma.cc/C89G-4XYC] (providing prospective options traders with the opportunity to apply online).

[300] For example, JPMorgan Chase prohibits trading in OTC stocks for retail investors. *J.P. Morgan Self-Directed Investing: Frequently Asked Questions*, J.P.MORGAN, https://www.chase.com/personal/investments/online-investing/faqs/trading [https://perma.cc/576N-P8GN].

[301] *See, e.g.*, Davidoff & Hill*, supra* note 284, at 599–605; Prentice, *supra* note 275, at 1061–68.

[302] *See* Wallace, *supra* note 178; Hertz Glob. Holdings, Inc., Prospectus Supplement to Prospectus Dated June 12, 2019 (Registration Statement No. 333-231878) (June 15, 2020) ("We are in the process of a reorganization under chapter 11 of title 11, or Chapter 11, of the United States Code, or Bankruptcy Code, which has caused and may continue to cause our common stock to decrease in value, or may render our common stock worthless. Investing in our common stock involves a high degree of risk.").

[303] *See* Virginie Montet, *AMC Completes Large Stock Offering Despite Blunt Investor Warning*, YAHOO! NEWS (June 3, 2021), https://news.yahoo.com/amc-completes-large-stock-offering-183303685.html [https://perma.cc/73EJ-A43K] (reporting that AMC raised nearly $600 million despite warning that "'[u]nder the circumstances, we caution you against investing in our Class A common stock, unless you are prepared to incur the risk of losing all or a substantial portion of your investment'" (quoting AMC, Prospectus Supplement to Prospectus Dated December 30, 2020 (File No. 333-251805) (Jan. 25, 2021))).

[304] *See* Cable, *supra* note 293 (manuscript at 13–15) (discussing the impact of "delightful" design on trading platforms).

prizes.[305] Traders might also enter into contracts that offer incentives in return for agreeing not to trade on margin, with less frequency, or in smaller amounts. Further study is necessary to assess the viability of such proposals.

Financial intermediaries also merit scrutiny. As others pointed out, increased reliance on fiduciary duties or supervisory roles played by entities such as FINRA may be worth exploring.[306] Regulation Best Interest, for example, mandates that broker-dealers act in a retail customer's "best interest" when recommending any securities transaction.[307]

Additional aspects of retail trading may also merit more robust disclosure. For example, the practice of payment for order flow is disclosed to investors, but only in broad terms.[308] Order routing details are difficult to obtain.[309] Requiring disclosure at the level of each individual trade may be useful and would additionally promote best execution.[310] And again, trading platforms might make any such disclosure in user-friendly ways.

Finally, any reforms that target retail investors' ability to trade or participate in the markets must account for those investors' responses to any policy changes, especially when end users may perceive those changes as paternalistic or as entrenching the status quo. To that end, it makes little sense to impede frictionless trading.[311] Nor does it make sense to limit retail participation in markets in any significant way.[312]

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[305] For example, Coinbase offers very small cryptocurrency rewards for those who learn about and take quizzes on cryptocurrency. *See Learn About Crypto and Get Rewards*, COINBASE, https://www.coinbase.com/learning-rewards [https://perma.cc/43UJ-93H5] ("Discover how specific cryptocurrencies work—and get a bit of each crypto to try out for yourself.").

[306] *See* Tierney, *supra* note 9 (manuscript at 12–14); Coffee, *supra* note 1.

[307] Regulation Best Interest, 17 C.F.R. § 240.15l-1(a)(1) (2022); Regulation Best Interest: The Broker-Dealer Standard of Conduct, Exchange Act Release No. 86,031, 84 Fed. Reg. 33318 (July 12, 2019); *Regulation Best Interest (REG BI) Overview*, FINRA, https://www.finra.org/article/regulation-best-interest-%28reg-bi%29-overview [https://perma.cc/N48E-R2XF].

[308] *See* 17 C.F.R. §§ 242.606–.607 (2022); Alexander Osipovich, *High-Speed Trader Virtu Fires Back at Critics Amid Meme-Stock Frenzy*, WALL ST. J. (June 13, 2021), https://www.wsj.com/articles/high-speed-trader-virtu-fires-back-at-critics-amid-meme-stock-frenzy-11623592801 [https://perma.cc/TK85-G92U]; Dave Michaels & Alexander Osipovich, *SEC to Review Market Structure as Meme Stocks Stir Frenzy*, WALL ST. J., https://www.wsj.com/articles/sec-pursuing-broad-review-of-stock-market-structure-chairman-says-11623256566 [https://perma.cc/N9GX-NHJB] (June 9, 2021).

[309] *See* 17 C.F.R. §§ 242.606–.607 (providing order routing disclosure requirements).

[310] *See Trade Execution*, U.S. SEC. & EXCH. COMM'N (Jan. 16, 2013), https://www.sec.gov/reportspubs/investor-publications/investorpubstradexechtm.html [https://perma.cc/2GCJ-KXEL]; Joseph A. Franco, *Bending the Investment Advisers Act's Regulatory Arc*, 26 FORDHAM J. CORP. & FIN. L. 1, 60–68 (2021); Stanislav Dolgopolov, *Off-Exchange Market Makers and Their Best Execution Obligations: An Evolving Mixture of Market Reform, Regulatory Enforcement, and Litigation*, 17 N.Y.U. J.L. & BUS. 477, 502–14 (2021); JOHN GULLIVER, BRIAN JOHNSON & JON ONDREJKO, PROGRAM ON INT'L FIN. SYS., INTERNATIONAL REVIEW OF EQUITY MARKET STRUCTURE REGULATION: PHASE III: BEST PRACTICES FOR REGULATING EQUITY MARKET STRUCTURE 1, 4–11 (2021).

[311] *See, e.g.*, Coffee, *supra* note 1.

[312] *See, e.g.*, Fisch, *supra* note 9 (manuscript at 18–19).

CONCLUSION

Retail investors have long been understood to have little impact on price discovery in stock markets. This Article demonstrates the need to reengage the assumptions behind this understanding, arguing that today's retail trading interacts in sustained ways with market prices. It also sheds light on the implications for market efficiency more broadly. Retail trading today is more coordinated than ever before and can impact and predict future price movements. On one hand, this can create coordinated retail risk, which has the potential to reduce the incidence of socially beneficial trading, leading to a reduction in price accuracy and possibly raising the cost of trading. This, in turn, can lead to suboptimal capital allocation and sustained episodes of mispricing. Distorted prices can skew managerial incentives and negatively impact securities litigation, merger appraisals, cost of capital, and index fund holdings, among others. On the other hand, greater retail participation in markets is a social good and can enhance retail-driven corporate governance and impact investing and broaden investor access to markets. The way forward, then, should focus on encouraging more informed retail participation.