Meme Corporate Governance

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Abstract

Can retail investors revolutionize corporate governance and make public companies more responsive to social concerns? Starting in 2021, there was a dramatic influx of retail investors into the shareholder base of "meme" companies such as GameStop and AMC. Motivated by the unprecedented coordinated trading patterns among retail investors, scholars and practitioners predicted that the influx of retail investors would reduce the power of large institutional investors and democratize corporate governance. These predictions were driven by three factors: generational, millennial and Gen Z investors being assumed to challenge corporate management; societal, with growing discontentment with slow progress on issues such as sustainability and boardroom diversity; and technological, with the advent of easily accessible and user-friendly mobile apps allowing investors to directly intervene in corporate governance. While plausible, these predictions have so far not been tested. This Article provides the first empirical analysis of the impact of retail investors on corporate governance. We provide new quantitative evidence regarding the origins of meme investing and conclude that—despite their coordinated behavior in the trading markets—meme investors have not democratized corporate governance or advanced social issues. The Article presents three principal findings. First, we show how the "meme stock" frenzy was affected by the abolition of trading commissions by major online brokerages in 2019. Meme stock companies experienced positive abnormal stock returns when commission-free trading was widely introduced and saw elevated trading volumes afterward. Second, we find that despite the promise of a more active retail shareholder base, meme stock firms experienced a significant decrease in shareholder voting. Shareholder proposals have also been very limited, with most meme firms seeing no proposals after the rapid rise in retail ownership. Third, we find no improvement in meme firms' corporate governance and social responsibility, as represented by director independence, board gender diversity, ESG scores, and capital and R&D expenditures. Collectively, our findings suggest that the influx of retail shareholders has not translated into more "democratic" governance regimes or encouraged shareholder participation in corporate governance at firms most affected by the meme investor storm.

Keywords: Meme Stock, Retail Investors, Corporate Governance, Shareholder Voting, ESG

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MEME CORPORATE GOVERNANCE

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ABSTRACT

Can retail investors revolutionize corporate governance and make public companies more responsive to social concerns? Starting in 2021, there was a dramatic influx of retail investors into the shareholder base of "meme" companies such as GameStop and AMC. Motivated by the unprecedented coordinated trading patterns among retail investors, scholars and practitioners predicted that the influx of retail investors would reduce the power of large institutional investors and democratize corporate governance. These predictions were driven by three factors: *generational*, millennial and Gen Z investors being assumed to challenge corporate management; *societal*, with growing discontentment with slow progress on issues such as sustainability and boardroom diversity; and *technological*, with the advent of easily accessible and user-friendly mobile apps allowing investors to directly intervene in corporate governance. While plausible, these predictions have so far not been tested. This Article provides the first empirical analysis of the impact of retail investors on corporate governance. We provide new quantitative evidence regarding the origins of meme investing and conclude that—despite their coordinated behavior in the trading markets—meme investors have not democratized corporate governance or advanced social issues. The Article presents three principal findings. First, we show how the "meme stock" frenzy was affected by the abolition of trading commissions by major online brokerages in 2019. Meme stock companies experienced positive abnormal stock returns when commission-free trading was widely introduced and saw elevated trading volumes afterward. Second, we find that despite the promise of a more active retail shareholder base, meme stock firms experienced a significant decrease in shareholder voting. Shareholder proposals have also been very limited, with most meme firms seeing no proposals after the rapid rise in retail ownership. Third, we find no improvement in meme firms' corporate governance and social responsibility, as represented by director independence, board gender diversity, ESG scores, and capital and R&D expenditures. Collectively, our findings suggest that the influx of retail shareholders has not translated into more "democratic" governance regimes or encouraged shareholder participation in corporate governance at firms most affected by the meme investor storm.

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I. INTRODUCTION

Buoyed by pandemic checks and the advent of commission-free mobile apps such as Robinhood, retail investors took Wall Street by storm in early 2021.[1] Coordinating through social media sites such as Reddit and using catchy memes, retail investors engaged in an active "buy" campaign to dramatically push up the GameStop stock price from $4 a share to a stratospheric level of over $485 per share. GameStop, a gaming merchandise retailer, had been losing money and seemed headed toward bankruptcy.[2] A number of hedge funds had taken large short positions against the stock, betting that the price would drop even further.[3] Meme investors seem to have been motivated to "punish" the hedge funds by driving up the stock price and creating a "short squeeze" against them.[4] The end result was a severe loss and a subsequent retreat for the hedge funds.[5] Taking advantage of the elevated stock price, GameStop raised large amounts of capital through stock sales,[6]

[1] Robinhood heavily utilizes the payment for order flow (PFOF) business model, under which the company receives payment from market makers in return for delivering a large order flow. For more detailed information, *see* Siqi Wang, *Consumers Beware: How Are Your Favorite "Free" Investment Apps Regulated?*, 19 DUKE L. & TECH. REV. 43 (2020-2021), Robert H. Battalio & Tim Loughran, *Does Payment For Order Flow To Your Broker Help Or Hurt You?*, 80 J. BUS. ETHICS 37 (2008), and Kate Rooney & Maggie Fitzgerald, *Here's How Robinhood Is Raking in Record Cash on Customer Trades — Despite Making It Free*, CNBC (Aug. 14 2020), www.cnbc.com/2020/08/13/how-robinhood-makes-money-on-customer-trades-despite-making-it-free.html. In our companion paper, we discuss the development and evolution of the PFOF system in more detail. *See* Dhruv Aggarwal et al., *The Meme Stock Frenzy: Origins and Implications*, 96 S. CAL. L. REV. (forthcoming 2023).

[2] *See, e.g.*, GameStop Forms S-3, 10-Q, and 10-K from 2020, 2021, and 2022.

[3] *See, e.g.*, Laurence Fletcher, *Hedge Fund that Bet Against GameStop Shuts Down*, FIN. TIMES (June 22, 2021), https://www.ft.com/content/397bdbe9-f257-4ca6-b600-1756804517b6.

[4] Tim Hasso et al, *Who Participated in the GameStop Frenzy?: Evidence from Brokerage Accounts*, FIN. RES. LETTERS 45 (2022). Using a sample of all trades that took place on GameStop with a broker between December 1, 2020 and February 12, 2021, the authors were able to show that many retail investors closed their positions before the price peak and other retail investors even took a short position against GameStop. The evidence that many retail investors had a strong interest in taking a bet against Wall Street suggests that their interests weren't merely "financial" and they were willing to pay a price that is higher than what the firm's financials (or "fundamentals") dictated. Given that many meme companies, including GameStop and Bed Bath & Beyond, are performing quite poorly and many retail investors are staying loyal to these companies long after the meme surge, these long-term retail investors are also likely to be motivated by non-financial interests, such as the company's survival.

[5] *See, e.g.*, Toby Mathis, *How Much did Hedge Funds Lose on GameStop?*, INFINITY INVESTING (Sept. 27, 2001), https://infinityinvesting.com/gamestop-hedge-fund/. Eventually, Melvin Capital would shut down a little more than year later. *See Melvin Capital to Shut After Heavy Losses on Meme Stocks, Market Slump*, CNN.COM (May 19, 2022), https://www.cnn.com/2022/05/19/investing/melvin-capital-hedge-fund-closes/index.html. For a detailed exposition of how the GameStop saga unfolded in January of 2021, see, for example, Jill E. Fisch, *GameStop and the Reemergence of the Retail Investors*, 102 B.U. L. REV. 102 (2022).

[6] *See, e.g.*, GameStop, Prospectus Supplement 2 (Apr. 5, 2021), *available at* https://www.sec.gov/Archives/edgar/data/1326380/000119312521186796/d192873d424b5.htm ("We have previously sold an aggregate of 3,500,000 shares of our common stock for aggregate gross proceeds of approximately $556,691,221 pursuant to the Sales Agreement and the prospectus supplement filed by us on April 5, 2021."). While it is reasonable to expect most meme stock companies to raise capital during moments of meme surges, our EDGAR search shows that only two companies—GameStop and AMC Entertainment, Inc.— took advantage of meme surges and made offerings. Other meme stock companies may have chosen not to take advantage of meme surges out of the concern that they may be blamed for knowingly selling shares at an inflated price. *See, e.g.*, Matt Levine, *Money Stuff: Meme Stocks Will Come With a Warning*, BLOOMBERG.COM (Feb. 9, 2021), https://www.bloomberg.com/news/newsletters/2021-02-09/the-sec-wants-reddit-meme-stocks-to-admit-they-re-dangerous-kky96vuo. After the capital raising, AMC Entertainment, Inc. attempted to increase the authorized number of common shares to engage in further equity issuance but the amendment proposal was resisted by the stockholders and was later dropped. More recently, AMC Entertainment issued AMC Preferred Equity Units ("APEs"), with same economic rights as common stock, using the board's authority to issue preferred stock so as to get around the charter amendment issue. *See, e.g.*, Matt Levine, *Money Stuff: AMC Has Some Clever APEs*, BLOOMBERG.COM (Feb. 1, 2023), https://www.bloomberg.com/opinion/articles/2023-02-01/amc-has-some-clever-apes.

alleviating its dire liquidity condition. Retail shareholders, who have long played second-fiddle to more sophisticated asset managers and pension funds, thus seemed to have vanquished Wall Street hedge funds and resurrected an ailing company destined for bankruptcy.

Over the ensuing months, it became clear that the GameStop saga was but one instance of more widespread meme stock surges. A number of other companies would experience surges in their stock prices, which, like GameStop, could not be explained by their financial fundamentals. Investing has become a social phenomenon. As of this writing, the meme investing has remained a persistent phenomenon: long after the GameStop saga, meme investors continue to target regional bank stocks,[7] special purpose acquisition companies (SPACs),[8] and even firms that have filed for bankruptcy.[9] What this persistence implies is that GameStop's meme surge was not a one-time event: meme investing and meme surges are here to stay. Furthermore, the meme surges tell us a broader and more generalizable story about the behavior of retail investors and the impact of the change in shareholder base. The potentially transformative effect of retail investors—driven by demographic, societal, and technological factors—has emerged as one of the central debates in business law.

These experiences have motivated scholars and commenters to ask several important questions. What impact did the influx of retail shareholders have on meme companies? More specifically, how did the new retail shareholders shape their governance and performance? Do the meme surges signify broader and more general implications on corporate and financial law and policy?

This Article's key contribution is to empirically focus on meme stock companies—the firms where retail investors are most likely to have become more powerful—and test how corporate governance and performance has been affected by the dramatic influx of retail investors in their shareholder base. We start by analyzing the background of meme trading. The existing scholarship has almost exclusively associated meme stocks with the surge in social media interest (such as Reddit boards) in these companies starting in 2021.[10] While social media surely played an important role in popularizing these stocks, we trace the origins of meme trading further back, to the pre-pandemic era. Using an event study methodology, we find that meme stocks exhibited abnormal returns (and an abnormal increase in trading volume) in October 2019, when major online brokerages abolished commissions for trading. This suggests that meme companies were well positioned to benefit from the subsequent surge in retail investor interest: zero-commission trading laid the groundwork for the subsequent surge. In the Appendix, we extend this event study approach beyond the meme stocks to all listed firms, and find that companies popular with retail investors exhibited positive abnormal returns in response to the abolition of trading commissions. The emergence and the significance of zero-commission trading for the meme stock phenomenon implies more fundamental changes that can happen at other public companies and across the financial markets.

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[7] *See* Gunjan Banerji, *Are Regional Banks the New Meme Stocks?*, WALL ST. J. (May 5, 2023), https://www.wsj.com/livecoverage/stock-market-today-dow-jones-05-05-2023/card/are-regional-banks-the-new-meme-stocks--6I9cBRACnUKp9dZk5ivc.

[8] *See* Chris Bryant, *SPAC + Meme Stock = A Dangerous Combination*, WASH. POST (Sept. 28, 2022), https://www.washingtonpost.com/business/spac-meme-stock--a-dangerous-combination/2022/09/27/26413c16-3e50-11ed-8c6e-9386bd7cd826_story.html.

[9] *See* Angelique Chen & Krystal Hu, *Analysis: Meme stock Investors Bet on Bankrupt Revlon Being the Next Hertz,* REUTERS (Jun. 27, 2022), https://www.reuters.com/markets/us/meme-stock-investors-place-risky-bet-bankrupt-revlon-being-next-hertz-2022-06-27/.

[10] *See* sources listed *infra* notes 49-50 and accompanying text.

After documenting the impact of zero-commission trading on meme stocks, we proceed to examine the consequences of meme trading for corporate governance at meme companies. Specifically, we ask: did the influx of retail investors create a more engaged shareholder base at meme firms and change corporate governance or ESG activity at these companies? To answer these questions, we begin with corporate law's paradigmatic framework for shareholder influence in public corporations: voting and shareholder proposals.[11] Somewhat surprisingly, we find that non-voting—i.e., the share of votes that were *not* cast for or against or marked as abstentions—significantly *increased* during and after the meme surge period for meme companies, as compared to other, non-meme companies. Even more surprisingly, we find that the fraction of non-votes began to increase in 2019 and continued to increase in 2022, long before and after the meme surge of 2021. By late 2021 and early 2022, in particular, the retail investors who remain loyal to the firm would presumably care more about the firm's (long-term) performance and governance.[12] The fact that the level of shareholder engagement seems to be getting worse in 2019 and 2022 indicates that the increase in non-vote shares is not just driven by short-term speculators. In fact, we corroborate this thesis (in the Appendix) by examining non-vote shares at all firms that experienced an abnormal return in response to the zero-commission trading in 2019.

Turning to shareholder proposals, we find no evidence that shareholders at meme stock companies are more likely to participate in governance activities by submitting shareholder proposals, either before or after the meme surge. Between 2015 and 2022, only one meme stock company—Bed Bath & Beyond—had any shareholder proposals included in the company's definitive proxy statements at all (three proposals, all in 2016), but these proposals predate the introduction of zero-commission trading and the influx of retail investors. Within the sample companies, there was also no record of any shareholder proposal being excluded via the SEC's no-action letter process during the sample period—with the exception of GameStop, which successfully excluded three shareholder proposals submitted in 2022. The evidence is consistent with retail investors brought in by the meme phenomenon being either uninterested in voting or making proposals, or unable to do so effectively.

Third, we examine whether retail investors might have had an indirect effect on meme stock companies. One of the most visible ways contemporary insurgent shareholders can affect company policy is to alter its orientation toward environmental, social, and governance (ESG) goals. For example, in 2021, a small hedge fund (named Engine No. 1) waged a stunningly successful campaign to install three of its directors on the Exxon Mobil board, in order to pressure the energy company to reduce its carbon footprint.[13] Utilizing the data from the standard MSCI ESG Indexes, we find that meme companies actually *deteriorated* in terms of prosocial performance after the meme surge of 2021. We also look at whether meme stock companies performed better in terms of director independence or board gender diversity—other salient issues in corporate governance—and find no evidence that meme companies performed better (or worse) on these metrics after the surge of retail investor interest. Thus, meme retail investors do not seem to have made their companies' policies more prosocial or improved the quality of corporate governance. In fact, if anything, the ESG result suggests that these firms' orientation toward social causes may have *worsened* in recent years.

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[11] *See* Frank H. Easterbrook & Daniel R. Fischel, *Voting in Corporate Law*, 26 J.L. & ECON. 395 (1983); Marcel Kahan & Edward B. Rock, *The Hanging Chads of Corporate Voting*, 96 GEO. L.J. 1227 (2008).

[12] Although we do not have a direct measure on what fraction of the non-votes came from retail shareholders, since non-voting is usually associated with retail investors (as shown in the existing literature), the finding suggests that meme traders were apathetic in their role as stockholders and did not exercise their franchise.

[13] *See* Matt Phillips, *Exxon's Board Defeat Signals the Rise of Social-Good Activists*, N.Y. TIMES (Jun. 9, 2021), https://www.nytimes.com/2021/06/09/business/exxon-mobil-engine-no1-activist.html.

As a final measure of indirect impact, we look at how affected firms changed their operations and performance after both the abolition of commissions in 2019 and the meme surge of early 2021. Meme companies' average return on assets (ROA), an important metric for profitability, has substantially worsened over the period, compared to non-meme companies. If meme investors were engaged and pushing management to make value-increasing investments, one might have expected a rise in expenditures on research and development (R&D) or capital investments. These expenses could potentially help meme companies to adjust their business model and business operations so that they can improve their long-term profitability. We instead find that meme companies significantly *reduced* R&D expenses after the influx of retail investors.[14] This result suggests that retail shareholders may not be effective in (directly or indirectly) pressuring management to make productive investments. This contrasts with the findings that an increase in institutional investor ownership is correlated with more innovative activities at firms.[15]

Viewing these results collectively, we find that there is, so far, little evidence to suggest that corporate governance is being "democratized" in the way the investing public has been. The organized movement among retail investors seems to be limited to their trading behavior and has not otherwise affected retail shareholders' engagement with corporations in a noticeable way.[16] If anything, the evidence points in the opposite direction. As a large block of retail investors remain passive, paradoxically, this can give institutional shareholders, who are active shareholders,[17] even more influence. We do not take issue with the three trends identified as potentially presaging a larger role for retail investors: generational shifts in investor attitudes, societal concerns over social and environmental issues, and technological changes making it easier for retail investors to participate in financial markets. Nevertheless, our empirical findings show that corporate governance has not significantly been democratized or changed yet, even at the companies most dramatically affected by the influx of retail shareholders.[18]

The rest of this Article is organized as follows. Part II surveys the demographic, societal, and technological changes that have led some commentators and scholars to express high hopes for the impact of meme and other retail investors on corporate governance. Part III explains our data sources and presents summary statistics. Part IV examines the origins of meme trading and explains the importance of the 2019 abolition of commissions by online brokerages. Part V shows that, despite the surge of retail investor interest in meme companies, shareholder non-voting at meme companies increased in recent years, and retail investors failed to make much of an impact using the shareholder

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[14] *See infra* Part VI.

[15] *See* Brian Bushee, *The Influence of Institutional Investors on Myopic R&D Investment Behavior*, 73 ACCT. REV. 305 (1998) (showing less "myopic" R&D spending when the share of institutional holdings increases); Philip Aghion et al., *Innovation and Institutional Ownership*, 103 AM. ECON. REV. 277 (2013) (showing how increase in institutional ownership increases more innovative activities at firms, including research and development expenditure); and Ian Appel et al., *Passive Investors, Not Passive Owners*, 121 J. FIN. ECON. 111 (2016) (making similar findings when institutional ownership increases due to changes in Russell 1000 and 2000 index compositions). *See also* Ming Dong et al., *Misvaluation and Corporate Inventiveness*, 57 J. FIN. QUANT ANAL. 2605 (2021) (documenting an increase in R&D activity, among others, when firms are "over-valued" due to mutual fund inflows);

[16] In a sense, retail shareholders can be seen as mirror images of institutional investors, who are often passive as investors, while remaining active as shareholders. *See* Appel et al., *supra* note 15.

[17] *See id.*

[18] As we explain in Section V.B., the prospects for retail shareholder governance may diminish even further, at least in the near future, due to regulatory changes such as the SEC raising thresholds for submitting shareholder proposals under Rule 14a-8.

proposal process. Part VI looks at potential indirect effects of shareholder engagements, such as firm ESG performance, board independence, gender diversity, R&D and capital expenditures. We find that these companies have not become more prosocial recently, and meme firms' ESG scores have *decreased*. We also find that these companies decreased both R&D as well as capital expenditures. In Part VII, we explore potential reasons as to why corporate governance has not been democratized notwithstanding the prevailing scholarly predictions. In so doing, we highlight important differences between the activities involved in meme *investing* versus those involved in meme *shareholding*. Part VIII concludes and offers some possible directions for a future meme stock research agenda. In the Appendix, we show that the non-vote share results (in Part V) and the governance results (in Part VI) are not confined to meme companies. Empirical analysis shows that companies that exhibited a high abnormal return in response to the wide introduction of zero commission trading have higher non-vote shares and worse ESG scores in subsequent years. The results from the Appendix show that the impact of retail investor influx is not confined to meme companies and also emphasizes a broader impact of retail investors (induced by zero commission trading) on corporate governance.

II. RETAIL INVESTORS, RETAIL SHAREHOLDERS, AND MEME TRADERS

When GameStop was experiencing a dramatic meme surge in January 2021, it was easy to dismiss the phenomenon as a transient anomaly that could be explained away by pandemic boredom and stimulus checks.[19] But the pandemic has long ended, while meme surges continue, albeit sporadically. Experts now believe meme trading is here to stay.[20] If meme trading has become a fact of life, it begs the question of what we may be able to expect from retail investors participating in meme trading or trading more generally. Given that (coordinated) retail investing is here to stay, what impact will the shifting of the shareholder and investor base away from institutional shareholders and toward retail shareholders have on financial markets and corporations?

There are three principal drivers scholars and commentators have proposed as to how retail investors have become poised to transform financial markets and corporate governance. The first relates to perceived generational shifts in investor preferences. In this story, millennials and Gen Z entering the market as retail investors will seek to create a footprint, based on their social, cultural, and distributional preferences, on corporate policies.[21] Some analyses of these market participants have concluded that this generation cares deeply about issues beyond profit maximization, and are willing to forsake returns to pursue these interests through the corporation. For instance, Professors Michal Barzuza, Quinn Curtis, and David Webber argue that, in order to attract investment from millennials, index funds pushing more for various governance and social changes at companies—such as board diversity—issues that the millennials care about.[22] Professors Sergio Alberto Gramitto Ricci and Christina Sautter similarly observe that millennials have a generationally defined and distinct set

[19] *See* Joe Rennison & Stephen Gandel, *Meme Stocks Are Back. Here's Why Wild Trading May Be Here to Stay.*, NYTIMES.COM (Aug. 19, 2022), https://www.nytimes.com/2022/08/19/business/meme-stocks-bed-bath-beyond.html.
[20] *See id.*
[21] *See* Fisch, *supra* 5, at 1841-42 & 1846-47; Sergio Alberto Gramitto Ricci & Christina M. Sautter, *Corporate Governance Gaming: The Collective Power of Retail Investors*, 22 NEV. L.J. 51, 90-95 (2021) [hereinafter *Corporate Governance Gaming*]; Sergio Alberto Gramitto Ricci & Christina M. Sautter, *The Wireless Investors Movement*, U. CHI. BUS. L. REV. BLOG (Jan. 28, 2022), https://businesslawreview.uchicago.edu/2022/01/28/the-wireless-investors-movement%EF%BF%BC (contending that retail trading "will naturally expand into corporate-governance-based initiatives").
[22] *See* Michal Barzuza et al., *Shareholder Value(s): Index Fund ESG Activism and the New Millennial Corporate Governance*, 92 S. CAL. L. REV. 1243 (2020).

of values, and are more likely to prioritize ESG goals over profit.[23] In their telling, meme investors will seamlessly transform into engaged shareholders and usher in a new paradigm for corporate governance.[24]

Secondly, meme investors could be highly motivated to affect corporate policies because of the time period in which the meme surge occurred. Some have argued that decades of profit-centric corporate governance have led to workers, residents of surrounding communities, and the environment suffering from profit-centric corporate policies.[25] The shareholders best positioned to change corporate policies—large asset managers such as BlackRock and Vanguard, who own more than a fifth of the average S&P 500 firm[26]—are constrained in their ability to pressure management to change policies because any such change would hurt the interests of at least some of the hundreds of investment funds they operate.[27] In this vein, Professor Jill Fisch has argued that meme investors are a useful "antidote" to the concentration of market power in large institutional investors, and can help enlist ordinary citizens in the larger project of national economic development.[28] Free from the structural constraints faced by institutional investors, who owe a fiduciary duty to their clients and are obligated to pursue profit maximization,[29] retail shareholders are theoretically able to demand that firms adopt prosocial policies even at the expense of profit. Citizen involvement via retail investing could also have the advantage of tempering corporate power, with retail investors able to sway management through their ability to influence close votes.[30] An example of this from the meme surge came from meme investors who wanted to keep AMC theaters open despite the Covid-19 pandemic severely disrupting the firm's business model.[31] By putting their money into the company and keeping the movie theaters running, meme investors arguably offered a lifeline to the thousands of workers employed by the chain.

Finally, there is a technological element to the promise of meme and other retail investing. Since the mid-2010s, Robinhood has offered a game-like and easily accessible mobile app allowing retail investors to participate in the markets. Retail investors have been shown in the financial economics literature to overreact to market signals and allow overconfidence to distort portfolio allocation, reducing their financial returns.[32] Given this research, it is unsurprising that many retail investors decided to engage in stock-picking after gaining uninterrupted access to a flashy mobile investing app. Beyond investing apps, the GameStop saga and the meme stock frenzy of 2021 demonstrated the power of social media technology to coalesce dispersed individuals who can unite to bring about an impact and put checks on the forces of institutional players. Today, social media platforms such as Facebook, Reddit, and Twitter, provide a space where individuals form communities, share information, and organize collective action. These platforms have also made it

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[23] Ricci & Sautter, *Corporate Governance Gaming*, *supra* note 21, at 77.
[24] *Id.* at 78.
[25] *See* Aneil Kovvali, *Stark Choices for Corporate Reform*, 123 COLUM. L. REV. 693 (2023).
[26] *See* Matthew Backus et al., *Common Ownership in America, 1980-2017*, 13 AM. ECON. J.: MICROECON. 273 (2021).
[27] *See* John Morley, *Too Big to Be Activist*, 92 S. CAL. L. REV. 1407 (2019).
[28] *See* Fisch, *supra* note 5, at 1805.
[29] *See* C. Scott Hemphill & Marcel Kahan, *The Strategies of Anticompetitive Common Ownership*, 129 YALE L.J. 1392, 1437 (2020).
[30] *See* Fisch, *supra* note 5, at 1840.
[31] *See* Sarah Whitten, *AMC's 'apes' Gave It a Lifeline. Now, Its CEO Wants To Use the Meme Frenzy as a Springboard for Growth*, CNBC (Jun. 1, 2021), https://www.cnbc.com/2021/06/01/amcs-ceo-wants-to-use-the-meme-frenzy-as-a-springboard-for-growth.html.
[32] *See* Brad M. Barber et al., *Leveraging Overconfidence* (Jul. 26, 2022), https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3445660; Mark Grinblatt & Matti Keloharju, *The Investment Behavior and Performance of Various Investor Types: A Study of Finland's Unique Data Set*, 55 J. FIN. ECON. 43 (2000).

easier for people to spread information quickly, allowing them to mobilize and respond to events in real-time. From these perspectives, the meme surges of early 2021 could be seen as foreshadowing a future in which technology can further enable and empower dispersed individuals to overcome the cost of collective action and promote a collectively cobbled together agenda.

Collectively, the demographic, societal, and technological trends could be seen as ushering in an amplified role for retail investors. Consistent with this intuition, a study by Professors Alon Brav, Matthew Cain, and Jonathon Zytnick empirically assesses the collective voting heft of retail investors using a large proprietary sample of shareholder ownership and voting records.[33] They conclude that retail investor voting can have as much of an impact on corporate outcomes as the voting preferences of the three largest institutional investors.[34] This suggests that, to the extent meme stock surges can motivate greater retail shareholder participation, there is a realistic possibility of significant changes in corporate governance. For these reasons, more than two years on from the GameStop saga, this Article seeks to empirically examine what changes, if any, have taken place in the governance of the companies subject to meme surges.

III. DATA AND SUMMARY STATISTICS

We use a variety of sources to collect information about both meme and non-meme stocks. Our first step is to identify which companies qualify as meme stock companies in the relevant period. We use Factiva[35] searches and Internet queries with appropriate keywords ("meme," "retail investors," "Reddit" in conjunction with "stock" and so on), modeling our approach on the nascent financial economics literature studying the meme trading phenomenon.[36] We identify the following eight companies as meme stock companies: Gamestop,[37] AMC Entertainment,[38] Bed Bath & Beyond,[39]

[33] Alon Brav et al., *Retail Shareholder Participation in the Proxy Process: Monitoring, Engagement, and Voting*, 144 J. FIN. ECON. 492 (2022).
[34] *Id.* at 504.
[35] Factiva, owned by Dow Jones & Company, is a business research tool. It aggregates content from both free and licensed sources and provides access to over 32,000 newspapers, journals, magazines, etc. See https://www.dowjones.com/professional/factiva/.
[36] *See* Michele Costola et al., *On the "Mementum" of Meme Stocks*, 207 ECON. LETTERS 110021 (2021). The authors show how certain "meme stocks," GameStop, AMC, Koss, Moody's, Pifzer, and Disney, exhibited dynamics of price, trading volume, and social media activity, as measured by the number of tweets.
[37] *See* Yun Li, *The $300 Billion Meme Stock That Makes GameStop Look Like Child's Play*, CNBC (Aug. 3, 2022), https://www.cnbc.com/2022/08/03/the-300-billion-meme-stock-that-makes-gamestop-look-like-childs-play.html.
[38] *See* Paul R. La Monica, *Meme Stock Mania May Finally Be Over*, CNN (Dec. 6, 2022), https://www.cnn.com/2022/12/06/investing/meme-stocks-gamestop-amc/index.html.
[39] *See id.*

Blackberry,[40] Express Inc.,[41] Koss,[42] Robinhood,[43] and Vinco.[44] For meme and non-meme stocks, we collect an array of financial and non-financial information for the time period of 2015 to 2022. First, stock price information comes from the Center for Research in Stock Prices (CRSP). Firm financial data (size as proxied by assets in millions of dollars, performance (return on assets), debt ratio, cash ratio, closing stock price at the end of the fiscal year, and market value in millions) as well as research and development and capital and capital expenditures are collected from Compustat (both in millions of dollars). Finally, we get data on shareholder voting at all companies for which we could find data from Institutional Shareholder Services (ISS) (formerly known as Riskmetrics).

Table 1 presents the summary statistics for our dataset. Vote figures are organized at the shareholder proposal level and are matched to the firm-year level observations for financials from Compustat.[45] Panel A displays the overall descriptive statistics, while Panel B compares the relevant statistics between meme and non-meme companies, along with t-test results. The first statistic in Panel B, Percent Non-Votes, measures the extent of shareholder non-participation in direct governance. Following the accounting literature, we define shareholder non-participation as the percentage of outstanding shares that were not voted "for," "against," or "abstention" with respect to proposals at a meeting. Between 2015 and 2022, the average yearly non-participation rate for meme stocks was 28.75%. This is higher than the 25.04% average for non-meme firms and the difference is significant at the 1% level.

The next four statistics in Panel B, Return on Assets, Cash Ratio, Debt Ratio, and the natural logarithm of assets, present a picture of their respective financial status and performance. When we compare the respective returns on assets, we see that the mean return on assets for meme stocks over the entire period is –0.098, which is statistically significantly (at 1% level) lower than –0.05 for the non-meme companies. In addition, while Cash Ratio and Ln(Assets) are not statistically significantly different, the meme companies have a statistically significantly higher debt ratio (at 32%) compared to non-meme companies (at 28%).

Finally, the last two statistics in Panel B, Closing Price and Market Value (in millions), show some of the characteristics of the respective stock. Perhaps not surprisingly, meme companies, on average, had lower stock prices and lower market capitalization than non-meme companies: the average stock price of meme companies is about one-half of non-meme companies and the average market capitalization of meme companies (a little over $3 billion), one-fifth of that of non-meme

[40] *See* Bernard Zambonin, *BlackBerry (BB): Why Jim Cramer Is Warning Investors to Avoid This Stock*, THE STREET (Oct. 12, 2022), https://www.thestreet.com/memestocks/other-memes/blackberry-bb-why-jim-cramer-is-warning-investors-to-avoid-this-stock.

[41] *See* Express, Inc., *Express, Inc.: A Former Meme Stock Could Be Headed Into Serious Trouble In a Recession*, SEEKING ALPHA (July 19, 2022), https://seekingalpha.com/article/4524180-express-inc-a-former-meme-stock-could-be-headed-into-serious-trouble-in-a-recession.

[42] *See* Samuel O'Brient, *Why Is Meme Favorite KOSS Stock Soaring 40% Today?*, INVESTOR PLACE (July 25, 2022), https://investorplace.com/2022/07/why-is-meme-favorite-koss-stock-soaring-40-today/.

[43] *See* Maggie Fitzgerald, *Robinhood is Not a Meme Stock and Doesn't Plan to Sell Shares to Raise Funds, CFO Says*, CNBC (Aug. 19, 2021), https://www.cnbc.com/2021/08/19/robinhood-is-not-a-meme-stock-and-doesnt-plan-to-sell-shares-to-raise-funds-cfo-says.html.

[44] *See* Clark Schultz, *Vinco Ventures Skyrockets on Big Day for Meme Stocks*, SEEKING ALPHA (Aug. 16, 2022), https://seekingalpha.com/news/3873788-vinco-ventures-skyrockets-on-big-day-for-meme-stocks.

[45] Although we have also collected institutional ownership data, based on 13F filings, from Thompson-Reuters, so as to indirectly back out the fraction of retail ownership, because the 13F reporting is done on a quarterly basis and there was a large turnover at the meme stock companies during the "meme surge," the data turned out to be unreliable. For instance, when the institutional ownerships were aggregated, for some companies, the fractions exceeded one.

companies. In sum, the descriptive statistics indicate that meme companies are on average less profitable (or unprofitable), more heavily leveraged, and have lower stock prices and market capitalizations, consistent with media reports.[46]

Panel A

	N	Mean	SD
Percent Votes for Proposal	289422	70.53	19.16
Percent Votes against Proposal	289422	4.34	8.6
Percent Non-Votes	289422	24.84	17.26
Ln(Assets)	282189	7.8	2.31
Cash Ratio	276587	.12	.18
Debt Ratio	224586	.28	.24
Return on Assets	282061	-.04	.25
Research and Development Expense	180296	294.56	2123.57
Capital Expenditures	228832	449.6	2117.09
Closing Price	288369	56.14	141.04
Market Value	259924	15314.18	74007.27

Panel B

	Non-Meme Firms (1)	Meme Firms (2)	t-statistic (1)–(2)
Percent Non-Votes	25.04	28.75	–3.94***
Return on Assets	–0.05	–0.098	3.17***
Cash Ratio	.14	.13	1.3
Debt Ratio	.28	.32	–3.05***
Ln(Assets)	7.56	7.37	1.54
Closing Price	56.18	28.54	3.72***
Market Value	15331.22	3023.8	3.15**

Table 1. Summary Statistics. Panel A presents information on the shareholder voting results and financial variables for the meme stocks identified in Section III.A., for the period 2015-22. All financial variables are winsorized at the 1% level. Panel B presents t-tests for some of these variables between meme and non-meme stocks. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

IV. THE TWIN SHOCKS TO MEME STOCKS

In the popular imagination, social media usage during the coronavirus pandemic has been singled out as the main driver of the emergence of meme stocks. The *New York Times* has characterized meme stock investments as being "propelled by a social media frenzy and a bit of boredom" during pandemic-related social distancing.[49] The Wikipedia entry for "meme stock" defines it as "a stock that

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

[49] *See* Erin Griffith, *No End to Whiplash in Meme Stocks, Crypto and More*, N.Y. TIMES (Jun. 23, 2021), https://www.nytimes.com/2021/06/23/technology/no-end-to-whiplash-in-meme-stocks-crypto-and-more.html.

gains popularity among retail investors through social media."[50] However, for our set of meme stocks, we identify an association with retail investors that (1) predates the pandemic and (2) does not relate to social media platforms, such as Reddit or Twitter. More specifically, we look at the meme stocks' response to the abolition of commissions by major brokerage platforms in late 2019.

On October 1, 2019, the major online brokerages Charles Schwab and TD Ameritrade eliminated commissions for all their customers. These platforms, which had dominated the online brokerage business, were responding to stiff competition from a new rival, Robinhood, which had pioneered the zero-commission trading model.[51] The advent of zero-commission trading has been widely acknowledged as a root cause of the explosion in retail investing activity. One of the leading explanations for why individuals do not participate in the stock market is that there is a fixed cost of investing that proves potentially insurmountable for the less wealthy.[52] It is unsurprising that, by reducing the entry cost of trading (i.e., commissions), the 2019 decision by major brokerages increased retail investor activity.[53]

How did the abolition of trading commissions affect meme stocks? The relatively unexpected and sudden decision of the major brokerage platforms to introduce commission-free trading allows us to use the event study methodology to assess its impact. Given that this was prior to the meme stock surge of 2021, to the extent that the market was informationally "efficient," the stock prices around October 1, 2019 would reasonably reflect the impact of the abolition of commissions on meme stocks.[54] First, we identify what the expected return for each stock would have been during the event period if the event had not occurred (i.e., if the commissions had not been dropped). Using the standard Fama-French three-factor model, this may be written as:[55]

$$R_{it} = a_{it} + \beta_{mt}R_{mt} + \beta_{SMB}R_{SMB} + \beta_{HML}R_{HML} + \varepsilon_{it}$$

Here, $R_{\#}$ is the return on stock i on date t minus the risk free rate; R_{mt} is the market return on date t minus the risk free rate; R_{SMB} is the return on a portfolio of small companies; and R_{HML} is the book to market factor which is the portfolio of firms with high book value to market value ratio. The

[50] *See Meme Stock*, WIKIPEDIA, https://en.wikipedia.org/wiki/Meme_stock.

[51] E-Trade, the other major online brokerage, abolished commissions the next day. *See* Paul R. La Monica, *E-Trade Cuts Commissions to Zero Along with Rest of Brokerage Industry*, CNN (Oct. 3, 2019), https://www.cnn.com/2019/10/02/investing/etrade-zero-commissions/index.html. Experts termed this move "inevitable" after Charles Schwab and TD Ameritrade's decision on October 1. *See id. See also CFO Commentary*, CHARLES SCHWAB (October 1, 2019), www.aboutschwab.com/cfo-commentary/oct-2019. Share prices of Charles Schwab, TD Ameritrade, and E-Trade experienced a significant loss in response to Charles Schwab's zero commission announcement. *See* Lisa Beilfuss & Alexander Osipovich, *The Race to Zero Commissions*, WALL ST. J. (Oct. 5, 2019), www.wsj.com/articles/the-race-to-zero-commissions-11570267802.

[52] *See* Joseph Briggs et al., *Windfall Gains and Stock Market Participation*, 139 J. FIN. ECON. 57 (2021); Annette Vissing-Jorgensen, *Towards an Explanation of Household Portfolio Choice Heterogeneity: Nonfinancial Income and Participation Cost Structures* (Apr. 11, 2002), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=307121.

[53] *See* Maggie Fitzgerald, *Retail Investors Continue to Jump Into The Stock Market After GameStop Mania*, CNBC (Mar. 10, 2021), https://www.cnbc.com/2021/03/10/retail-investor-ranks-in-the-stock-market-continue-to-surge.html ("[r]etail trading has been accelerating since the industrywide decision to drop commissions in the fall of 2019").

[54] *See generally* Sanjai Bhagat & Roberta Romano, *Event Studies and the Law: Part I: Technique and Corporate Litigation*, 4 AM. L. & ECON. REV. 141 (2002); Sanjai Bhagat & Roberta Romano, *Event Studies and the Law: Part II: Empirical Studies of Corporate Law*, 4 AM. L. & ECON. REV. 380 (2002); A. Craig MacKinlay, *Event Studies in Economics and Finance*, 35 J. ECON. LIT. 13 (1997).

[55] *See* S.P. Kothari & Jerold B. Warner, *Econometrics of Event Studies*, *in* 1 HANDBOOK OF CORPORATE FINANCE 3 (B. Espen Eckbo ed., 2008).

abnormal return that can be traced to the event (i.e., the associated stock price movement) is the actual return minus the expected return:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_{Mt}R_{Mt} - \hat{\beta}_{HML}R_{HML} - \hat{\beta}_{HML}R_{HML}.$$

We calculate the abnormal returns on October 1, 2019 for all companies in the Compustat database, and regress them against an indicator for whether the company is one of our eight meme stocks. Table 2 presents the results from the event study. Column (1) shows that meme stocks had abnormal returns that were 2.25 percentage points *higher* than the market, and the coefficient on the indicator variable is highly statistically significant. Column (2) reruns the regression in model (1) adding controls for firm financials (size as proxied by the natural logarithm of assets, cash ratio, debt ratio, and return on assets) and the results remain largely unchanged. One concern with our results could be that meme stocks are categorically different from non-meme companies. As a final robustness check, we control for the possibility that the financials of meme and non-meme companies may be different. Using the entropy-balancing technique invented in the social science literature, we balance the means of the covariates for meme and non-meme companies.[56] As shown in column (3), our result for meme stocks remains robust to the entropy-balancing method.

	(1) Baseline	(2) With Financials	(3) Entropy Balanced
Meme Stock	2.252***	2.238***	2.230***
	(0.645)	(0.655)	(0.614)
Constant	-0.127***	-0.269	0.300
	(0.0269)	(0.246)	(0.768)
Observations	7,110	3,531	3,531
R-squared	0.001	0.010	0.208
Firm Financials	No	Yes	Yes

Table 2. Event Study Results. This table presents results from an event study using the Fama-French three-factor model. The dependent variable in this linear regression model is the abnormal stock return on October 1, 2019. Columns (1) and (2) use ordinary least squares regression and column (3) balances covariates for meme and non-meme companies using the entropy-balancing technique. Columns (2) and (3) add controls for firm size (proxied by the natural logarithm of assets), cash ratio, debt ratio, and return on assets. All financial variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

[56] *See* Jens Hainmueller, *Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies*, 20 POL. ANAL. 25 (2012).

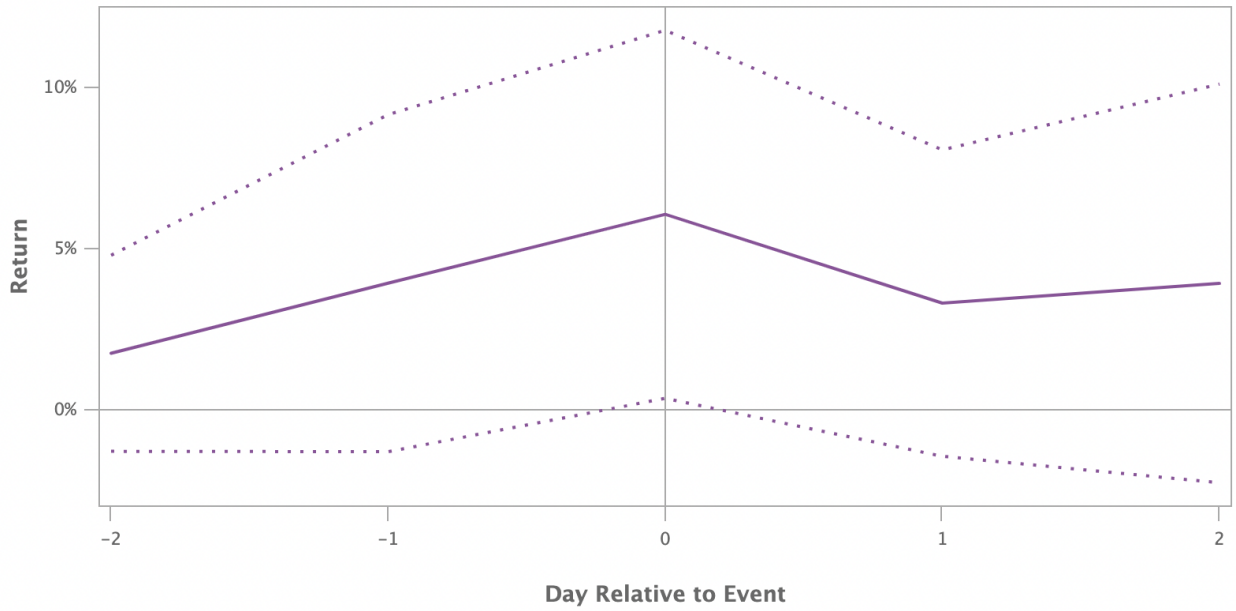

Figure 1. Cumulative Abnormal Returns for Meme Stocks. This figure graphs the mean cumulative abnormal returns for meme stocks around October 1, 2019, when major brokerages abolished trading commissions (denoted as day 0). The dotted lines represent the 95% confidence interval for cumulative abnormal returns.

Figure 1 graphs the mean cumulative abnormal returns of meme stocks. The mean abnormal returns are represented by the solid line in the middle, while the dotted lines enclose the 95% confidence interval. Day "0" in this figure refers to October 1, 2019. The figure shows an economically and statistically significant gain for meme stocks around the time the major brokerages dropped trading commissions. In unreported results, we find that meme stocks had significant abnormal returns on October 1, 2019 when we use alternative asset pricing models such as the capital asset pricing model (CAPM) or Carhart four-factor model.[57]

In addition to the abnormal returns, we also examine the magnitude of share turnover. Figure 2 presents data on the share turnover for meme stocks and other companies between 2015 and 2022. We define turnover as the daily average of the number of stocks of the firm traded as a percentage of total outstanding common stock, using data from CRSP. Since meme stocks are, on average, smaller firms, we subdivide non-meme companies into those belonging to the smallest quartile in terms of market capitalization and other bigger firms. Meme stocks saw an increase in trading volume both after the abolition of commissions on October 1, 2019, and a further increase in 2021-22 after the explosion of social media interest in these firms. There was a significant increase compared to both smallest-quartile and larger non-meme firms. Two points are notable. First, meme stocks had a higher turnover compared to non-meme stocks even in the first period, i.e., before the abolition of commissions. Second, both meme and non-meme stocks saw an increase in trading volumes after the abolition of commissions, although the increase was markedly greater for meme companies.

[57] These asset pricing models are described in detail in MacKinlay, *supra* note 54, and Kothari & Warner, *supra* note 55.

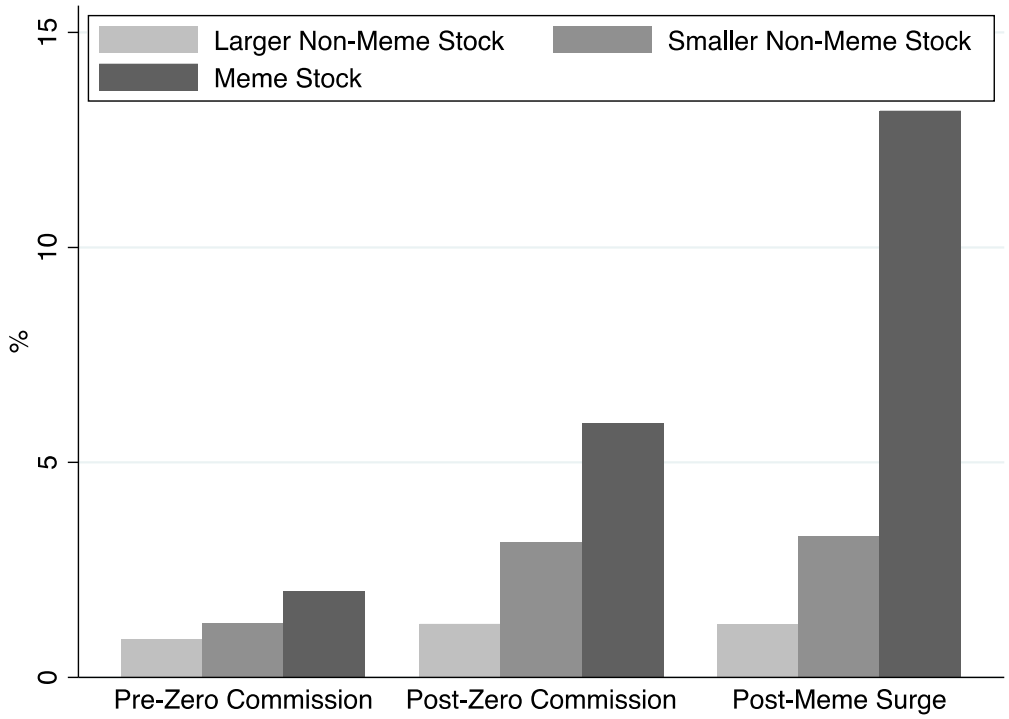

Figure 2. Average Turnover for Meme Stocks and Other Firms. This figure graphs the mean share turnover (shares traded each day as a percentage of total outstanding common stock) according to CRSP data. The data is presented separately for meme and non-meme stocks. Non-meme stocks are further subdivided into those that belong to the smallest quartile by market capitalization and larger firms. "Pre-Zero Commission" refers to the period from 2015 to September 2019, "Post-Zero Commission" to 10/1/19-12/31/20, and "Post-Meme Surge" to 2021-22.

We estimate a regression model where we analyze the factors affecting the average daily turnover for CRSP companies in all three periods. We include as explanatory variables an indicator for meme stock, two dummies for *Post-Zero Commission* and *Post-Meme Surge*, and the interaction of the meme indicator with each time dummy. We include firm fixed effects to make sure the results are not driven by idiosyncratic factors unique to any given company. Both interaction terms are positive and statistically significant. The results are presented in Table 3. Note that, even controlling for firm fixed effects and time trends, meme companies seem to have especially gained with respect to this measure of liquidity in the latter time periods. The results remain qualitatively unchanged when we additionally control for firm market value. The event study results presented in this section show that meme stock companies gained value around the time major brokerages abolished commissions. The influx of retail investors precipitated by zero commissions could therefore have been particularly impactful for the meme stocks. Moreover, the results on turnover indicate that meme firms saw greater trading volumes after the major brokerages eliminated commissions.

Post-Zero Commission	0.664***
	(0.0714)
Post-Zero Commission x Meme	3.252*
	(1.874)
Post-Meme Surge	0.517***
	(0.0822)
Post-Meme Surge x Meme	12.23***
	(3.634)
Constant	1.080***
	(0.0402)
Observations	20,764
R-squared	0.875
Firm Fixed Effects	Yes

Table 3. Meme Stocks and Trading Volume. This table presents the results of a linear regression model where the dependent variable is the daily percentage of outstanding shares that are traded. "Post-Zero Commission" refers to the time period 10/1/19-12/31/20, and "Post-Meme Surge" to 2021-22. The regression model includes firm fixed effects, and all standard errors are clustered at the firm level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

V. DIRECT SHAREHOLDER ENGAGEMENT AT MEME STOCK COMPANIES

In this Part, we explore the effect of meme stock investing on the direct mechanisms for shareholder engagement: voting and submitting shareholder proposals. This can help us empirically assess claims that the influx of retail investors would affect corporate governance and possibly empower shareholders to engage with management more actively. To briefly summarize the findings, empirical results show that predictions of retail investor-driven changes in corporate governance may be overstated. First, the level of shareholder voting at meme companies *decreased* after the abolition of commissions by online brokerages and decreased *still further* in the aftermath of 2021 meme surge. Second, we find no evidence of active shareholder engagement by way of submitting shareholder proposals at the companies in our sample, except in limited circumstances unrelated to corporate governance.

A. Non-Voting at Meme Stock Companies

An important claim in the literature is that the retail shareholders brought in after the meme phenomenon may be more likely to be assertive and more vigorously engage with management.[58] This is a presumptively plausible claim: if retail investors could coordinate their trades to attack institutional investors—a feat previously unimaginable—so, too, can retail shareholders coordinate their votes to have their voices heard. Accordingly, one could expect more retail shareholders to vote on governance proposals, including director elections and other consequential decisions (such as mergers and acquisitions and charter amendments), at these firms after 2021. Ideally, if we can observe each shareholder's characteristics (e.g., institutional versus retail), how many shares are owned by each

[58] *See supra* Part II.

shareholder, and how many of those shares are voted on, we will be able to tell exactly what the rate of participation among retail shareholders is. Nevertheless, due largely to the limitations on data, we do not have access to any information on whether certain votes came from a retail versus an institutional shareholder.[59]

Instead, we rely on an indirect measure in estimating shareholder participation that is commonly used in the accountancy literature. One way of such an indirect estimation is by measuring aggregate non-votes at shareholder meetings. The accountancy scholarship attributes non-votes in shareholder meetings (i.e., votes that were not cast for or against a proposal and were not abstentions) to retail investors.[60] Corporate insiders and institutional investors, on the other hand, are much more diligent in registering their votes. Under this standard assumption, if retail investors became more engaged after 2021, we could expect the overall share of non-votes to fall.[61]

In analyzing the rate of non-votes, it is also important to account for the *type* of proposal. Shareholder proposals at U.S. public companies are generally of two types: routine and non-routine. Routine proposals are those that pertain to the company's day-to-day operations but are not expected to significantly affect the company's overall operation and performance. Examples of this type are proposals for the ratification of auditors or approving stock splits. By contrast, non-routine proposals typically relate to the company's long-term strategy or are expected to have a significant impact on the company's financial performance. Examples include the issuance of new stock, election of directors, a merger with another company, divesting a business unit, or any other proposal stockholders could have concerns with, and would affect their ownership. For our purposes, there is an important distinction between these two types: brokers can vote shares on behalf of the beneficial owners for routine matters, but *not* for non-routine matters. Therefore, only shareholders can vote their own shares for non-routine proposals.[62]

Figure 3 graphically presents the yearly average of non-vote rates on proposals at both meme and non-meme companies between 2015 and 2022. We hand-coded each proposal listed in the ISS data as either "routine" or "non-routine" based on Rule 452 of the New York Stock Exchange.[63] As expected, we find that non-routine proposals (where brokers cannot vote on behalf of shareholders) have consistently higher levels of non-participation for both meme and non-meme firms.

More importantly, we find an increase in shareholder non-voting rate after 2018, concentrated in meme companies (for both routine and non-routine proposals). In fact, before 2019, meme companies actually had lower non-vote rates compared to non-meme companies, but by 2022, non-vote rates are at above 50% and 30% on non-routine and routine matters, respectively, at meme companies. At the same time, at non-meme companies, as the Figure shows, there seems to have been only marginal changes in non-vote shares over the same period. This is the opposite trend from what

[59] Some scholars have been successful in accessing data owned by proxy service firms, such as Broadridge, and have been able to much more accurately estimate retail shareholder participation. *See* Brav et al., *supra* note 33.
[60] *See* Kobi Kastiel & Yaron Nili, *In Search of the "Absent" Shareholders: A New Solution to Retail Investors' Apathy*, 41 DEL. J. CORP. L. 55, 62-64 (2016).
[61] *See* Rachel Geoffroy, *Electronic Proxy Statement Dissemination and Shareholder Monitoring* (Dec. 8, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3264846, at 12. The author examines the changes from postal mail to electronic distribution of proxies and shows how electronic distribution of proxies actually reduced shareholder participation by about 1% to 2%. With the assumption that the non-participation comes from retail investors, this implies that retail investor participation decreased by about 7% to 17%.
[62] *Id.* at 4.
[63] *See* N.Y. STOCK EXCH'G. R. 452, https://nyseguide.srorules.com/rules.

one would expect if the retail shareholders were more engaged with respect to corporate governance at meme firms, such as AMC and GameStop. Instead of seeing a burst of shareholder engagement, meme companies have seen increasing retail shareholder apathy in recent years.

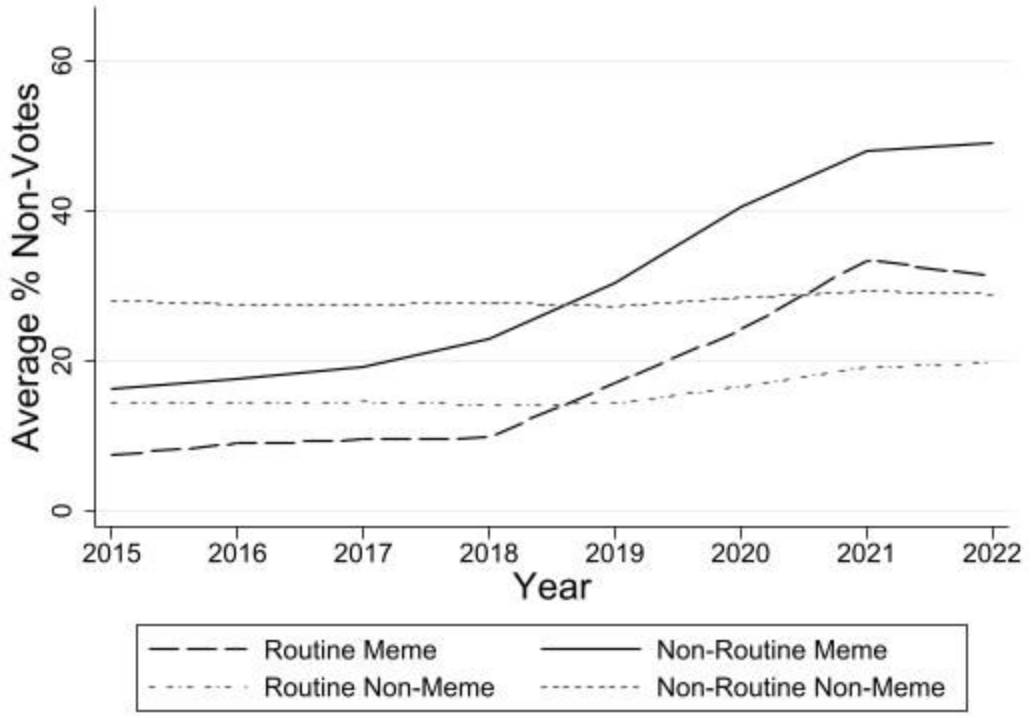

Figure 3. Average Share of Non-Votes for Meme and Non-Meme Stocks Over Time, By Proposal Type. This figure presents information on the yearly average percentage of votes that were not voted in shareholder meetings. We define the number of non-votes as Total Outstanding Shares – (Votes For + Votes Against + Abstentions). We split the data by meme/non-meme stock as well as proposal type (i.e., whether or not it qualifies as "routine" as defined in NYSE Rule 452).

If we were to expect that retail shareholders are less likely to participate in direct governance, this finding, on the one hand, may not be too surprising. Recall, however, that many of these retail investors were the drivers of coordinated meme surges in early 2021, collectively taking a stance against institutional investors. And there is reason to believe that many of them have remained loyal to the firm.[64] If the fraction of retail investors at meme stock companies remains relatively high through 2021 and 2022, and many of them care more about the companies' survival and performance, one would expect them to be more active in firm governance. From this perspective, the fact that the share of no-votes keeps increasing through 2021 and 2022, long after the initial "meme surge" was over, is surprising.

Table 4 presents a more formal regression analysis (using linear regression models), where the dependent variable is the percentage of non-votes at a shareholder proposal level. We collect this data for all companies from the ISS database, from 2015 to 2022, to make sure we capture any secular time

[64] *See, e.g.*, Caitlin McCabe, *GameStop's Most Loyal Shareholders Are in It for the Long Haul, Not the Memes*, WALL ST. J. (June 6, 2021), https://www.wsj.com/articles/gamestops-most-loyal-shareholders-are-in-it-for-the-long-haul-not-the-memes-11622971801. *See also* Caitlin McCabe et al., *Where Six Meme Stock Investors Are Now*, WALL ST. J. (Jan. 28, 2022), https://www.wsj.com/articles/where-six-meme-stock-investors-are-now-11643365810.

trends in shareholder voting across the market. Column (1) presents the baseline model, while column (2) adds financial variables as controls. We include firm fixed effects to account for any idiosyncratic factors unique to each company. Note, foremost, that the coefficient estimates (except for the estimate on variable, *Meme* x 2019-20), along with their statistical significance, are fairly consistent across the two models, indicating that the specifications are fairly robust. In terms of the results, at the top of the table, the dummy for non-routine proposals is positive (with the point estimates of 14.04 and 13.98, respectively) and highly statistically significant (at 1% level), indicating that these types of matters generally have greater non-participation than routine proposals (per stock exchange regulations): non-vote shares on non-routine matters are about 14 percentage points higher compared to those on routine matters.

The coefficient estimates on 2019-20 and 2021-22 indicator variables are also positive and statistically significant, indicating that there is a general trend towards non-votes across all companies. When we interact both time period dummies with the *Meme* indicator, the coefficient for these terms is positive and highly statistically significant at least in the baseline model, indicating that there seems to be more non-voting at meme companies after both the abolition of commissions and the surge in social media interest in these companies.[65] The rise in non-voting for meme stocks seems concentrated in non-routine proposals, as one would expect since brokers cannot vote on behalf of the shareholders on these issues. Most tellingly, the triple interaction of *Meme*, each time period dummy, and *Non-Routine* is also positive (with coefficient estimates ranging from about 7.5 to 8.1) and highly statistically significant (at 1% level) in *both* the baseline model and with financial controls. The estimates tell us that compared to routine matters at meme companies at these two time periods, the share of non-votes on non-routine matters are about 7.5 to 8 percentage points higher. The results indicate that, for 2019-22, meme companies saw a greater rise in non-voting among shareholders as compared to non-meme companies, and this effect was especially pronounced for proposals for which brokers could not vote on behalf of shareholders.

[65] Controlling for firm financials in column (2), the interaction between *Meme* and 2019-20 is no longer significant.

	(1) Baseline	(2) With Financials
Non-Routine	14.04***	13.98***
	(0.198)	(0.223)
Meme *x* Non-Routine	-5.607***	-5.585***
	(1.495)	(1.534)
2019-20	0.681***	0.830***
	(0.140)	(0.170)
Meme *x* 2019-20	5.204***	2.650
	(1.780)	(1.760)
Non-Routine *x* 2019-20	-0.630***	-0.688***
	(0.149)	(0.162)
Meme *x* Non-Routine *x* 2019-20	7.910***	8.125***
	(1.406)	(1.425)
2021-22	3.899***	4.622***
	(0.195)	(0.232)
Meme *x* 2021-22	13.91***	11.59**
	(4.841)	(4.672)
Non-Routine *x* 2021-22	-3.297***	-3.531***
	(0.178)	(0.195)
Meme *x* Non-Routine *x* 2021-22	7.503***	7.901***
	(1.725)	(1.942)
Constant	12.29***	23.68***
	(0.179)	(2.087)
Observations	238,506	194,929
R-squared	0.699	0.735
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table 4. Meme Stocks and Non-Voting. This table presents the results of a linear regression model where the dependent variable is the percentage of shares that were *not* voted for a proposal at shareholder meetings. We define the number of non-votes as Total Outstanding Shares – (Votes For + Votes Against + Abstentions). *2019-20* equals 1 for years 2019 and 2020, while *2021-22* equals 1 for 2021 and 2022. We split the data by proposal type (i.e., whether or not it qualifies as "routine" as defined in NYSE Rule 452). Column (2) adds controls for firm assets, cash ratio, debt ratio, and return on assets. Columns (1) and (2) include year and firm fixed effects, and all standard errors are clustered at the firm level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

In the Appendix, we present additional results regarding shareholder non-voting that extends beyond the meme stocks this Article focuses on. We find that firms that experienced higher abnormal returns on October 1, 2019 generally saw an increase in non-voting rates after the abolition of trading commissions. This suggests that many companies that experienced positive abnormal returns due to entry costs being lowered for retail investors saw a rise in shareholder non-participation. While this indicates that the effect of retail investor entry on shareholder participation extends beyond the meme stocks identified in the literature, we focus most of our attention in subsequent empirical tests on the subset of meme companies that attracted the most attention from scholars and popular commentators.

B. Shareholder Proposals at Meme Stock Companies

As another measure of shareholder engagement, we look at the number (and the content) of shareholder proposals that were submitted by retail shareholders at meme stock companies. For example, it is possible that even if the level of retail shareholder voting at meme companies has remained low (or decreased) the meme surge may have emboldened a minority of retail shareholders to take more active steps in submitting shareholder proposals to affect corporate governance and corporate policies. While there are other channels of influencing corporate governance—such as running a proxy contest or nominating a director candidate through proxy access (if the company allows it)—these other channels require significant economic resources (in the case of proxy contests) or more substantial ownership thresholds and holding periods (in the case of accessing proxy ballots directly). As such, these are less salient means for meme traders. For this reason, the more promising route for meme traders is likely through submission of a shareholder proposal.

First, some institutional background and potential complication for our empirical analysis. The eligibility requirement for a shareholder to submit a shareholder proposal is governed by Rule 14a-8,[66] which imposes an ownership threshold and a holding period requirement. Once a proposal is submitted by an eligible shareholder, the SEC rules require the company to add the proposal to the agenda for voting at the next annual shareholders meeting, unless the SEC provides special permission to exclude it from consideration.[67] Since 1998, Rule 14a-8 has maintained a relatively low share ownership threshold: it required only that a shareholder had held at least $2,000 or 1% of a company's securities for at least one year.[68] The SEC, however, recently replaced the $2,000 threshold with three alternative thresholds and adjusted the corresponding holding periods. Specifically, (1) if a shareholder owns more than or equal to $25,000, then he may submit a proposal if he has held the shares for at least one year; (2) if a shareholder owns less than $25,000 but more than or equal to $15,000, he must have owned company shares for at least two years; and (3) if a shareholder owns less than $15,000 but more than or equal to $2,000, he must have been a stockholder for at least three years.[69] The rule was proposed on November 5, 2019,[70] adopted on September 23, 2020, and went into effect on January 4, 2021.[71] However, the SEC noted that the changed thresholds would only affect proposals submitted for annual meetings that take place after January 1, 2022.[72]

The SEC's revised thresholds are more difficult to meet and this was indeed the agency's intention. The previous requirement of $2,000 and a one-year holding period is arguably a more achievable threshold for meme traders. The revised thresholds and the corresponding holding periods are much less likely to be met by meme traders—especially the segment of retail investors that began participating in the stock market only after the introduction of commission-free trading platforms.

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[66] *See* Securities Exchange Act of 1934 Rule 14a-8, 17 C.F.R. § 240.14a-8 (2020).
[67] *See id.*
[68] *See* Securities Exchange Act of 1934 Rule 14a-8, 17 C.F.R. § 240.14a-8 (1998); Securities Exchange Act of 1934 Rule 14a-8, 17 C.F.R. § 240.14a-8 (2007); Securities Exchange Act of 1934 Rule 14a-8, 17 C.F.R. § 240.14a-8 (2011).
[69] *See* Securities Exchange Act of 1934 Rule 14a-8, 17 C.F.R. § 240.14a-8 (2020).
[70] U.S. Securities & Exchange Commission, Procedural Requirements and Resubmission Thresholds Under Exchange Act Rule 14a-8, Release No. 34-87458, 84 FR 66458 (Nov. 5, 2029).
[71] U.S. Securities & Exchange Commission, Procedural Requirements and Resubmission Thresholds Under Exchange Act Rule 14a-8, Release No. 34-89964, 85 FE 70240 (Sept. 23, 2020).
[72] Press Release, *SEC Adopts Amendments To Modernize Shareholder Proposal Rule* (Sept. 23, 2020) https://www.sec.gov/news/press-release/2020-220 ("[T]he final amendments will apply to any proposal submitted for an annual or special meeting to be held on or after January 1, 2022.").

For this reason, we can reasonably expect little activity from meme traders by way of shareholder proposals for annual meetings taking place after January 1, 2022.

As a threshold inquiry, we first examined whether investors reacted to the SEC's decision to change the Rule 14a-8 thresholds. There were no changes in the thresholds between the SEC's rule proposal (November 5, 2019) and rule adoption (September 23, 2020). We examined both event dates—the rule proposal date as setting the market's expectation and the rule adoption date as finalizing the proposal through adoption. If meme traders were particularly committed to influencing corporate governance, these events may correlate with negative stock market reactions. In unreported results, we find no significant market reactions for meme stock companies for either event. We interpret this finding to be consistent with the idea that meme traders were never particularly interested in participating in corporate governance.

We followed through by reviewing the meme stock companies' definitive proxy statements filed with the SEC's EDGAR system from 2015 to 2022 to see whether they included shareholder proposals. These proxy statements typically indicate whether a particular proposal is submitted by a shareholder. Even in the absence of any such specification, the proxy statements will invariably indicate whether the board approves each proposal, which is a good indication that the proposal is internally proposed. Note, however, that the lack of shareholder proposals in definitive proxy statements does not necessarily indicate that no shareholder submitted a proposal to be included in the proxy. First, under Rule 14a-8, management is permitted to exclude a shareholder proposal under a few specific circumstances.[73] But exclusion is permitted only after management submits its reasons to the SEC. For this reason, we also searched through the SEC's No-Action Letter archives to see whether any of these companies sought to exclude shareholder proposals, and if so, on what grounds. Second, it is also possible for management to persuade a shareholder to withdraw a proposal through negotiation.[74] These are done through private agreements, and we are unaware of any public data set that would capture withdrawn proposals.[75] For this reason, for data analysis purposes, we will assume that all shareholder proposals properly submitted are reflected under our search. Nevertheless, given the possibility of negotiations that may occur as a result of submitted-but-withdrawn shareholder proposals, we will look to other measures of shareholder engagement in Part VI.

For all meme companies in the sample, with respect to observable shareholder proposals, we verified our numbers and analysis for this Section using the SharkWatch dataset, which is a standard resource for studying shareholder proposals.[76] Table 5 describes, for each meme stock company, the number of shareholder proposals (i) included in the company's proxy statements, (ii) approved each year, and (iii) properly excluded via SEC's no-action letter. Some benchmark figures may be helpful to set proper expectations. In terms of raw numbers of shareholder proposals among the S&P 1500 companies, Professors Kobi Kastiel and Yaron Nili document "a relatively steady and significant

[73] *See* Securities Exchange Act of 1934 Rule 14a-8, 17 C.F.R. § 240.14a-8 (2020).

[74] *See, e.g.*, Yaron Nili & Kobi Kastiel, *The Giant Shadow of Corporate Gadflies*, 94 S. CAL. L. REV. 569, 580 (2021)("After a shareholder submits a proposal . . . , the proponent may withdraw the proposal after negotiations with the company."). There is also reason to believe that companies may be less likely to seek to exclude proposals through SEC no-action letters, as the result of the SEC's recent policy change with respect to issuing no-action letters. *See* SEC Division of Corporation Finance, *Shareholder Proposals: Staff Legal Bulletin No. 14L (CF)* (Nov. 3, 2021), https://www.sec.gov/corpfin/staff-legal-bulletin-14l-shareholder-proposals.

[75] We are also unaware of any study that has examined such proposals. For example, in their extensive empirical study on shareholder proposals, Nili & Kastiel acknowledge that their data set "does not include proposals that were withdrawn due to a negotiated agreement or otherwise." *Id.* at 581.

[76] *See, e.g.*, Kastiel & Nili, *supra* note 60.

number of shareholder proposals submitted to the S&P 1500 [between 2005 and 2018] (an average of 517 proposals per year)."[77] The pattern, however, is not uniform across 1500 companies. In 2015, for example, "over 450 proposals were submitted to large-cap companies" that comprise the S&P 500, while "fewer than 150 shareholder proposals combined were submitted to the mid- and small-cap companies that comprise the S&P 400 and 600, respectively."[78] Given that meme stock companies are small-cap to mid-cap companies, there would be no expectation that any of these companies would be inundated with shareholder proposals.

Nevertheless, the results shown in Table 5 are revealing. For AMC Entertainment Inc, Blackberry, Express, Inc., Koss, Vinco Ventures, there were *no* shareholder proposals submitted between 2015 and 2022.[79] The same is true with Robinhood, but the company went public recently, and thus has had only one definitive proxy statement issued (in 2022). Thus, for these companies, no proposal was ever included in any definitive proxy statement (which the board did not recommend), and none of these companies have had to request no-action letters from the SEC (to exclude a shareholder proposal) during the time frame.

Company\Year	**Shareholder Proposals Included/Approved/Excluded**							
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
AMC Entertainment Inc.	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Bed Bath and Beyond	0/0/0	3/2/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Blackberry	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Express, Inc.	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
GameStop Corp.	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/3
Koss	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Robinhood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0/0/0
Vinco Venture	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0

Table 5. Shareholder Proposals at Meme Stock Companies, 2015-2022. This table presents the number of shareholder proposals at meme companies between 2015 and 2022. For each company-year observation, we provide the total number of shareholder proposals included in the proxy statements, approved by shareholder vote, and excluded via SEC no-action letters.

Bed Bath and Beyond received three shareholder proposals in 2016, all of which the board recommended against. These included (i) a proposal for the board to implement proxy access, (ii) a proposal to have shareholders approve future severance packages, and (iii) a proposal for equity-based compensation for senior executives. Of these three, only the last one failed to pass.[80] Note also that these proposals significantly predate the meme surge, and as such, cannot be attributed to the influx of retail investors.

[77] Nili & Kastiel, *supra* note 74, at 581.
[78] Kobi Kastiel & Yaron Nili, *The Corporate Governance Gap*, 131 YALE L.J. 782, 807 (2022).
[79] Kastiel and Nili explain, however, that "in many cases, shareholder proposals do not reach the voting stage" because "some companies prefer to work with the proposing shareholder to bring about a change rather than have the proposal go to a shareholder vote." Nili & Kastiel, *supra* note 74, at 582.
[80] *See* Form 8-K, Bed Bath & Beyond Inc. (July 1, 206), *available at* https://www.sec.gov/Archives/edgar/data/886158/000117184316010938/f8k_070116.htm.

Finally, GameStop sought and received three no-action letters from the SEC for excluding shareholder proposals, all dating to April 22, 2022.[81] These involved proposals by three different shareholders, and management could permissibly exclude all of them for failing to meet the deadline for submission. Note, however, that given that these proposals were for the 2022 annual meeting, which requires the raised thresholds, these shareholders are *unlikely* to be meme traders. Meanwhile, the content of these proposals is also worth examining.

In one proposal, a self-described registered GameStop shareholder (who didn't specify how many shares he held) proposed that the company offer a non-fungible token (NFT) dividend to its stockholders.[82] In another proposal, a shareholder, who claims to own 191 Class A shares proposed that the board "immediately engage the services of the Company's Transfer Agent, Computershare Limited to enable both investment and Direct Registration of Class A shares in both Roth and Traditional Individual Requirement Account Shareholder Investment Programs at Computershare."[83] Finally, a third shareholder who beneficially owns 540 Class A shares of GME submitted an identical proposal as the second shareholder.[84]

What can we learn from the shareholder proposals we examined? The 2016 proposals by Bed Bath & Beyond shareholders do reflect a genuine attempt at participating in corporate governance matters. But as mentioned already, these efforts predate the influx of retail investors. The GameStop shareholder proposals, however, tell a different story. On the one hand, they do indicate retail investor participation. It is possible that they were encouraged by the meme surge of 2021 to organize some activist effort. On the other hand, these proposals also do not relate to corporate governance matters. One is a dividend payment suggestion, while the other is a proposal to help certain retail shareholders obtain tax advantages. As of yet, there is no indication that GameStop investors—meme traders or not—are particularly likely to bring about governance reforms through shareholder proposals.

VI. BEYOND VOTING: ESG, DIRECTOR INDEPENDENCE, BOARD GENDER DIVERSITY, AND R&D

Voting and shareholder proposals are not the only ways shareholders can influence corporate governance at public companies. Boards, institutional investors, and policymakers are increasingly paying attention to a firm's prosocial performance as captured by ESG metrics.[85] Even if retail investors do not directly participate in governance (through voting or submitting proposals), it is possible that their presence and preferences could indirectly influence how firms are governed. For example, the meme surge could have left a considerable imprint on public companies if retail investors managed to make their firms' preferences more prosocial. For one thing, because management may be able to raise extra cash through at-the-market offerings at inflated stock prices,[86] managers have

[81] *See* GameStop Corp., SEC No-Action Letter, 2022 WL 1037146 (Apr. 21, 2022); GameStop Corp., SEC No-Action Letter, 2022 WL 1037147 (Apr. 21, 2022); and GameStop Corp., SEC No-Action Letter, 2022 WL 1037148 (Apr. 21, 2022).
[82] *See* GameStop Corp., SEC No-Action Letter, 2022 WL 1037147 (Apr. 21, 2022).
[83] *See* GameStop Corp., SEC No-Action Letter, 2022 WL 1037146 (Apr. 21, 2022).
[84] *See* GameStop Corp., SEC No-Action Letter, 2022 WL 1037148 (Apr. 21, 2022).
[85] *See* Max M. Schanzenbach & Robert H. Sitkoff, *Reconciling Fiduciary Duty and Social Conscience: The Law and Economics of ESG Investing by a Trustee*, 72 STAN. L. REV. 381 (2020).
[86] An at-the-market offering allows an issuer to sell more of its stocks at the prevailing market price. According to our EDGAR search, GameStop and AMC Entertainment, Inc. took advantage of meme surges and made at-the-market offerings. *See also* Felix Gillette & Eliza Ronalds-Hannon, *AMC's CEO Turned His $9 Billion Company Into a Meme Machine*,

reason to cater to the preferences of meme traders—i.e., to make sure meme surges persist (especially in times of trouble) and these investors do not go away. In addition, it is also possible that a meme trader may have submitted a shareholder proposal but decided to withdraw it in return for some concession from the board or management, such as instituting some prosocial changes. Another possible indirect effect of meme surges could have been an increase in R&D spending. For example, those companies that engaged in at-the-market offerings could have invested the new funds in transformative innovative activity. Below we also explain other mechanisms that were highlighted in the finance literature.[87] To estimate these possible indirect influences, in this Part, we first assess the impact of the meme phenomenon on firm ESG scores and board independence and gender diversity. We then investigate whether meme companies spent more on R&D and capital expenditures after the influx of retail investors.

A. ESG Scores at Meme Stock Companies

An important claim in the legal scholarship on retail investors is that these new entrants to the financial markets have different goals and expectations from management (as compared to more established institutional players or to retail investors from the previous generation). Ricci and Sauter, for example, envisage meme trading as "a social movement able to bring business corporations to serve their original partly-private-partly-public purpose."[88] In other words, scholars envisioned meme companies as potentially deviating from the shareholder wealth-maximization norm and advancing social and environmental causes, under pressure from retail investors. There is a demographic aspect to this argument. As Fisch observes, many of the retail investors who invested in meme stocks were younger people. Since some argue that the millennial generation has different preferences and is in favor of socially responsible investing even at the cost of wealth-maximization, Fisch expected the young cohort of retail investors to potentially pressure management to improve ESG metrics.[89] However, Fisch also notes that "the extent to which citizens will pursue stakeholder or societal goals in their role as investors remains unclear."[90]

To shed some light on the extent to which meme traders affected socially responsible investing and management, we obtain data on ESG scores for each firm in the Compustat dataset between 2015 and 2021. The ESG scores are taken from the MSCI ESG Score Indexes. This index measures ESG in several different ways, but we choose the most comprehensive measure—industry-adjusted total ESG score—as our outcome of interest.[91] MSCI measures the ESG score for each firm at different points in the year. Therefore, we count an ESG score to "belong" to a given year if it was assessed after June 30 of the previous calendar year or before June 30 of that year. For example, any ESG score assessed between June 30, 2015 and June 30, 2016 is counted as that firm's 2016 ESG score. We

BLOOMBERG.COM (Aug. 17, 2022), https://www.bloomberg.com/news/features/2022-08-17/amc-amc-stock-became-a-meme-thanks-to-adam-aron-s-antics (describing how AMC's CEO "transformed himself into a Twitter-obsessed, gold mine-buying, populist folk hero for retail investors").

[87] *See infra* Section VI.C.

[88] *See* Ricci & Sautter, *Corporate Governance Gaming*, *supra* note 21, at 51.

[89] *See* Fisch, *supra* note 5, at 1850-51.

[90] *See id.* at 1851.

[91] There is some debate as to what the ESG rating really captures. The rating is intended to measure risk, but ESG scholars also employ this metric as a performance indicator—e.g., firms' efforts to manage ESG risks. For studies using this index as a performance indicator, see, for example, Ľuboš Pástor et al., *Dissecting Green Returns*, 146 J. FIN. ECON. 403 (2022); Mozaffar Khan et al., *Corporate Sustainability: First Evidence on Materiality*, 91 ACCT. REV. 1697 (2016). For more on the debate, see George Serafeim & Aaron Yoon, *Stock Price Reactions to ESG News: The Role of ESG Ratings and Disagreement*, REV. ACCT. STUD. 1 (2022).

estimate a difference-in-difference regression model assessing whether ESG scores changed differently for meme stocks after the abolition of commissions and the meme surge of 2021. Table 6 presents the results of this regression.

	(1) Baseline	(2) With Financials
2019-20	0.326***	0.295***
	(0.0305)	(0.0348)
2019-20 x Meme	-0.0817	-0.0115
	(0.127)	(0.125)
2021	0.644***	0.604***
	(0.0434)	(0.0493)
2021 x Meme	-1.818**	-1.727*
	(0.918)	(0.909)
Constant	4.219***	4.244***
	(0.0515)	(0.0792)
Observations	13,739	12,039
R-squared	0.804	0.805
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table 6. Meme Stocks and ESG Scores. This table presents the results of a linear regression model where the dependent variable is the yearly industry-adjusted ESG score reported for each firm by MSCI ESG Indexes. *2019-20* equals 1 for years 2019 and 2020, while *2021* equals 1 for 2021. Column (2) adds controls for firm assets, cash ratio, debt ratio, and return on assets. Columns (1) and (2) include firm fixed effects, and all standard errors are clustered at the firm level. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

As shown in the Table, there is no observable positive effect of meme trading on our treated companies with respect to ESG scores, either after the abolition of commissions in 2019 or the rise in social media interest in 2021. In fact, not only are all the coefficient estimates, on (2019-20 x Meme) and (2021 x Meme) variables, negative, the coefficient estimates on (2021 x Meme) variable are statistically significantly negative, with or without financial variables at control, at 10% and 5% levels, respectively. While not conclusive, these results are consistent with the earlier results on shareholder voting and proposals and perhaps not too surprising. If we expect that the new retail investors are more passive, it would not be surprising to expect that the companies would face less pressure from the retail investors and be less inclined to improve upon the ESG issues, even if retail investors may care more about these topics in their personal lives. Furthermore, as discussed briefly in Parts II and III, meme firms had higher debt than other firms, and many of them had faltering business models. With an influx of new passive shareholders, management at these firms may have been tempted to reduce expenditure in compliance or ESG initiatives, especially when they know that they will face little pressure from their retail shareholder base.

B. Board Independence and Diversity at Meme Stock Companies

Next, we look at the relationship between meme trading and board characteristics. We use data on director independence and board gender diversity from BoardEx, with the dependent variable equaling the percentage of a company's board that is independent or female, depending on the empirical test.[92] Table 7 presents regression analyses where the percentage of independent directors is the dependent variable. Leading academic commentators, regulators, and institutional investors usually take a higher share of independent directors to be a sign of better corporate governance,[93] even though the empirical evidence on the correlation between board independence and firm performance is mixed.[94] Regardless of whether director independence boosts firm value, the results in Table 7 indicate that meme firms did not experience a significant increase in the share of independent directors either after the abolition of commissions or during the meme surges on social media. Nevertheless, unlike the ESG results in Table 6, we do not see meme companies performing "worse" than other companies. Our results simply suggest that there is no significant relationship between the meme phenomenon and director independence.

	(1) Baseline	(2) With Financials
2019-20	1.574***	1.409***
	(0.122)	(0.151)
2019-20 x Meme	4.488	4.790
	(2.919)	(2.930)
2021-22	2.417***	2.273***
	(0.159)	(0.202)
2021-22 x Meme	5.563	5.864
	(3.770)	(3.779)
Constant	76.87***	70.91***
	(0.0565)	(1.455)
Observations	25,778	21,357
R-squared	0.813	0.812
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table 7. Meme Stocks and Board Independence. This table presents the results of a linear regression model where the dependent variable is the percentage of directors that is independent, per BoardEx. *2019-20* equals 1 for years 2019 and 2020, while *2021-22* equals 1 for 2021 and 2022. Column (2) adds controls for firm assets, cash ratio, debt ratio, and return on assets. Columns (1) and (2) include firm fixed effects, and all standard errors are clustered at the firm level. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Board gender diversity is another area in which major corporations have focused in recent years, seeking to improve the representation of women. For example, California recently passed legislation mandating that firms headquartered in the state ensure they had at least a minimum number of women directors on the board.[95] As with director independence, the empirical evidence for board

[92] Ethnic diversity is another variable we could examine. Nevertheless, BoardEx datasets do not include ethnicity data in a readily usable format.

[93] *See* Dorothy S. Lund & Elizabeth Pollman, *The Corporate Governance Machine*, 121 COLUM. L. REV. 2563 (2021).

[94] *See* Sanjai Bhagat & Bernard Black, *The Non-Correlation between Board Independence and Long-Term Firm Performance*, 27 J. CORP. L. 231 (2001) (showing that director independence is not associated with several measures of firm performance).

[95] *See* Darren Rosenblum, *California Dreaming*, 99 B.U. L. REV. 1435 (2019).

gender diversity improving firm performance is mixed.[96] Given, however, the concerted recent efforts to improve board gender diversity, we examine whether meme firms saw any changes with respect to this corporate governance measure. The regression analyses presented in Table 8 do not show meme companies granting women greater representation on boards either after the abolition of commissions or the advent of the social media-driven meme surges. Therefore, like director independence, we do not observe any significant recent changes for meme firms when analyzing board gender diversity.

	(1) Baseline	(2) With Financials
2019-20	5.920***	5.792***
	(0.146)	(0.178)
2019-20 x Meme	3.049	3.077
	(3.862)	(3.874)
2021-22	10.09***	9.899***
	(0.196)	(0.242)
2021-22 x Meme	-3.573	-3.175
	(5.809)	(5.877)
Constant	14.39***	2.201
	(0.0687)	(1.677)
Observations	25,807	21,384
R-squared	0.775	0.770
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table 8. Meme Stocks and Board Gender Diversity. This table presents the results of a linear regression model where the dependent variable is the percentage of directors that is female, per BoardEx. *2019-20* equals 1 for years 2019 and 2020, while *2021-22* equals 1 for 2021 and 2022. Column (2) adds controls for firm assets, cash ratio, debt ratio, and return on assets. Columns (1) and (2) include firm fixed effects, and all standard errors are clustered at the firm level. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

We note that the results from this Part are not necessarily inconsistent with the observations made in the literature about retail investors primarily belonging to the millennial generation,[97] or this age cohort of investors having pro-ESG preferences. Instead, taken together with the earlier results about low levels of voting by retail investors, they suggest that retail investor apathy renders them unlikely to be able to change management policies toward the environment or social causes. Therefore, while the earlier scholarship on retail investors understandably thought millennial and Gen Z retail investors would move firms away from the wealth-maximization norm once they got a seat at the table, they underestimated the possibility that these investors would neglect to actually take their seat by voting or otherwise engaging with management.

[96] *See* Deborah L. Rhode & Amanda K. Packel, *Diversity on Corporate Boards: How Much Difference Does Difference Make*, 39 DEL. J. CORP. L. 377 (2014).
[97] *See* Barzuza et al., *supra* note 22.

C. Profitability, R&D, and Capital Expenditure

As the final set of empirical exercises, we explore whether the influx of retail investors at the meme stock companies may have (indirectly) affected the financial performance or operations at the companies. To set the stage, Figure 4 presents three graphs on the average return on assets (ROAs), average R&D expenses, and average Capital Expenditures (CapEx), for meme and non-meme companies between 2015 and 2021. With respect to the ROAs (a profitability measure), shown in the upper-left panel, there is a clear downward trend at meme companies while the non-meme companies' average profitability seems much more stable over the same period. At the beginning of the sample period, in fact, meme stock companies were on average more profitable than other, non-meme companies, but the meme companies have experienced a sustained slide in their return on assets, and by the end of the sample period, meme companies are performing significantly worse than non-meme companies. Despite some meme companies raising large sums of money by conducting at-the-market offerings at elevated prices,[98] notably Game Stop and AMC, these firms saw a decrease in profitability.

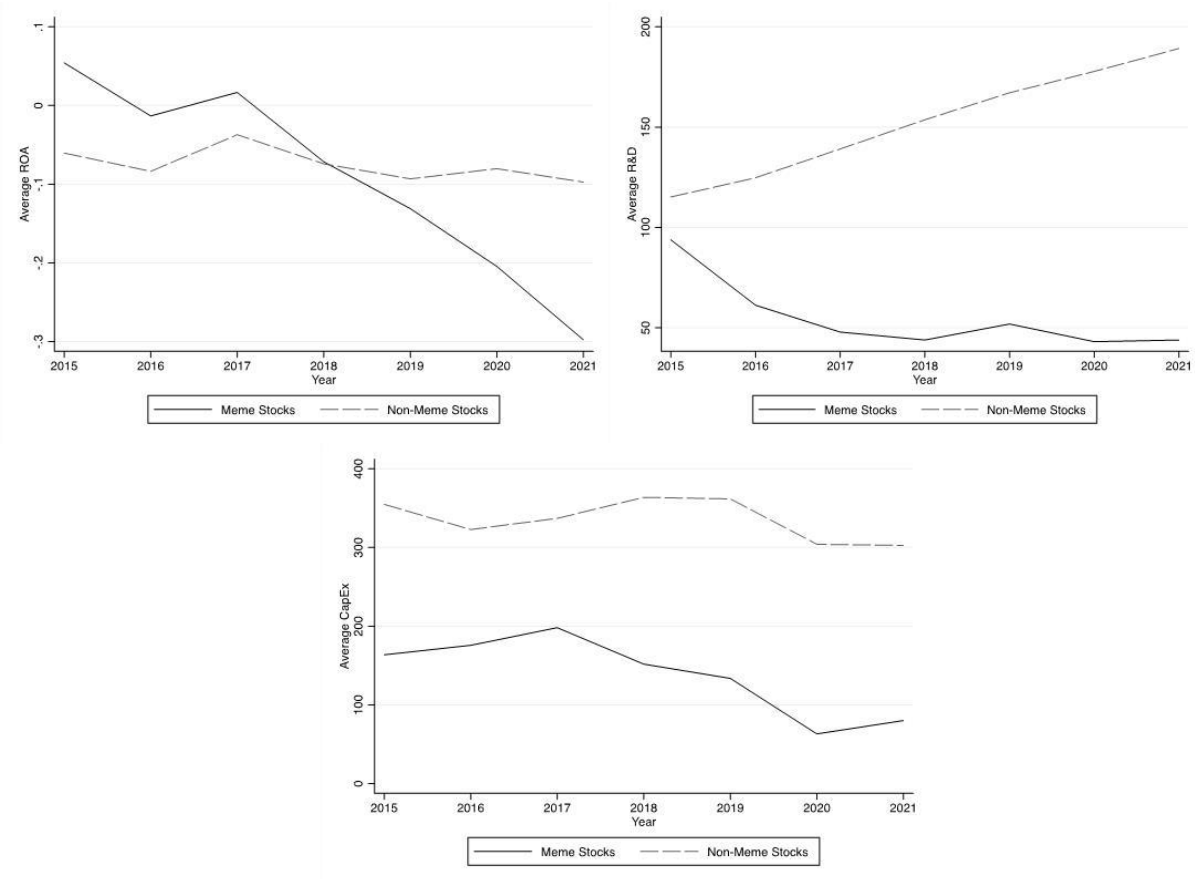

Figure 4. Average Return on Assets, R&D expenses, and Capital Expenditures for Meme and Non-Meme Stocks. This figure presents three separate graphs, mean return on assets (ROAs), R&D expenses, and Capital Expenditures, between 2015 and 2021, separately for meme and non-meme companies.

The substantial decrease in profitability of meme companies could be because their business models may have been fundamentally untenable in a changing world. It is also possible that the agency

[98] *See supra* note 6 and accompanying text.

costs within these firms have gotten worse due, for instance, to less monitoring and less activism by their new retail shareholders.[99] The average R&D expenses and capital expenditure trends (as shown in the upper right panel and lower panel, respectively) seem to suggest that, at the operational level, meme companies are spending less on innovation and structural improvements. Before we proceed, we should note that the small number of meme stocks is bound to introduce more variability in numerical averages. As such, there may generally be more "noise" in the time-trends in Figure 4 for meme (as compared to non-meme) stocks. However, the consistent downward trend for meme companies does indicate a real trend in profitability and innovative expenditures for these firms.[100]

To get a better understanding of meme companies' performance, we take a closer look at the two operational measures: R&D and capital expenditures (CapEx). Two theories of R&D spending are potentially relevant to meme companies. First, financial economists have explored the link between an increase in firms' market valuation and innovation activity. Specifically, a study by a group of financial economists, using mutual fund flows as a measure of market's optimistic valuation, finds a "very strong and robust association" between firm overvaluation and R&D spending.[101] They find that R&D spending is more sensitive to firm overvaluation than to growth in company sales and cash flow.[102] The underlying reasoning seems to be that corporate managers respond to higher market valuations by becoming more optimistic and engaging in more creative (and higher-risk) forms of innovation. If this theory applies to meme companies, one might expect that meme surges would have emboldened executives at these companies to increase R&D spending.

On the other hand, others have documented increase in R&D spending (and other innovative activities) associated with a larger fraction of institutional ownership.[103] As the institutional ownership increases, one can argue that this will increase shareholder monitoring (and a lower agency costs) and induce the firm managers to engage in more innovative activities (and not shirk) which, in turn, should correlate with various measures of innovation and long-term investment, such as R&D spending and capital expenditures. Moreover, institutional investors have a long-term orientation, which allows managers to make risky expenditures on innovative projects without fear of being fired for failing to deliver short-term profits.[104] To the extent that this theory applies to meme stock companies, one might expect that the influx of retail investors and the resulting transformation of the stockholder

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[99] *See* Appel et al., *supra* note 15. The authors empirically examine how the influx of institutional shareholders, due to an exogenous change in Russell 1000 and 2000 indices, affect corporate governance and show that the firm performance generally improves when there are more institutional investors. In some sense, our paper is looking almost at the opposite question, but basing on the meme surge. While Part VI examines firm performance, Part V documents investors' governance participation.

[100] Because we have used return on assets (ROAs) as an independent variable in our regression models throughout the paper, we do not report the regression results that examine the effect of meme surge and zero-commission trading on ROAs. However, consistent with the figure, the coefficient estimates on ROAs of meme companies are statistically significantly negative with respect to both post zero-commission trading and post meme surge.

[101] *See* Dong et al., *supra* note 15, at 2609 (2021) (showing how "overvaluation" of firm stock, driven by an exogenous increase in mutual fund outflows, increase a firm's innovation activity, including R&D spending, through both financing (equity and debt financing) and non-equity (managerial confidence and insulation from a possible takeover) channels). At the same time, however, because the authors rely on mutual fund inflows to proxy for an increase in firm valuation (and outflows for decreases in valuation), it is more difficult to establish whether any increase in innovation activity is due to increases in valuation or to increases in institutional ownership. If the effect is strong with respect to the latter, that would be consistent with the alternate hypothesis, and our finding will also be consistent with the institutional ownership hypothesis.

[102] *See id.*

[103] *See* Bushee, *supra* note 15; Aghion et al., *supra* note 15; Appel et al., *supra* note 15.

[104] *See* Aghion et al., *supra* note 15.

base at these companies[105] would lead to these companies *decreasing* their R&D spending, since these firms saw ownership change hands from institutional investors to retail participants. Accordingly, examining how R&D spending has changed at meme stock companies could shed light on which of the two theories are more likely at play. We explore this question by conducting the standard difference-in-difference regression as in the rest of this Article and using R&D and capital expenditures (CapEx) as alternate dependent variables.[106]

	(1) R&D Expenses	(2) Capital Expenditures
2019-20	14.38***	2.485
	(1.574)	(3.943)
2019-20 x Meme	-28.59**	-62.43***
	(12.85)	(20.67)
2021-22	30.10***	18.58***
	(2.801)	(5.872)
2021-22 x Meme	-46.20***	-91.18*
	(15.10)	(48.18)
Constant	95.81***	273.9***
	(0.896)	(1.967)
Observations	28,247	34,519
R-squared	0.969	0.957
Firm Fixed Effects	Yes	Yes

Table 9. Meme Stocks and Expenditures on Innovation. This table presents the results of a linear regression model where the dependent variable is annual corporate R&D spending in column (1) and capital expenditures in column (2). *2019-20* equals 1 for years 2019 and 2020, while *2021-22* equals 1 for 2021 and 2022. Columns (1) and (2) include firm fixed effects, and all standard errors are clustered at the firm level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 9 presents the results of these regressions. As seen by the negative coefficient estimates on two interaction dummy variables, 2019-20 x Meme and 2021-22 x Meme, the regression results show that there was a significant decrease in both R&D and capital expenditures at the meme companies both after the 2019 abolition of commissions and the meme surge of 2021.[107] Except for the coefficient estimate on the 2021-22 x Meme in capital expenditures regression, which is significantly negative at the 10% level, the other estimates are significant at the 5% level. These results indicate that, unlike the case for more traditional measures of cash inflows, such as mutual fund flows, meme surges are not associated with increases in either R&D spending or capital expenditure. Rather, the results support the existing findings in the literature that an increase in institutional ownership is correlated with more R&D and capital expenditure spending. Therefore, when meme companies

[105] *See supra* note 21 and accompanying text.

[106] Following the financial economics and accounting literature, we replace missing values for R&D spending with zeroes. *See* Dong et al., *supra* note 15; Ping-Sheng Koh & David M. Reeb, *Missing R&D*, 60 J. ACCT. & ECON. 73 (2015) (showing that about 10.5% of the firms who do not accurately report R&D expenditures in their financial statements file and receive patents which is 14 times larger than those firms that report zero R&D).

[107] In these regressions, we do not control for firm financials in these models since, for example, R&D spending and capital expenditure could be codetermined with other financial measures. However, our results do not change when we additionally control for firm financials, including return on assets, cash and debt ratios, and ln(assets).

swapped institutional investors for meme traders in recent years, managerial incentives to spend on innovation may have decreased.

VII. DISENTANGLING MEME INVESTING AND MEME SHAREHOLDING

The central inquiry of this Article has been how a dramatic change in shareholder base can affect corporate governance and whether retail *investors* can bring about meaningful changes as retail *shareholders*. While the time trends surveyed in Part II are consistent with more meme investing, meme investing is not in turn synonymous with meme shareholding. Indeed, the results discussed in Part III to Part VI suggest that these new market entrants have not shaken up the way corporations are governed on an ongoing basis. The main question is why. In this Part, we explore several reasons as to why meme investing has not translated into meme shareholding.

A starting point is recognizing that despite the natural connection between retail investors and retail shareholders, their actual activities are quite different. As an investor, an individual is concerned about profitable short or long run transactions. Her activities include studying market information and diversifying portfolios. As a shareholder, an individual is concerned about capital gains, dividend payments, and her control rights (what may collectively be called "corporate governance"). She has the right to participate in shareholder voting, nominate director candidates, submit proposals, or even run proxy contests.[108] An individual faces different challenges depending on whether she is acting as an investor or as a shareholder. A trader is vulnerable at the moment she is transacting because she may be purchasing or selling stocks at an unfair price due to undisclosed information.[109] By contrast, a shareholder is vulnerable as long as she owns the stock because corporate misconduct and breaches of fiduciary duties can reduce the share price.[110]

More to the point, there is a significant difference between the payoffs of these activities. Retail traders participating in a meme surge will trade with a certain expectation and the payoff from their trades may be realized (relatively) quickly. There is a sense of instant gratification as well as an immediate opportunity to participate in a social activity. By contrast, retail shareholders may cast their votes only to find out that their votes have made no difference to the outcomes—for example, because the median voter is not among them—or that the proposals approved do not bring about any immediate changes in the way their corporations are run. In addition, if meme stock traders are driven by quick payoffs, they may not even be shareholders as of their company's record date—in other words, they may not be eligible to vote by the record date for the annual meetings.

Another factor that may be driving the result is that technological developments may have reduced *participation* costs for shareholder engagement, but not *information* costs. Participation costs refer to the resources the ordinary individual would need to learn about a firm and invest in it, while information costs are the costs she must incur to conduct research into the firm's business operations and corporate governance. The digital innovations that sparked meme trading, such as the abolition of trading commissions, may not have reduced the information costs of shareholder participation in the same manner that they reduced participation costs of trading. Because meme trading is not an information-intensive activity, mobile apps like Robinhood and the abolition of trading commissions

[108] Another important right given to the shareholder, of course, is to bring lawsuits, based on either federal securities laws or corporate law (such as claims for breach of fiduciary duty), but here we focus on investing and governance.
[109] *See* James J. Park, *Reassessing the Distinction Between Corporate and Securities Law*, 64 UCLA L. REV. 116, 116 (2017).
[110] *See id.*

paved the way for retail traders. By contrast, shareholder voting is an inherently information-intensive activity, and thus, even with technologies that are designed to reduce participation costs, information costs that come with voting cannot be fully eradicated. This may account for why a sudden burst of enthusiasm for one type of activity may not instantly translate to a groundswell for another form of market participation.[111]

It is also not insignificant that meme surges to date have been limited to a small set of companies that are not randomly selected. In discussing some common denominators among meme stock companies, one analysis catalogues factors such as low stock prices and enduring cultural relevance.[112] Indeed, our analysis of meme stocks reveals that these firms are mid to small-cap companies, valued under $10 billion in market capitalization (some in fact have a much smaller market capitalization), with low stock prices.[113] Their modest sizes imply that even trades by a subset of retail investors can affect their stock prices—as such, they can be targets of short squeezes. At the same time, small companies are also more likely to suffer from a lack of significant corporate governance activities. As Professors Kobi Kastiel and Yaron Nili document, firms with smaller market capitalizations are less likely to adopt "best practices" in corporate governance, and are less organized in doing so.[114] This could in part be because they are less likely to be targets of engagements by institutional shareholders[115] or attract shareholder proposals related to governance.[116] Since meme companies have thus far been smaller firms, this suggests that they are unlikely to become overnight corporate governance exemplars.

Finally, one explanation consistent with our findings is that the segment of retail investors that entered the market as the result of the abolition of commission fees is not representative of the previously existing retail investor base.[117] Rather, they represent a particular subset of investors—those that were highly sensitive to then-existing low transaction fees. While they may have welcomed the

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[111] A point worth highlighting is that it would not be accurate to group all retail investors together. The sudden influx is limited to a new generation of particular types of retail investors, that are now known by different names, such as "meme investors," "meme traders," "wireless investors," or "ultra-retail investors." *See* Abraham J.B. Cable, *Regulating Democratized Investing*, 83 OHIO ST. L.J. 671 (2022). In our view, the term "meme traders" most aptly captures the observed pattern of transactions. In executing transactions motivated by Reddit discussion threads and triggering "short squeeze" attacks, these individuals cannot be said to be investing in any traditional sense. Although these traders only represent a subset of retail investors, they exist in sufficient numbers to affect price movements in the market for meme stocks.

[112] Naaman Zhou, *What Is GameStop, Where Do the Memes Come in, and Who Is Winning or Losing?*, THE GUARDIAN (Jan. 28, 2021, 1:46 AM), https://www.theguardian.com/culture/2021/jan/28/what-is-gamestop-where-do-the-memes-come-in-and-who-is-winning-or-losing.

[113] The market capitalizations of meme stock companies we examine range from about $56.2 million to $9.2 billion. Their respective market capitalizations, as of January 2023, are: $9.2 billion for Robinhood, $7 billion for GameStop, $2.8 billion for AMC, $2.5 billion for BlackBerry, $300 million for Bed Bath & Beyond, $150 million for Vinco, $77 million for Express, and $56 million for Koss. By comparison, the smallest company in S&P 500 index has a market capitalization of $14.6 billion. *See also infra* Part III (presenting summary statistics for firm financials at meme and non-meme companies).

[114] Kastiel & Nili, *supra* note 78.

[115] *Id.*

[116] Kastiel & Yaron, *supra* note 60.

[117] Another point worth highlighting is that meme investors, too, may be a very particular subgroup of retail investors. There is little reason to believe that those who participated in meme frenzies are representative of the entire base of new generation of retail investors. According to Hasso et al. (2022), *supra* note 4, for example, 88 percent of the investors who participated in the GameStop frenzy were male and the average age was about 34. *See id.* at 2. The average years of trading experience of these investors was also less than 1 year. *See id.* Similarly, the 2020 WallStreetBets Census also shows similar statistics. Over 90 percent of the blog participants are male, and over 72 percent of them were aged twenty-nine and younger. *See* 2020 WallStreetBets Census, *available at* https://docs.google.com/presentation/d/1ozj-S3eIwSa6ZERs0kTdE1LiMYcN1kwBUGIDVcVlzLg/edit.

commission-free trading platforms and have actively participated in such activities, those investors may also be presumptively unlikely to bear other types of transaction costs, such as submitting shareholder proposals or voting at annual meetings.

We believe the disjuncture between investing and share ownership may explain why meme surges and their impacts have been confined to the trading markets and presently remain divorced from meaningful shareholder activities in corporate America. These differences, of course, are not set in stone. As companies innovate and technological innovations lower the cost of shareholder engagement, it remains possible that future retail shareholders can make meaningful difference at companies. This can also shift the balance of power away from institutional shareholders toward retail shareholders. The jury is out on how such changes will come about in the future.

VIII. CONCLUSION

This Article has examined the impact of the dramatic influx of retail shareholders (from the "meme surge" of 2021) on various corporate governance and financial metrics at meme stock companies. Our analysis suggests that retail shareholders could be the leopards that failed to change their spots. For one, during the period when retail investor ownership of meme stocks has increased, the rates of non-voting have significantly risen at meme companies. This is in contrast to the rate of non-voting at non-meme companies, which has remained fairly stable over the same period. Although we cannot directly measure that the non-votes were coming more from retail investors, given that non-participation is generally attributed to retail investors and other non-meme companies were not experiencing anything similar in shareholder participation,[118] the result supports the hypothesis that the surge of retail investor interest in these companies is linked to the rise in non-voting.

Importantly, we observe that the increase in non-votes began in 2019, the same year major brokerages abolished trading commissions, and the rate of non-votes went even higher in 2022, long after the meme surge was over. This indicates that the non-votes were not being driven by short-term speculators who may have participated in the meme surge of 2021 purely for financial gain and without any interest in democratic participation. The result is also consistent with the event-study evidence that the 2019 advent of zero-commission trading could have stirred retail investor interest in meme stocks (along with others). Retail investors have also failed to affect corporate governance at meme companies through the shareholder proposal process.

The Article also explored possible indirect avenues through which retail investors could have influenced meme companies. We find that the retail investors have been unable to translate their preferences into concrete improvements in the firms' ESG scores or board independence and gender diversity. Furthermore, meme surges have not had an indirect effect on corporate innovation through R&D spending and capital expenditure. This finding contrasts with the earlier scholarship that showed positive correlation between increased valuation (e.g., from mutual fund flows) and R&D spending but is consistent with the findings that showed a positive correlation between an increase in institutional ownership and innovative activities. In sum, all evidence to date suggests that meme trading may be a social phenomenon that remains largely orthogonal to retail shareholders' aspirations to transform corporate governance. The demographic, societal, and technological changes surveyed in Part II could surely presage an increased role for retail investors at some time in the future.

[118] *See* Brav et al., *supra* note 33; Geoffroy, *supra* note 61.

However, our empirical analysis suggests that this notion of democratized governance is yet to arrive at the firms targeted by the recent meme surges.

The Article's primary focus has been on a handful of meme stock companies, such as GameStop, AMC, and Bed Bath & Beyond, with the principal finding that the new retail shareholders at these companies do not seem to be active in engaging with the management or in influencing the companies' governance outcomes. Given that the Article's focus is on a small number of companies that went through an unusual experience of facing a sudden surge of retail investors' interest, one needs to be cautious about generalizing the results to other companies or making overarching conclusions. At the same time, these companies were chosen precisely because they were the primary targets of meme trading. Thus, to the extent we should have observed a new paradigm of corporate governance associated with meme surges, these companies would have been the most promising ones. Furthermore, particularly with respect to retail investors who remained loyal to the meme companies long after the "meme surge" was over, one would have expected them to be much more active in corporate governance and improving firm performance. Finally, as shown in the Appendix, many other companies that experienced a large abnormal return in response to the wide introduction of zero-commission trading (an indicator of retail investor interest) also showed an increase in the rate of non-votes.

In sum, we believe that the Article's findings are informative in getting a better understanding of retail shareholders' engagement and potential democratizing benefits of allowing more retail investor participation. To get a better understanding of the importance of retail investor base on corporate governance, a future research project may take a closer look at how technological changes, including the introduction of zero-commission trading, may have had a broader effect on the capital markets and the more general impact of retail investors on corporate governance across a larger segment of the market. As the meme phenomenon spreads to banking stocks, SPACs, and bankrupt firms, research into meme investing and shareholder activity will become more important,[119] and shed new light on the important issue of shareholder base and corporate governance.

[119] *See supra* notes 7–9 and accompanying text.

Appendix: Impact of Zero-Commission Trading

In this Appendix, we examine the short-term and long-term impacts of the introduction zero-commission trading by major brokerages. We first examine which firms are more likely to have experienced a positive abnormal return in response to the wide introduction of zero-commission trading and then examine its longer term impact on a number of governance indices, including retail ownership, shareholder participation, board diversity, and ESG performance, across all listed firms. Given that the October 1, 2019 abolition of commissions reduced entry (and exit) costs for retail investors (and not just for the meme stock companies), one would expect retail investors to buy shares of firms beyond just the meme stocks identified in the media, and this could have both short and long-term implications on their governance and performance. The appendix is thus divided into two parts. In the first part, we estimate the abnormal returns in response to the wide introduction of the zero-commission trading and try to identify which companies experienced a larger abnormal return. In the second part, we examine various governance indices, including shareholder participation, board independence and diversity, and ESG scores, of firms that experienced an abnormal positive return in response to wide introduction of zero-commission trading.

To briefly summarize the findings, we first establish that firms that were already "popular" among retail investors, or possessing characteristics that are appealing to retail market participants (such as low stock price and high bid-ask spread), experienced greater positive abnormal returns in response to the wide introduction of zero-commission trading. Looking also at the longer-term impact of commission-free trading, we find that firms with positive stock reactions saw an increased share of non-institutional ownership and an increase in non-participation, as measured by the rate of non-votes. These longer-term empirical findings are consistent with this Article's argument that the influx of retail investors leads to an increase in shareholder apathy. Finally, when we examine changes in ESG scores, board independence, and board gender diversity, the findings are strikingly similar to those for the meme stocks: firms that exhibited positive abnormal returns around the abolition of commissions saw a deterioration in ESG ratings, but no significant change in board independence or gender diversity.

A. Zero Commission Trading and Cumulative Abnormal Returns

We first examine the short-term consequences of the October 1, 2019 abolition of trading commissions by major brokerages. As alluded to earlier in the main text, in response to Robinhood's rapid rise in the securities trading market, on October 1, 2019, major brokerages introduced their own zero-commission trading platform. This news came as a shock to the stock market, as evidenced by a sudden and steep decline in the stock prices of the major brokerages. In this part, we examine various features of the firms and their stocks to try to identify which firms responded more to the wide introduction of zero-commission trading.

Table A.1 shows regression results where the dependent variable is the abnormal return that the stock experienced on October 1, 2019. *Retail Fraction* is the proportion of a firm's common stock not owned by institutional investors, which we take as a proxy of retail ownership, prior to the wide introduction of zero-commission trading. This measure ranges from 0 to 1. We obtain institutional ownership data as of September 30, 2019 (i.e., just one day before the abolition of trading commissions) from the Thomson-Reuters Institutional Holdings (13-F) dataset. Given that the 13-F

records do not include all institutional ownership and there often is delay and inaccuracies, we use this measure only as a proxy of institutional ownership.[120]

	(1) Baseline	(2) With Financials
Retail Fraction	0.230*	0.367**
	(0.120)	(0.156)
Log(Assets)		0.00490
		(0.0224)
Cash Ratio		-0.678*
		(0.354)
Debt Ratio		0.410*
		(0.224)
Return on Assets (ROA)		0.440
		(0.293)
Constant	-0.234***	-0.358*
	(0.0557)	(0.215)
Observations	4,143	3,188
R-squared	0.001	0.010
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table A.1. This table presents the results of a linear regression model where the dependent variable is the abnormal return that the stock experienced in response to the wide introduction of zero-commission trading on October 1, 2019. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

As the results show (in particular, the coefficient estimates on Retail Fraction), there is a statistically significant, positive relationship between prior retail ownership and a positive abnormal return that a stock experienced on October 1, 2019. As shown in column (1), a one percentage point increase in retail ownership led to a 0.23 percentage point increase in abnormal return that a stock experienced. When we control for the financials (Log(assets), cash ratio, debt ratio, and ROA), the result is even stronger. As shown in column (2), one percentage point increase in retail ownership is associated with about 0.37 percentage point increase in the abnormal positive return of the stock. In terms of standard deviations, a one standard-deviation increase in retail ownership is associated with a 0.074 percentage point increase in abnormal returns in column (1) and a 0.117 percentage point increase in column (2). What this result shows is that positive abnormal returns on October 1, 2019 are associated with stocks that were already popular with retail investors. Given that Robinhood was

[120] Under Section 13(f) of the Exchange Act and SEC Rule 13f-1, "institutional investment managers" that manage $100 million or more of covered securities (including stocks listed on a national exchange) are required to disclose their holdings within 45 days after the end of each quarter on Form 13F. Unfortunately, because of the $100 million threshold, the definitions of "covered securities" and "institutional investment managers," and the 45 delay in reporting, 13F data does not provide the most accurate picture of institutional or retail holdings. *See generally*, Alex Platt, *Beyond "Market Transparency": Investor Disclosure and Corporate Governance*, 74 STAN. L. REV. 1393 (2022). Researchers have also uncovered evidence that some hedge funds deliberately make inaccurate filings with a later, correct amendment to delay disclosure of their holdings and others often exploit the confidential-treatment request process to delay disclosure. *Id.* at 1416.

gaining popularity among retail investors prior to October 1, 2019, it is quite plausible that when the market realized that wide introduction of zero-commission trading would make the stocks that were already "popular" even more popular among retail investors.

	Abnormal Return
Volatility	-0.000707
	(0.00216)
Skewness	0.0717
	(0.188)
Log(Closing Price)	-0.154***
	(0.0577)
Log(Market Cap)	-0.0212
	(0.0584)
Bid-Ask Spread	0.874**
	(0.378)
Log(Assets)	0.0804
	(0.0503)
Cash Ratio	-0.450
	(0.358)
Debt Ratio	0.407**
	(0.202)
Return on Assets (ROA)	0.685**
	(0.302)
Constant	0.0354
	(0.836)
Observations	3,420
R-squared	0.016

Table A.2. This table presents the results of a linear regression model where the dependent variable is the abnormal return that the stock experienced in response to the wide introduction of zero commission trading on October 1, 2019. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Instead of using prior retail ownership as a proxy for retail investor interest in certain stocks, we also look at the relationship between the abnormal returns on October 1, 2019 and various attributes of the firm and its stock. Table A.2 presents the results of the regression, where we regress abnormal return on both stock and firm attributes. The stock attributes include: volatility, skewness, log(closing price), log(market cap), and bid-ask spread, while firm characteristics include log(assets), cash ratio, debt ratio, and return on assets (ROA). Note first that the volatility and skewness of the stock return do not seem to matter. At the same time, stocks with a low closing price (on September 30, 2019) and a high bid-ask spread do seem to be associated with a larger abnormal return.[121] This indicates that while the influx of retail investors seems to have had an impact on stocks with relatively

[121] Because log(market cap) is strongly positively correlated with log(closing price), it is not surprising that the effect of log(market cap) is not statistically significant. When we run the regression without log(closing price), the coefficient estimate on log(market cap) becomes significant.

low price and low trading volume (which is associated with a higher bid-ask spread),[122] the retail investors are not necessarily purchasing stocks that have "lottery-like" characteristics, such as high volatility and returns that are skewed to the right. Furthermore, while companies with a higher debt ratio seem to have experienced a larger abnormal return, they also seem to exhibit a higher return on assets, which is consistent with the results in Table A.1. Overall, the results seem to be consistent with the study that looks at the behavior of retail investors that utilize the Robinhood trading platform, which shows that the retail investors seem to invest more (compared to a balanced portfolio) on more established companies.[123]

B. Zero Commission Trading and Corporate Governance

Having presented analysis on which stocks were more likely to experience a larger abnormal return on October 1, 2019, we now present empirical results suggesting that the wide introduction of trading commissions had longer-term consequences for shareholder ownership and corporate governance. First, we examine the effect of zero commission trading on longer term ownership. Table A.3 presents the results of a linear regression model where the dependent variable is *Retail Fraction*, as defined earlier when discussing the results in Table A.1. The continuous variable *CAR* equals each stock's cumulative abnormal returns (*CAR*s) on October 1, 2019. The variable of interest is Post × CAR, where Post equals 1 for 13-F filings that are done after October 1, 2019. The results show that stocks exhibiting positive abnormal returns around the abolition of commissions saw a subsequent (post October 1, 2019) increase in non-institutional ownership. A one standard deviation increase in *CAR* is associated with a subsequent rise in *Retail Fraction* equal to 1.16% (1.38%) of the sample mean (median). Although the results in Table A.3 are based on the ownership data that look at the period from October 1, 2019 through the end of 2022, our results are robust to looking at the changes in retail ownership between October 1, 2018 and October 1, 2020, i.e., within a year before and after the wide introduction of zero-commission trading.

[122] Instead of using the bid-ask spread, we have also tried with earlier trading volume and the results are consistent.

[123] *See* Ivo Welch, *The Wisdom of the Robinhood Crowd*, 77 J. FIN. 1433 (2022). According to the study, compared to value-weighted portfolio, Robinhood investors made bigger investments, as of December 2018, on well-known companies, such as American Airlines, AMD, Boeing, Delta Airlines, Disney, Ford, and Facebook. *See* Table VI at 1512. Note also that, as of 2018 and 2019, meme stock companies were generating returns on assets (ROAs) that were roughly equal to the average returns across all firms.

	(1) Baseline	(2) With Financials
Post	-0.0125***	0.00787***
	(0.00149)	(0.00175)
Post × CAR	0.00237***	0.00189**
	(0.000879)	(0.000844)
Constant	0.450***	0.980***
	(0.000665)	(0.0301)
Observations	78,645	60,780
R-squared	0.945	0.941
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table A.3. This table presents the results of a linear regression model where the dependent variable is the percentage of shares that were *not* owned by institutional investors as reported in Form 13-F filings on a quarterly basis. We conduct the analysis for three years before and after the abolition of trading commissions on October 1, 2019 (i.e., October 1, 2016 to October 1, 2022). *Post* equals 1 for 13-F filings after October 1, 2019. Column (2) adds controls for firm assets, cash ratio, debt ratio, and return on assets. Columns (1) and (2) include year and firm fixed effects, and all standard errors are clustered at the firm level. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Figure A.1 presents the analysis graphically. Vertical lines with circles in the middle represent coefficient estimates for a regression of *Retail Fraction* on indicator variables for individual years, with the bars representing the 95% confidence intervals. Year T-1 on the horizontal axis represents the year leading up to October 1, 2019. Note first that, prior to the abolition of commissions, companies with high CARs did not have non-institutional ownership that was significantly higher than for firms with low CARs on October 1, 2019. All three coefficient estimates to the left of T-1 are hovering close to zero with the 95% confidence interval range including the zero. Furthermore, there does not seem to be any trend in the estimates. By comparison, starting from year T (October 1, 2019 to October 1, 2020), the coefficient estimates are higher and statistically significant.

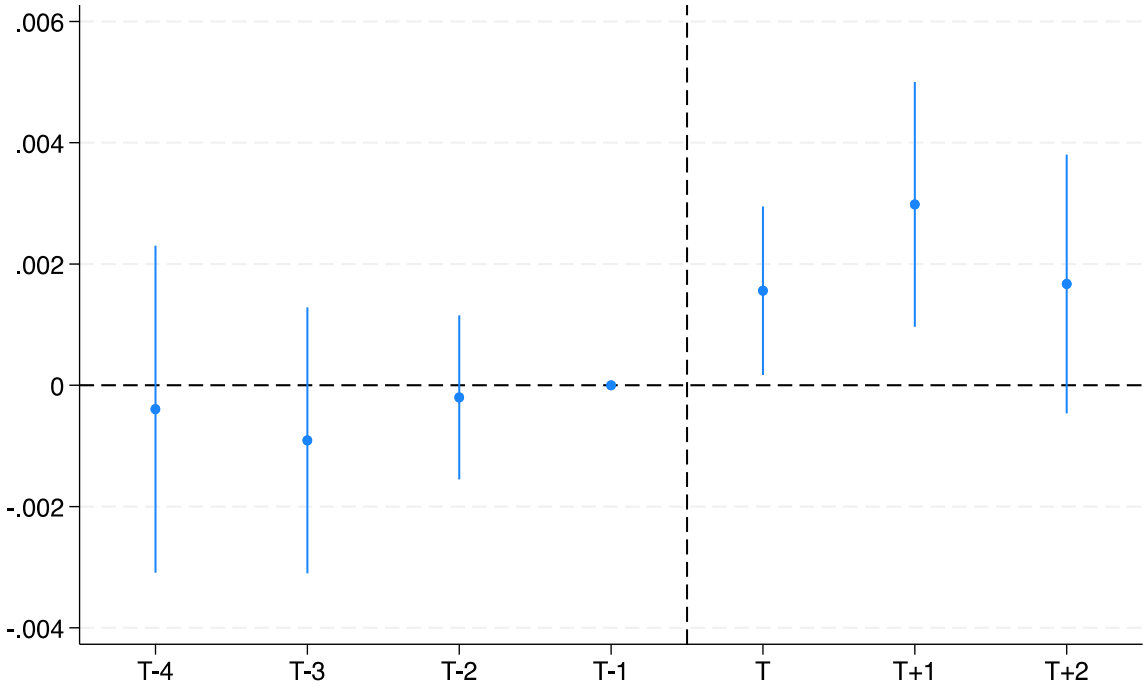

Figure A.1. Average Non-Institutional Ownership Coefficient Estimates. This figure shows the coefficient estimates, along with 95% confidence intervals for the pretrend analysis where the outcome variable is non-institutional ownership on an annual basis with year T-1 as the baseline. Year T represents the period between October 1, 2019 and October 1, 2020.

To test the impact of experiencing a large return in response to zero commission trading on shareholder participation, we run another version of the analysis of shareholder non-voting similar to the analysis in Part V. Like before, we define shareholder non-votes as the difference between the total outstanding shares and the sum of votes for, against, and abstained. Also, like our analysis in Part V, we pay special attention to non-voting for non-routine proposals. However, we replace the indicator variable for *Meme Stock* with the continuous variable *CAR* described earlier. We analyze non-votes for company proposals between October 1, 2016 and October 1, 2022—three years before and after the abolition of trading commissions. Table A.4 presents the results of this regression. As with all the regressions in this Article, we include firm fixed effects and cluster standard errors at the firm level.

	(1) Baseline	(2) With Financials
Post	2.330***	2.502***
	(0.146)	(0.182)
Post × CAR	0.0691	0.0219
	(0.0916)	(0.0935)
Non-Routine	13.23***	13.16***
	(0.216)	(0.244)
Non-Routine *x* CAR	0.00505	-0.0195
	(0.112)	(0.117)
Post *x* Non-Routine	-1.697***	-1.865***
	(0.148)	(0.165)
Post *x* Non-Routine *x* CAR	0.204**	0.214**
	(0.0876)	(0.0912)
Constant	11.54***	22.68***
	(0.197)	(2.879)
Observations	150,928	120,301
R-squared	0.692	0.741
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table A.4. This table presents the results of a linear regression model where the dependent variable is the percentage of shares that were *not* voted for a proposal at shareholder meetings. We define the number of non-votes as Total Outstanding Shares – (Votes For + Votes Against + Abstentions). We conduct the analysis for three years before and after the abolition of trading commissions on October 1, 2019 (i.e., October 1, 2016 to October 1, 2022). *Post* equals 1 for proposals voted on after October 1, 2019. We split the data by proposal type (i.e., whether or not it qualifies as "routine" as defined in NYSE Rule 452). Column (2) adds controls for firm assets, cash ratio, debt ratio, and return on assets. Columns (1) and (2) include year and firm fixed effects, and all standard errors are clustered at the firm level. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table A.4 shows that there is a significant rise in shareholder non-voting for firms that experienced positive abnormal returns the day the major online brokerages announced they were removing commissions. This increase in non-voting is concentrated in non-routine proposals, consistent with our evidence in Part V. A one-standard deviation increase in abnormal returns on October 1, 2019 is associated with a 0.5 percentage point rise in shareholder non-voting in the three subsequent years. This rise in non-participation is economically significant, equaling 2.11% of the mean level of non-voting in the regression sample, and 2.60% of the median. Our results are robust to looking at the change in non-voting between October 1, 2018 and October 1, 2020, i.e., within a year before and after the abolition of commissions. The results in Table A.4 are consistent with the lowering of entry (and exit) costs for retail investors in 2019 having an impact on firms beyond the most widely popularized "meme stocks" that we analyze at length in the Article. Consistent with our main argument, it seems that companies that benefitted from increased retail investor participation in the financial markets also saw a subsequent decrease in shareholder participation. The increase in shareholder non-participation was not confined to meme stock companies but was much broader.

Figure A.2, similar to Figure A.1, shows that the effect captured by the regression began after the abolition of trading commissions, and is not the artefact of trends pre-dating October 1, 2019. When we regress non-voting against dummies for individual years around the event date, we find that the coefficients for years before the abolition of commissions are not significant and do not show an increasing trend. On the other hand, the coefficients for years starting after October 1, 2019 are positive and highly statistically significant. Commission-free trading thus seems to have caused a spike in non-voting at a wide array of firms beyond the meme stocks analyzed in the main body of this Article.

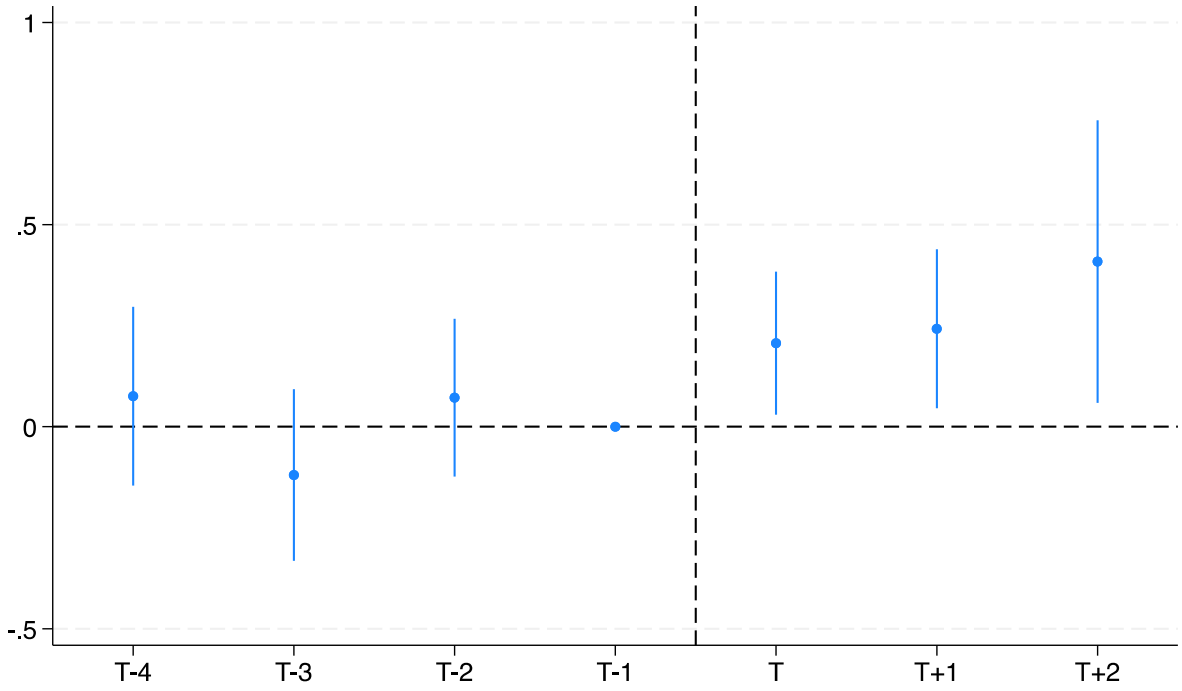

Figure A.2. Average Non-Voting Ownership Coefficient Estimates. This figure shows the coefficient estimates, along with 95% confidence intervals for the pretrend analysis where the outcome variable is non-voting on an annual basis with year T-1 as the baseline. Year T represents the period between October 1, 2019 and October 1, 2020.

Finally, we analyze the effect of commission-free trading on various corporate governance outcomes: industry-adjusted ESG scores as well as board director independence and gender diversity. Table A.5 presents the results of a linear regression model where the dependent variable is each firm's industry-adjusted ESG score. As in all our empirical tests, we present the results with and without controls for firm financials. Since we only have ESG data through 2021, we analyze ESG performance 2018-2021 (i.e., two years before and after the abolition of commissions). The variable *Post* equals 1 for years 2020 and 2021, and *CAR* is the stock's abnormal return on October 1, 2019. Similar to Table 6's result for meme stocks, we find that firms exhibiting positive abnormal returns near the abolition of commissions saw a significant decrease in ESG scores. A one standard deviation increase in CAR is associated with a subsequent decline in ESG scores equal to 1.49% (1.53%) of the regression sample mean (median).

	(1) Baseline	(2) With Financials
Post	0.338***	0.286***
	(0.0319)	(0.0355)
Post *x* CAR	-0.0356**	-0.0330**
	(0.0154)	(0.0161)
Constant	4.354***	1.793***
	(0.0167)	(0.604)
Observations	5,740	5,416
R-squared	0.886	0.887
Firm Fixed Effects	Yes	Yes
Firm Financials	No	Yes

Table A.5. This table presents the results of a linear regression model where the dependent variable is each firm's industry-adjusted ESG score, between 2018 and 2021. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table A.6 presents a linear regression model where the dependent variable is the percentage of independent directors in columns (1) and (2) and the percentage of female directors in columns (3) and (4). Unlike the earlier data on ownership, voting, and ESG, this data is only available at the yearly level (as opposed to more granular monthly or quarterly level). Since the wide introduction of zero-commission trading occurred midway through 2019, we exclude that year from the analysis in Table A.6.

	Outcome: Board Independence		*Outcome: Board Female Representation*	
	(1) Baseline	(2) With Financials	(3) Baseline	(4) With Financials
Post	2.072***	1.877***	0.860***	0.933***
	(0.146)	(0.200)	(0.0815)	(0.109)
Post *x* CAR	0.0176	0.0330	0.0309	0.0466
	(0.0756)	(0.0787)	(0.0384)	(0.0406)
Constant	77.64***	70.90***	1.716***	1.827*
	(0.0624)	(1.773)	(0.0349)	(1.026)
Observations	14,676	11,937	14,676	11,937
R-squared	0.837	0.837	0.275	0.286
Firm Fixed Effects	Yes	Yes	Yes	Yes
Firm Financials	No	Yes	No	Yes

Table A.6. This table presents the results of a linear regression model where the dependent variable is each firm's percentage of independent directors in columns (1) and (2) and percentage of female directors in columns (3) and (4), between 2017 and 2022, not including 2019. Continuous variables are winsorized at the 1% level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Post equals 1 for years 2020-22, and 0 for 2016-8, allowing us to compare the outcome variables three years before and after the wide introduction of no-commission trading. The results do not change if we include data from 2019 in the analysis. Echoing our results in Tables 7 and 8 in the main body, we do not find evidence that there was a (statistically) significant change in board independence or gender diversity for firms experiencing positive abnormal returns on October 1, 2019. While the coefficient estimates on Post × CAR are positive, none are statistically significant. In short, the long-term effects of the wide introduction of zero-commission trading seem to be more pronounced on ESG metrics as opposed to other governance outcomes, such as board independence and gender diversity.

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