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Meme Stocks, Robinhood, and Wall Street: Retail Investors and Changing Market Dynamics

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Abstract:

This thesis explores the rise of retail investors in the wake of the COVID-19 pandemic, and how they have changed the landscape of financial markets. We outline the full timeline of the GME and AMC social media craze that exemplified the power of retail investors in the market and investigate the impact the COVID-19 pandemic had on this group. Through the use of VandaTrack, a software that tracks retail investors' trading activity, we were able to quantify the impact that retail investors have on US equities and ETFs and compare them to the market as a whole. We utilized this data to visualize retail trading flows and how they interact and influence the price of a stock or ETF over time. In addition, this data allowed for a better analysis of how retail investors react to certain events in the equity market including IPOs and stock splits. This thesis asserts that institutional investors must continue to adapt to the new age of retail investors and consider the power and influence that they hold. Additionally, this thesis asserts that the presence of the retail investor is better for the stock market because these retail investing flows provide increased liquidity and reduce the tail risk of stocks.

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The History of Retail Investing, Changing Market Dynamics, and the Meme Stock Price Bubble

1. Introduction

In the financial markets, the individual retail investor isn't granted much financial bargaining power or consideration when compared to institutional investors. Retail investors, defined as non-professional individual investors investing on their own behalf, are aiming to change that (Hayes). Prior to the COVID-19 pandemic, they were largely not considered a factor in the decisions of financial institutions. However, during the pandemic, people had more free time and opened brokerage accounts by downloading apps on their mobile devices, as it was now easier than ever to open an account. Apps like Robinhood, TD Ameritrade, and Charles Schwab that offered commission-free trading were the most popular due to the ability to trade stocks without incurring any upfront cost while buying or selling. This introduced new trading volume and capital into the markets, supported by the influx of disposable income due to stimulus checks. Despite the economy being paused post-March 2020, the markets continued to escalate, driving retail investors to further increase their investment in the market, as most investors saw positive returns on many of their positions. By August 2021, in just 354 trading days, the market had rallied 100% from the S&P's pandemic trough on March 20th (PK). This was the most dramatic bull run the S&P has had since WWII. Retail investors were chasing the highs of the stock market and often not losing, and foregoing appropriate diversification strategies and chasing "hype stocks" such as NIO, TSLA, PLUG, ZOOM, and PTON. This push from retail investors caused these stock's prices to be propped up as novices continued chasing the hype and have since lost value (Oberoi). In these cases, it seems the retail investors had rallied around specific tickers and boosted their stock prices. Through March 2021, retail investing volume was averaging 15.2 billion shares daily, which is almost 50% higher than 2020's levels (Demarche).

During this surge of volume, a group of retail investors collectively unified in the form of the subreddit r/wallstreetbets, this subreddit typically discussed the market and some risky investing strategies and has since surpassed 13.5 million members. But in January of 2021, the subreddit realized that many hedge funds were short two tickers, GameStop and AMC Theaters, two largely failing businesses on the brink of bankruptcy. In an effort to overthrow these financial institutions that had profited gross amounts of money, the members of the Reddit thread r/wallstreetbets decided to buy the two stocks GME and AMC dubbing them "meme stocks" inflating their prices by over 1,200% in the span of a few weeks. Through this rapid rise of the trading price, hedge funds like Citadel, Citron Research, and Melvin Capital fell into a short squeeze, or a rapid increase in the price of a stock primarily due to an increase in short selling rather than underlying fundamentals, causing them to lose over $19.75 billion collectively (Carolson). Looking at retail trading volume, this Honors thesis investigates the retail investing behaviors and factors that led to the prominence of retail investing, their contribution to the steepest bull run in the last 70 years, and how they've challenged institutional investors. This paper asserts that financial institutions should consider retail investor behaviors in their future decision-making and be cognizant of their investing behaviors.

2. What is a retail investor?

To understand one of the strangest anomalies in financial markets history, we must understand who these retail investors are. The investors that are trading today on apps like Robinhood are much different than retail investors 20 years, 10 years, and even 5 years ago. The accessibility of investing in the equities markets has lowered the bar to be a retail investor. Prior to commission-free investing, investors needed to be able to afford the 1-2% commission fees or a flat fee of $5 to $30 flat fee from their brokerage. This required retail investors to trade in high quantities and have low trading volume in order to reduce the value lost in commission fees. This meant that investors of the 70s, 90s, and 00s were more likely to invest in risk-averse, blue chip stocks that they knew they would not have a problem holding for extended periods of time (Carolson).

This all changed in 2015 with the founding of Robinhood, the first commission fee brokerage. Robinhood was an app that could be downloaded to any Apple or Android phone and could verify a user with a social security number, a bank account, and basic user info. No longer was it required to go into a financial office or a bank and users no longer had to fill out mountains of paperwork. With just a few clicks, anyone could invest from their phone wherever they were. This changed the entire brokerage industry. The simplicity and design, very similar to the design of an app like Uber or Venmo, catered to the young millennial population. Many of them enjoyed trading stocks from their phones and being involved in the financial markets. Robinhood made the idea of investing much more approachable through its bright and colorful display, and by adding elements like confetti when a user purchased a stock.

A. The Typical Retail Investor

The lack of a barrier to the financial markets was a double-edged sword. App-based retail brokerages primarily attracted millennials to use their service. For example, investors under the age of 35 make up 80% of Robinhood's user base (Lindner). According to Schwab, the median age of a pre-2020 investor was 48 years old (Tarpley). However, these millennials had a lack of financial experience. For example, the average score on a FINRA study's 10-question investor knowledge quiz was just 4.7, and "many investors are unaware of or confused about various fees they may pay for investing" (Langton). They also look for professional financial advice half as much as more experienced traders (Brennan). In addition, these retail investors are much more likely to turn to social media for research and tips (*The Rise)*. Furthermore, retail accounts' growth rate and the number of trades per retail account increase with the respective investors' financial literacy score (Bellofatto). This positive association suggests that financial education could facilitate participation in the financial markets (Gurrola-Perez).

B. COVID-19 Pandemic Surge in Investors

The app-based brokerage industry saw its largest surge in user activity during the COVID-19 pandemic. This pandemic, while initially damaging to the economy, was a culmination of all of the factors that people saw as obstacles. No longer was there an obstacle of time, as the pandemic's lockdown kept everyone inside and on their devices. This gave them time to download apps such as Robinhood, TD Ameritrade, and Charles Schwab and set up their brokerage accounts. Social media also had a major role, retail investors saw the rise of the finance influencer or "finfluencer" in the late teens and the pandemic gave people time to consume their content and pique their interest in finance and investing. With the economy rebounding at an astonishing rate from the initial dip at the start of the pandemic, investors were quick to create brokerage apps to try to buy stocks low and ride the recovery. The rate at which the market recovered from April 2020 to Aug 2021 was the steepest market bull run since WWII (YunLi). This rebound was fueled by government stimulus where checks for thousands of dollars were sent to United States citizens. Many saw these checks as disposable income for them to invest in the market and opened up accounts with just a few thousand in them. This caused the number of people using these apps to grow from 35.6 in 2017 to over 150 million by 2021 (Business of Apps).

3. How are these retail investors trading?

A. Brokerage Companies - What made Robinhood the star?

There has been both plenty of praise and scrutiny on Robinhood through the rise of the retail investor. They attracted retail investors through $0 commission fee trading and made investing in the stock market far more approachable for the average person. However, this also brought scrutiny to Robinhood's brand philosophy of making the market more accessible. The main way they attracted customers was through their cartoonish marketing and game-like app design. Many critics felt that this downplayed the seriousness of the market and made retail investors feel like they were playing some type of game. For example, upon investing in a stock, the screen would then shower confetti and show the launch of a rocket ship almost as if in an arcade game (*The Rise).* Much of the retail investing frenzy was fueled by Robinhood; however, this brokerage was not the only player in the market. There were dozens of others. Some brokerages were incredibly niche, and others were region-based. The list below sorts top brokerages by user count and AUM (Nasr).

Although Robinhood has received much media attention and seems extremely prevalent in the brokerage industry, when looking at user numbers for total brokerage accounts held and AUM, it seems that plenty of users are still loyal to the established names in the industry. These companies have established relationships with financial advisors, partnered with companies for 401k plans, and have been around for decades. Robinhood, on the other hand, is relatively new to the scene and does not offer the analytics and all of the investment opportunities that other brokers do. However, the ease of access and mobile app availability made Robinhood rise so quickly compared to the other brokerages. One of the downfalls of this quick growth and their younger geared target market is that Robinhood also lacks AUM. For example, the average account size is $3,500 on Robinhood, compared to $100,000 on E-Trade and $240,000 with Charles Schwab.

Brokerage firm	AUM	Date Reported	Users	AUM Reference
Fidelity	$11.1T	Mar-2023	40M+	Fidelity AUM
Vanguard	$7.2T	Dec-2022	30M+	Vanguard AUM
Charles Schwab*	$7.05T	Dec-2022	34M+	Charles Schwab AUM
JP Morgan	$2.2T	Sep-2022	Not disclosed	JP Morgan AUM
E*trade (Morgan Stanley)**	$1.3T	Dec-2022	Not disclosed	E*trade AUM (Morgan Stanley)
TD Ameritrade	$1T	Sep-2022	11M+	TD Ameritrade AUM
Fidelity International	$613.3B	Sep-2022	2.9M+	Fidelity International AUM
Interactive Brokers	$337.6B	Jan-2023	2.1M+	Interactive Brokers AUM
Hargreaves Lansdown	£123.8B (~$149B)	2022	1.7M+	Hargreaves Lansdown AUM
Saxo Bank	DKK 591B (~$79B)	Jun-2022	874K+	Saxo Bank AUM
Interactive Investor	£52B (~$63B)	Jun-2022	408K+	Interactive Investor AUM
Robinhood	$62B	Dec-2022	11.4M+	Robinhood AUM
Swissquote	CHF 52.2B (~$56.6B)	Dec-2022	520K+	Swissquote AUM
DEGIRO	€37.7B (~$36.8B)	Sep-2022	2.3M+	DEGIRO AUM
eToro	$10B	Dec-2021	30M+ (July 2022)	eToro AUM
IG Group	£3.2B (~$3.8B)	Nov-2022	312K+	IG Group AUM

B. PFOF / Market Makers / How do brokerages make money?

Price per order flow, also known as payment for order flow (PFOF), is a practice used by brokerages to generate revenue while still offering zero-dollar commission trading to clients. This process involves routing customer orders directly to market makers or high-frequency trading firms, instead of the general exchange. These market makers and high-frequency trading firms offer higher bids per share than the general exchange resulting in a tighter bid-ask spread, which means they are forcing the investor to pay fractions of a percentage more on pricing on every share they buy. In exchange for the brokerage directing their order flow to these firms, these market makers and high-frequency traders pay the brokerage for the opportunity to execute those orders. This payment can be a flat fee or a small amount per share, and it's typically a fraction of a cent per share.

a. Advantages of Price for Order Flow:

- **Increased Revenue for Brokerages**

This emerging investor class drove revenues for trading platforms from $3.8 billion in 2017 to $10.9 billion in 2020, growth that shows no sign of stopping anytime soon (Brennan).

- **Price Improvement**

One of the key selling points for the practice of price per order flow is that it can result in price improvement for customers. This means that the order is executed at a better price than the prevailing market price. Market makers often profit by capturing the spread between the bid and ask prices, so they may be willing to offer a slightly better price to the retail broker's customers.

- **Increased Accessibility to Markets**

With no fees, retail investors see the stock market as less daunting and feel less pressure when they make trades. This will facilitate learning about the stock market as investors learn the investing strategy that works for them. Secondly, since PFOF pricing structure will add in a small pricing percentage, the amount paid on smaller trades made by retail investors will be smaller as opposed to the standard $5 commission on trades in the 2000s. Academia finds this to be a successful way to draw retail investors to the markets. A published report from the World Federation of Exchanges in September of 2022 made strong claims that "reducing trading fees, reducing the capital gain tax rate, providing broadcast materials, and improving access to research tools have been effective ways to attract retail participation in the stock market" (Gurrola-Perez).

b. Cons to Price for Order Flow:

However, some parties find this fee structure to be misleading to the retail investor as they think that the trade is "free"; however, they are paying an undisclosed percentage on the pricing of their trade. This can lead to a bird's nest of ethical issues, with the client's brokerage profiting from pressuring people to trade more. It has also pitted brokerages as a
Auctioneers in a bidding war for market makers to bid on their order flow and failing to look at the market maker that will offer the best pricing for their customers.

- **Potential Conflict of Interest:**

Critics argue that price per order flow creates a potential conflict of interest for brokerages. The concern is that brokerages might prioritize sending orders to the market maker that pays them the most, rather than getting the best execution for their customers. This could lead to customers not receiving the best possible prices on their trades. This means that these brokerages that offer zero-commission trading are only profiting when their clients make trades.

- **Regulatory Oversight:**

Payment for order flow has been subject to regulatory oversight to ensure that it doesn't harm retail investors. The U.S. Securities and Exchange Commission (SEC) has rules and guidelines in place to address this issue and require brokerages to seek the best execution for their customers.

- **Transparency:**

Brokerages are required to disclose their practices related to payment for order flow to their customers. This transparency allows customers to understand how their orders are executed and whether the brokerage receives compensation for routing orders to specific market makers.

4. Meme Stock/ GameStop / AMC / Wall Street Bets

In the hedge fund space, firms are highly unregulated as far as their investment strategies are concerned and have the ability to trade in a variety of financial markets and trade multiple financial instruments. There are a multitude of hedge funds, but the space is highly competitive; these funds are all jockeying to generate higher returns for their clients. Whichever firm generates the highest returns will attract attention from investors. This pressures firms to initiate complex strategies and employ new technologies such as high-frequency and quantitative trading. Taking capital-intensive risks is difficult, especially when these risks do not pay off. This is why, according to Reuters, only 50% of hedge funds remain in business after 6-7 years (Herbst-Bayliss).

The fundamentals of finance remain the same at these firms. One of those tenets being, buy companies that perform well, and short-sell companies that are not performing well. It seems simple; however, this means that already suffering companies like Blockbuster, where no one rents DVDs, and GameStop, where everyone downloads their games online, are the victims of billion-dollar hedge funds taking massive short positions against their company. Furthermore, many of these hedge fund managers share ideas and take similar positions. This often results in failing companies with massive short positions against their shares.

A. GameStop/Michael Burry Involvement

GameStop was in one of those positions, where a large portion of hedge funds theorized the company was soon to go bankrupt based on missed earnings, poor financial statements, and poor market sentiment. The narrative begins on July 31st when Michael Burry's private investment firm, Scion Asset Management, purchases over 3% of GameStop's outstanding shares at around 7.50 per share, believing the company to be undervalued by the market. This spurred criticism from the market and many believed this was a poor analysis by Burry, famous for being the inspiration behind the Big Short on the 2008 housing crisis.

Timeline Context - *July 31st - Bloomberg reports that GameStop's short interest stands at 63%, meaning 63% of the company's outstanding shares are currently sold short.*

On Aug 16th, Michael Burry then personally addressed GameStop's board of directors in a letter, stating that his firm owns "2,750,000 shares, or about 3.05%, of GameStop." Burry expresses "concerns regarding capital management" and urges the company's leadership to continue to use its cash to initiate a stock buyback plan to increase the company's EPS. By the end of 2019 the company had repurchased and retired about 34% of its outstanding shares. This spurred a rise in stock price and GME closed at $6.08 per share.

B. r/WallStreetBets

On the social media platform Reddit, a subreddit blog page titled Wall Street Bets, began to take heavy interest in the GameStop stock as many users started commenting on Michael Burry's investment and the short positions from other hedge funds. This community is full of a variety of users, from professional investors in the financial space to those who are looking for the next get-rich-quick stock. Around September and October of 2020, The GameStop/Michael Burry topic was one of the most posted topics. Keith Gill, one of the most active users, begins posting YouTube videos explaining that he has held a position in GME since Burry invested and believes the company is undervalued and over-shorted. In January 2021, the community started to unite and began investing in GameStop stock. This r/wallstreetbets group is credited with engaging retail investors to drive GameStop's price up to previously unfathomable prices. This has ushered in the new age of the retail investor.

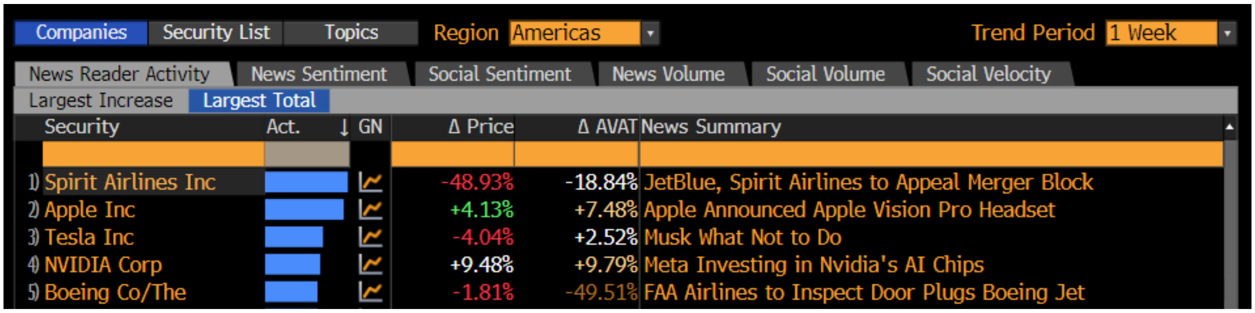
C. Social Media/Finfluencers

With over 4.9 billion active social media users in the world, retail investors turned to social media for personal finance and investing advice (Belle Wong). There is a wealth of information available across social media platforms with the emergence of "Finfluencers", or influencers who focus on the investing and personal finance niche. Finance influencers are incentivized to continue producing content due to the personal finance and investment niche having the highest CPM (cost per mille) of any social media niche (Shaikh). With the potential for money to be made on both ends, financial advice is rampant across all social media and institutional investors are taking notice. According to Chase, "80% of institutional investors use social media as a part of their regular workflow" (Duré).

i. Dave Portnoy, Barstool Sports, and Spirit Airlines

A great example of a "finfluenceer" is Dave Portnoy, Founder and CEO of Barstool Sports. He has built a massive following on social media through his creation of Barstool, NYC pizza reviews, and constant controversy in the news. Over his career, he has spent some time livestreaming his financial endeavors and would regularly day-trade hundreds of thousands of dollars to his millions of followers. Even with this short-lived financial background, Dave Portnoy is no expert and is not qualified to provide legitimate financial advice to millions of people. Nonetheless, on January 18th, 2024, he tweeted that he will be buying "A Ton of Spirit Airlines Stock" following the US Government's blocking of their prospective merger with JetBlue, leading to a 50% drop in the stock. Only a few minutes after he encouraged his followers to buy the stock, Spirit Airlines announced they would be restructuring their debt, and the stock dropped another 25%. This volatile stock drop could have had catastrophic effects on the unlucky few who chose to take Portnoy's financial advice.

However, over the course of the day, Portnoy continued to push the stock to his millions of followers and even dubbed it a "mega buy" convincing more followers to dump money into the stock. In the following days, the stock rebounded and reached $6.34 as of February 1st, 2024. This is a rare case in which poor financial advice was given, but the power of social media was able to temporarily overcome the initial losses. According to Bloomberg's Social Velocity feature, Spirit Airlines had the most web article pageviews of any public company during Portnoy's week-long tweeting spree.


Companies | Security List | Topics | Region Americas | Trend Period 1 Week

News Reader Activity | News Sentiment | Social Sentiment | News Volume | Social Volume | Social Velocity

Largest Increase | Largest Total

Security	Act.	↓ GN	Δ Price	Δ AVAT	News Summary
1) Spirit Airlines Inc			-48.93%	-18.84%	JetBlue, Spirit Airlines to Appeal Merger Block
2) Apple Inc			+4.13%	+7.48%	Apple Announced Apple Vision Pro Headset
3) Tesla Inc			-4.04%	+2.52%	Musk What Not to Do
4) NVIDIA Corp			+9.48%	+9.79%	Meta Investing in Nvidia's AI Chips
5) Boeing Co/The			-1.81%	-49.51%	FAA Airlines to Inspect Door Plugs Boeing Jet

While Spirit Airlines still has not made it out of the mud financially, its story over the past few weeks has shown the power that social media and "finfluencers" can have on the price and performance of a stock.

ii. Potential Conflicts of Finfluencers and Finance Social Media

When considering the influence that social media influencers or "Finfluencers" have on retail investors, you must look at where the money is coming from. For these "Finfluencers", they are being paid through various brand deals, advertisements, and paid partnerships from companies in the finance industry. If a company is able to pay for advertising through influencers, they are making enough money to justify the high cost of advertising in the finance niche, meaning they are profiting heavily from retail investors. In most cases, these high-profit margins come at the expense of retail investors who are persuaded to utilize their services, buy their courses, or pay for their coaching/advice. In addition to being exploited by companies, retail investors are also susceptible to pump-and-dump schemes that are orchestrated by Finfluencers with shady intentions. By convincing thousands of followers to invest in a low-volume stock or cryptocurrency, the price is artificially pumped after which the influencer and their early investors cash out at their followers' expense. Both forms of exploitation pose a large risk to retail investors and individuals must be careful who they choose to take financial advice from on the internet.

D. GameStop Activist Investment

By November 2020, Ryan Cohen, an activist investor known best for his former role as CEO of Chewy, an online pet supply retailer, purchased over 10% of GameStop's outstanding shares. This sparks hope from investors in the stock as this once-doomed stock has attracted investment from large investors to change management and turn the company around. In the beginning of January, Ryan Cohen joined the company's board of directors along with Alan Attal and Jim Grube, two ex-Chewy executives.

Timeline Context: *-November 30, 2020, GameStop Stock closes at $16.56.*

- *January 13, 2021, GameStop jumped to an intraday high of $38.65 following Ryan Cohen's board, a more than 100 percent increase from when the stock closed at $17.25 on Jan 4, 2021.*
- *January 22, 2021, GME's short interest stands at around 140%, meaning 40% more shares had been sold short than existed on the open market. This occurred because shorted shares were re-lent and shorted again. Shares now sit at $65.01.*

E. Institutional Funds Lose Capital

As the stock price continues to soar, the Wall Street Bets subreddit and investors long on GameStop celebrate their victory. The hedge funds are now losing millions on their positions in GameStop. The hedge funds had continued to short GameStop stock and now it is over 100%

shorted. One of the most outspoken hedge funds on the matter was Melvin Capital, managed by Gabe Plotkin. Plotkin was known to be a conservative investor, generating respectable returns. He had previously been one of the top traders under Steven Cohen's S.A.C Advisors. He had quite the resume, however, he had doubled down and taken a massive short position in Q4 of 2020 of 600,000 40$ put options expiring sometime before Jan 22nd. These options were worth around 113 million in addition to a much larger undisclosed amount that the firm had been short since 2014 (Celarier). Gabe Plotkin's outspokenness and steadfast position on GameStop had made him a target of Wall Street bets. The estimated total position the firm had in GameStop was close to 1 billion. As the community of Wall Street Bets and retail investors continued to drive GameStop's price up, Melvin Capital was stuck holding worthless put options and a massive short position that was likely taken out when the shares were under $10. On January 26th, subject to a short squeeze, the firm decided to close out its short position, one day before the stock hit its peak closing price. The fund lost about a total of 7 billion closing out on this trade at a price of around $310 per share. This prompted a cash bailout from Kevin Griffin's Citadel, the world's largest hedge fund and the market maker profiting significantly from the PFOF of completing over an estimated 70% of the GameStop transaction (Zambonin). As Melvin Capital closed its positions, on January 25, 2021, Citadel invested $2.75 billion into hedge fund Melvin Capital. After the bailout, the fund had assets of $6.26 billion as of February 1, according to the letter. Total firm assets were approximately $8.26 billion at that time, it added (Celarier).

F. Robinhood Closes Markets

GameStop's continued surge in price causes hedge funds to panic, only some of which have closed their positions in GameStop and AMC. On Jan 28th, 2021, Robinhood, along with several other brokerages, restricted trading in GameStop, AMC, and a handful of other meme stocks after the regulatory deposit requirements for settling the securities skyrocketed. With buying more of these meme stocks restricted at many brokerages, the brokerages have created a panic for investors surrounding these stocks and with the many retail investors that were holding substantial positions in the stocks. The stocks sell off on these brokerage apps, significantly reducing the price of the meme stocks.

a. Immediately following this, also on Jan 28th, the U.S. House Financial Services and Senate Banking committees announced that they will hold a hearing on Feb. 18 on the stock market following the trading restrictions.

b. The next day on Jan 29th, Robinhood begins easing trading restrictions on all stocks except for GameStop and AMC caught up in the meme stock rally. However, the damage had already been done, and these restrictions caused investors to panic sell and claim as much as they could of their investment into the overinflated price of the stock.

c. On February 1st, in order to cover their depository reserves and the massive influx of selling with no one on the other end buying these stocks, Robinhood raised $2.4 billion in capital after raising $1 billion to do the same thing the previous week.

d. On February 2nd, in addition to the Financial Services congressional committee calling a hearing, U.S. Treasury Secretary Janet Yellen called a meeting of financial regulators such as FINRA and SEC to discuss market volatility driven by retail trading in GameStop and other stocks. The outcries from retail investors who had lost tens of thousands on these stocks were all over the news and social media. They blamed Robinhood for stripping away their ability to trade and artificially lowering the price. Robinhood was the target of the wrath of all of these retail investors. Many saw it as hypocritical behavior from a brokerage platform with the slogan “Democratizing finance for all.”

e. On Feb 4, Robinhood finally removed trading curbs on GameStop and AMC. The following day, GameStop’s price rallied and hit an intraday high of $95 and closed up 19.20% at $63.77. This was a rally from the panic selling price but nowhere near the upper $300s that the stock was originally trading at pre-market restriction. All of the investors that bought the run-up of GameStop over $63.77 likely lost huge positions due to the panic selling price drop.

Note: Although on June 2, 2021, Robinhood tweeted that it had not halted AMC trading, upon further investigation, the NYSE's temporarily halted trading list showed that AMC trading had been halted twice.

G. SEC Reaction to 2021 Meme Stock Craze

In response to the meme stock phenomenon in 2021, the U.S. Securities and Exchange Commission (SEC) issued a report in October of 2021 titled “Staff Report on Equity and Options Market Structure Conditions in Early 2021” (Securities). This detailed several actions and responses by the SEC. The main concerns of the SEC in the meme stock incident were detailed as such:

a. **Debunked Collusion Theories:** The SEC issued a report that debunked several conspiracy theories about the meme stock mania. For instance, it found no evidence of hedge funds "naked shorting" or other entities manipulating the stock prices (Brown).

b. **Potential Regulatory Changes:** While the SEC did not recommend specific policy changes, it did highlight areas for potential study and further consideration, such as short-selling disclosures and payment for order flow disclosures.

c. **Concerns about Robinhood's Gamification:** The SEC expressed concerns about the gamification of trading, suggesting that features and animations that create positive feedback from trading could lead investors to trade more than they would otherwise. In fact, Robinhood has recently settled for $7.5 million with Massachusetts regulators for designing their app to make "trading like a game to lure young, inexperienced customers into placing risky trades" (Raymond).

Settlement Cycle Shortened

However, the main takeaway from this report was that the SEC approved a proposal to cut the standard settlement cycle for most broker-dealer securities transactions to one business day after the trade (T+1) from two (T+2). This change is expected to take effect on May 28th of 2024 of the following year. The SEC believes this change will make the market more resilient, timely, orderly, and efficient. Shortening the settlement cycle from T+2 (two business days after the trade date) to T+1 (one business day after the trade date) can have several impacts such as:

1. **Reduced Credit and Counterparty Risk:** The shorter the settlement cycle, the less time there is for the value of the underlying securities to change, reducing the risk that one party will default on their obligations.

2. **Operational Process Improvements:** A shorter settlement cycle can lead to more efficient processes as firms adapt to the faster turnaround.
3. **Cash Deployment Efficiencies**: Funds tied up in the settlement process are released more quickly, allowing them to be used more effectively and productively.
4. **Increased Market Liquidity:** With a shorter settlement cycle, securities are returned to the marketplace more quickly, potentially increasing liquidity.
5. **Reduced Systemic Risk:** By reducing the time that trades remain unsettled, a shorter settlement cycle can decrease systemic risk across the market.

The SEC alleges in their paper that "These changes aim to make the market more resilient, timely, orderly, and efficient" (Marshall). They aim to prevent an incident like the GameStop meme stock frenzy from happening again.

5. Part 1 Conclusion

The occurrences of the meme stock frenzy usurped the way that institutions regarded retail investors. Prior to the retail investing frenzy, institutions thought of retail investors as having a negligible presence in the market. Institutions saw retail investors as more or less predictable; with their typically limited capital, they mainly invested in blue-chip, known companies. After mobile investing apps took off circa 2015, younger retail investors became participants in the stock market. Then, as the 2020 pandemic began and stimulus checks started to be distributed, many more people downloaded these apps, and an unprecedented source of funds entered the market during the steepest bull run since the Great Depression. This caused many first-time investors to receive unexpectedly positive returns. This increased their confidence and led them to take riskier investments, which eventually unfolded into retail investors creating a group called r/wallstreetbets, where these investors shared their investment ideas. This group banded together and decided to pump stocks with high short interest levels such as GameStop and AMC Theatres. This caused institutions that held large short positions against these companies to lose billions of dollars, prompting a panic among these institutions. This was a wake-up call for many institutions to start paying attention to how retail investors are investing. These retail investing flows can be the bellwether for stock movement or misvalue stocks, which can create investment opportunities if retail investing flows are understood.

Part 1 Definitions

- **Excerpt (Short Interest definition)**

Short interest refers to the total number of shares of a particular stock that have been sold short by investors but have not yet been covered or closed out. When an investor "shorts" a stock, they borrow shares from a broker and sell them on the open market with the expectation that the stock's price will fall. The goal is to buy back the shares later at a lower price, return them to the lender (broker), and profit from the difference.

The short interest is expressed as a percentage of the total shares outstanding or as the total number of shares sold short. It is often monitored by investors and traders as an indicator of market sentiment. High short interest suggests bearish market sentiment, and if the stock price starts to rise, it can lead to a short squeeze.

- **Excerpt (Short Squeeze definition)**

Short Squeeze: A short squeeze occurs when a heavily shorted stock experiences a rapid and significant increase in price. This can force short sellers to cover their positions by buying back shares to limit their losses. The buying activity of short sellers trying to exit their positions contributes to the upward momentum of the stock, creating a feedback loop. As short sellers scramble to cover their positions, their buying activity can lead to a cascade effect, causing the stock price to spike even further. This can result in substantial losses for short sellers and generate significant profits for those who are holding long positions.

- **Excerpt (Naked Shorting definition)**

Naked shorting is the illegal practice of selling short shares that have not yet been determined to exist or that the trader hasn't secured in some way. Ordinarily, traders must first borrow a stock or determine that it can be borrowed before selling it short. Because of loopholes in the rules and discrepancies between paper and electronic trading systems, naked shorting continues to happen, a process the Securities and Exchange Commission (SEC) has been working to clamp down on through newer transparency policies (Hayes).

Part 2:

Retail Investing Interactions with Institutional Investors Post-Meme Stock Bubble

6. Retail Investing Data Methodology

In order to validate the claims and analyze retail investing trends, the data needs to be collected in a way that distinguishes retail investors from institutional investors. This is not easily accessed as retail investors are not subject to the same restrictions and disclosure as institutional investors. Secondly, market makers such as Citadel do not disclose very much information, let alone their retail trading numbers to the general public. General volume numbers that are published on financial data sources such as Yahoo Finance, Bloomberg, and Cap IQ are the total volume of the trades for the stock which includes both institutional and retail investors. This analysis of retail investing for the purpose of this paper requires a distinction in the volume flows between institutional and retail.

Solutions to the Retail Investing Volume Data Issue

As the rise of the retail investor occurs, the financial service industry has been quick to adapt. Following the meme stock revolution, there has been a variety of financial data institutions that have begun to offer retail investor data. The existence of these services that collect the retail investing data proves that institutions are paying attention and reacting to the retail investing flows. Services like VandaTrack retail investor volume tracking and Bloomberg's social chatter functions have attracted institutional customers. According to a recent survey by Bloomberg Intelligence, 85% of hedge funds and 42% of asset managers are now tracking retail trading message boards (McCabe). There are a few ways to access this data, all of which have their specific advantages. Here is a detailed source explanation for the unique data used:

a. VandaTrack

This serves as the primary source for retail investing data. VandaTrack uses a proprietary algorithm to collect data from market makers to identify the daily retail buying of all US-listed stocks and ETFs by retail investors in US dollars. It is estimated that they collect 65%* of all trades made by retail investors (*VandaTrack*). This provides an excellent metric to measure trends of how retail investors are investing on a daily basis.

***Note:** The 65% of collected trades means that the data cannot be used to analyze ownership data; however, VandaTrack is still extremely useful in examining trends in retail investing volume.

b. Bloomberg Ownership Data

Once a quarter, institutions and company insiders are required to disclose their holdings. Financial data software platforms like Bloomberg compile this data and look at the total shares claimed to be owned in these disclosures by the institutions and insiders and take the difference between this sum and total shares outstanding. The issue with this data is twofold, foreign investment companies with different disclosure regulations do not always have to report to the same degree and secondly, the frequency of once a quarter allows for trades to take place intra-quarter and not be reported if the investors are not holding at the end of the quarter. This would preclude analysis of short-term incidents such as the retail investor surge in late January 2021. However, this can be helpful in gauging longer-term retail investing trends as the longer-term aggregation of the data will dispel more of the errors.

c. Bloomberg Social Velocity Function

The Bloomberg Social Velocity function (BSV) was released in 2014 and helps investors conduct sentiment analysis on various stocks through a single function on their terminal. It compiles both news articles and Twitter/X data to identify stocks that are being mentioned online and ranks them based on the number of articles or tweets and the velocity of the articles or tweets. The number of articles or tweets data shows a simple count of both mediums that mention a specific stock ticker and assign a positive or negative sentiment to the post. On the other hand, the velocity of articles or tweets attempts to determine the rate at which these mentions are increasing. For example, if a stock has been mentioned on Twitter/X 5,000 times today but 4,000 of those tweets have come in the last hour, the velocity of the stock will be high. Through the use of these two metrics, investors can gather valuable information on how stocks are being viewed by retail investors and can use this information to make important financial decisions (Bloomberg).

7. Trends in Retail Investing Flows

Most of the media focus on the retail investing surge of the 2020s was on the meme stocks pumped through social media. These stocks had the most apparent drastic effect on their price and the media attention reflected that. However, the retail investors were not only investing in these meme stocks. Many of these retail investors embraced the "bug" of stock trading and began trading in a variety of sectors. Many investors chased the rush of making money and began looking into other tickers to trade. To show some of the retail investing attention, VandaTrack data was used to calculate a metric that shows the amount of dollar flow that retail investors were putting into a certain stock which is reflected in the graphs as average daily volume (ADV).

A. Calculations and Metric Logic

i. Average Daily Volume Calculation (ADV)

VandaTrack reports daily individualized dollar amounts of the buys and sells from retail investors. By summing these two values, the result will be a dollar volume that was traded on a stock each trading day. To reduce the noise that was generated from these values on a daily basis and to better analyze it over a 4-year time frame, the daily values were averaged on a weekly basis. The average accounts for trading weeks with a trading holiday and only averages the four trading days. Through this method, we reach the average dollar amount that was traded by retail investors on a weekly basis.

ii. Total Market Volume (TMV)

Financial data providers report volume in shares traded; however, ADV is reported in dollar amount. So, the daily volume is multiplied by the respective day's closing price to reach a dollar amount of the total dollar volume of the stock. This is the institutional investor's volume traded plus the retail investors' volume traded.

iii. Week Number Notation

The week notation on the graph will read as follows: the 5th week of 2021 will be represented as 202105. Some years will have 53 weeks due to the last week being a partial week.

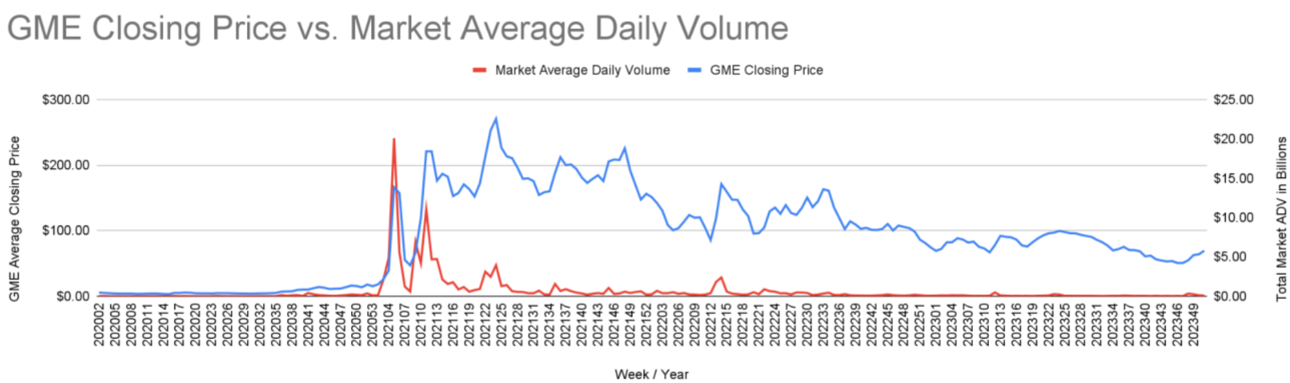
iv. Estimated Total Retail Percentage of Volume

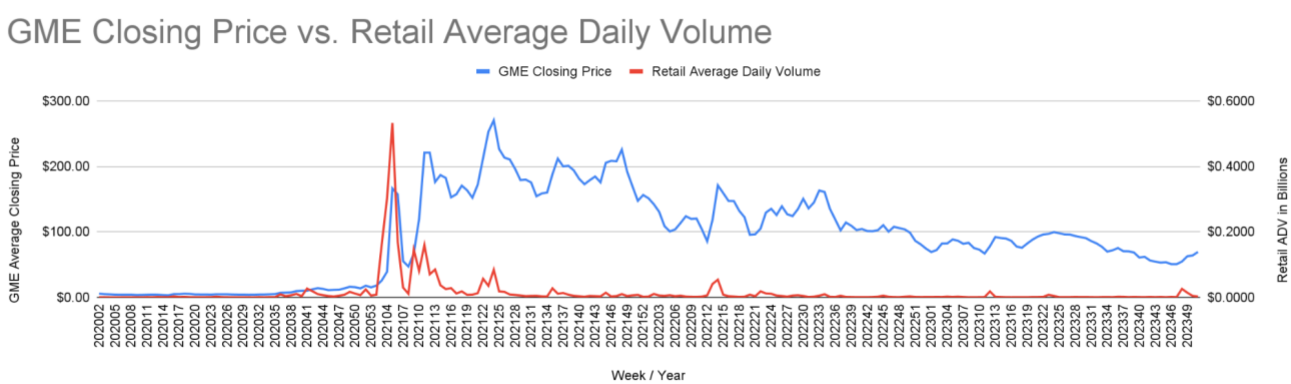
This metric is a rough estimate of the percentage of trades that retail investors make up of the total volume. It is calculated by using VandaTrack's reported figure of 65% of retail trades collected and dividing 1 by 0.65. This is a constant that can then be used to multiply to make a rough estimate of how many trades were completed by all retail investors.

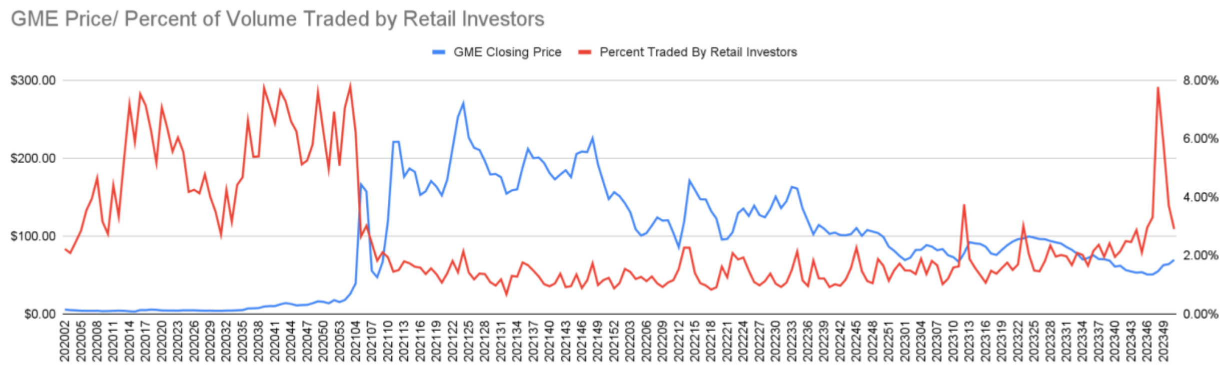
B. Single Ticker Retail Volume Analysis

GameStop (2020-2023)

VandaTrack Retail Trades (2.28%) Estimated Total Retail Percentage of Volume (3.51%)





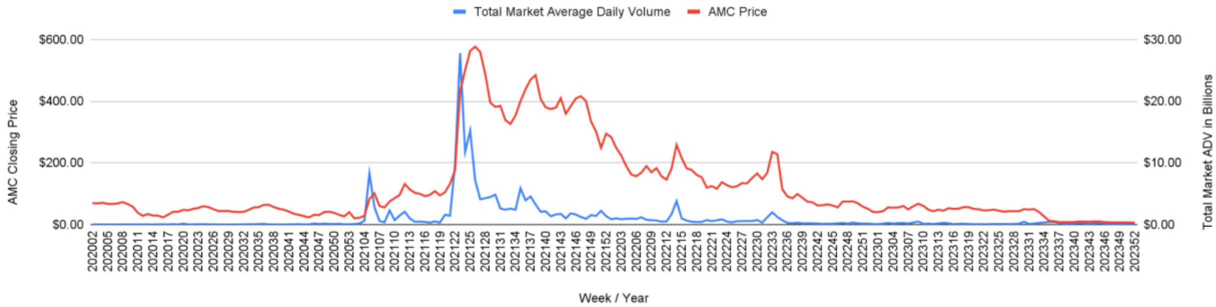


GameStop is the most obvious target for this retail investing study and the central focal point for much of the retail investors' rise. In the graph below we see almost mirror images of each other. However, the most significant event occurred during the fourth week of January, when the massive volume spike started in the 53rd week of 2020 and ended in the 6th week of 2021. This is when retail investing participation was the highest percentage of the market. This spike shows just how drastic the retail investor was involved in the GameStop pump, the retail investor went from a daily volume of around $100m into the stock, to $700m max and a daily $600m average. The massive participation of retail investors and the rise in the price of GameStop was previously unfathomable to the short sellers and financial institutions on Wall Street. This price jump showed that retail investors were active participants in the market and that financial institutions would be well served to pay attention to them.

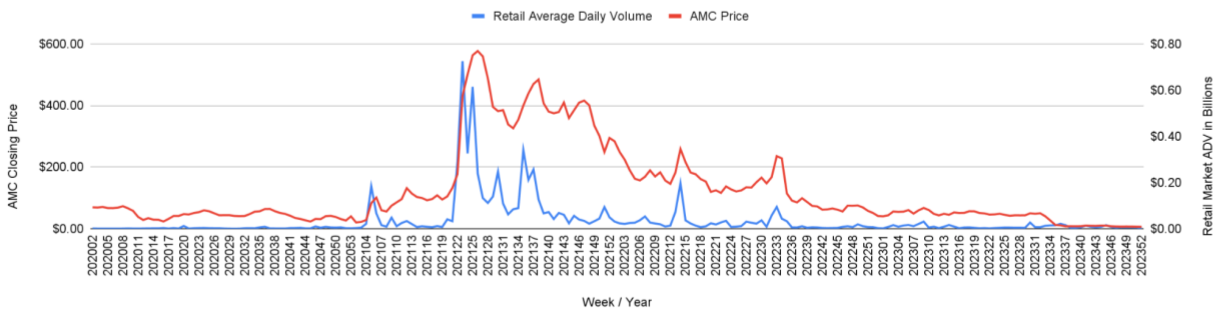
AMC Theaters (2020 - 2023)

VandaTrack Retail Trades (1.6%) Estimated Total Retail Percentage of Volume (2.46%)

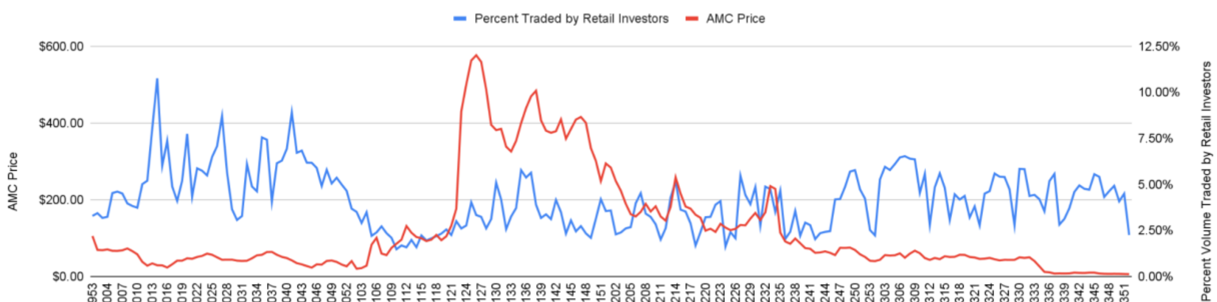
AMC Closing Price vs. Market Average Daily Volume



AMC Closing Price vs. Retail Average Daily Volume



AMC Price/Percent of Volume Traded by Retail Investors

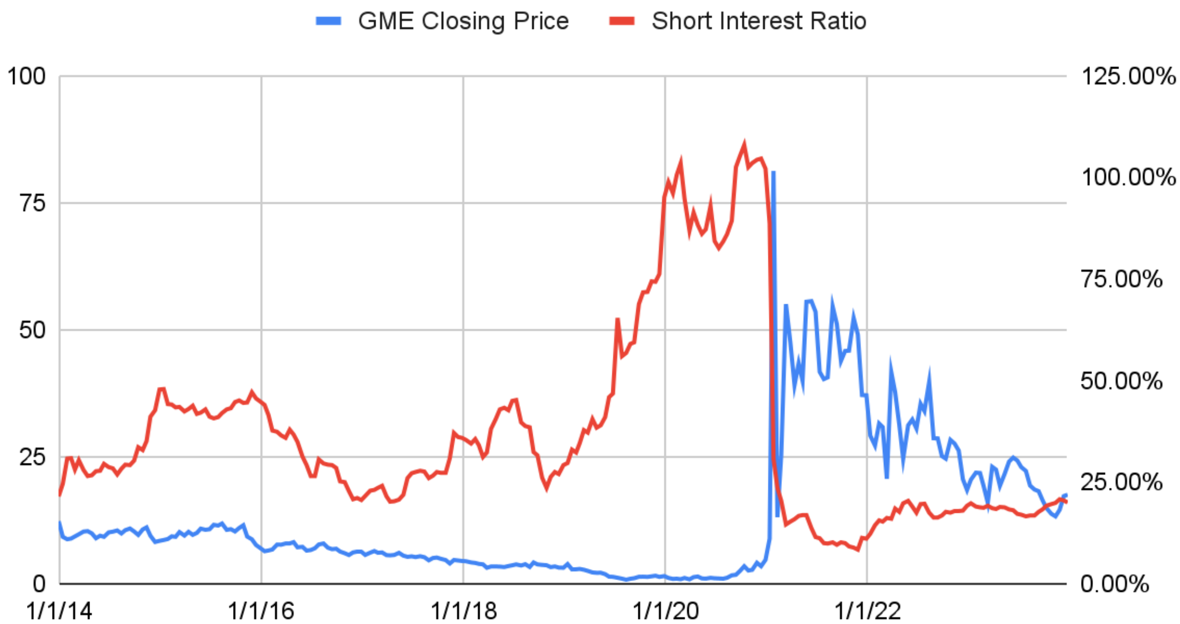


Similar to GameStop, AMC was the other main focus of the meme stock revolution. Prior to late 2020, there was virtually no volume from either retail or institutional investors (volume was sub 250 M ADV). However, once retail investors identified the high short interest level from institutions, AMC became a target for retail investors to come together and use their collective funds to prop up the price of the stock. The AMC run-up occurred later than the GameStop/Robinhood incident which occurred in January of 2021. Instead, the AMC run-up occurred in June of 2021 which was retail investors and r/WallStreetBets second try at recreating the GameStop meme craze. This inflow of retail funds, which peaked at 8 billion on average per day according to VandaTrack, helped to pump the price of AMC to nearly $600 per share at its peak. This second resurgence of the retail investor with AMC once again proved to Wall Street that the first time with GameStop was not a fluke and that the new class of retail investors is here to stay.

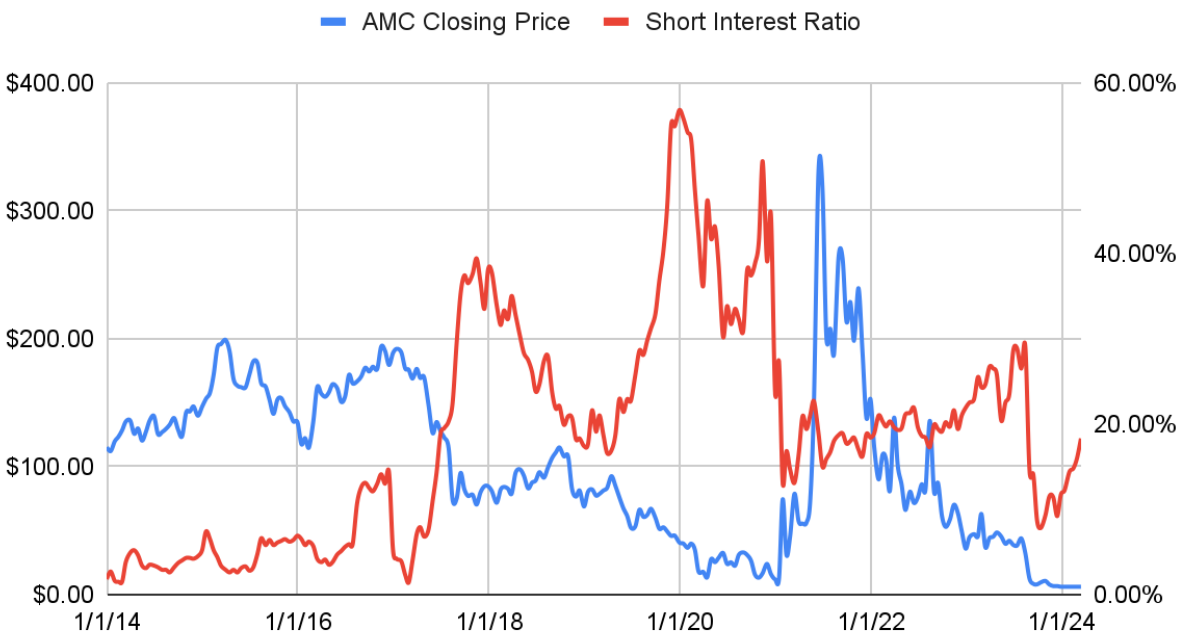
i. What made GameStop and AMC meme stocks?

What brought on the meme craze was the high levels of short interest which is especially demonstrated by GameStop's over 100% short interest and AMC's over 50% at its peak. These high levels of short interest drove retail investors to drive the price up which caused the hedge funds to close their short positions which is reflected in the falling short interest levels as the price goes up. The graphs are almost exactly inversely correlated showing that the retail investors were successful in making the hedge funds close their short positions. However, looking at the period after the meme craze, the hedge funds then proceeded to reopen their short positions. These hedge funds theorized then, and were correct, that the retail investors would not be able to continuously drive the price up and would eventually sell. This would cause the price to fall once again, allowing the hedge funds to capitalize on the shorts that were taken out at the height of the meme craze. The graphs are evidence of how dramatic the changes in retail flows can be but also how transient they are. The graphs also show how institutions were prepared to wait out these dramatic periods and reopened their positions once retail flow volatility stabilized.

GME Price/Short Interest Ratio

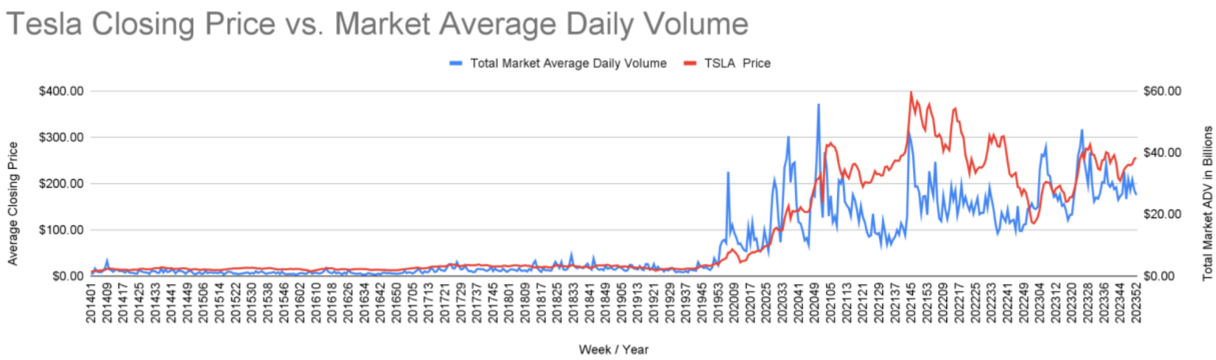


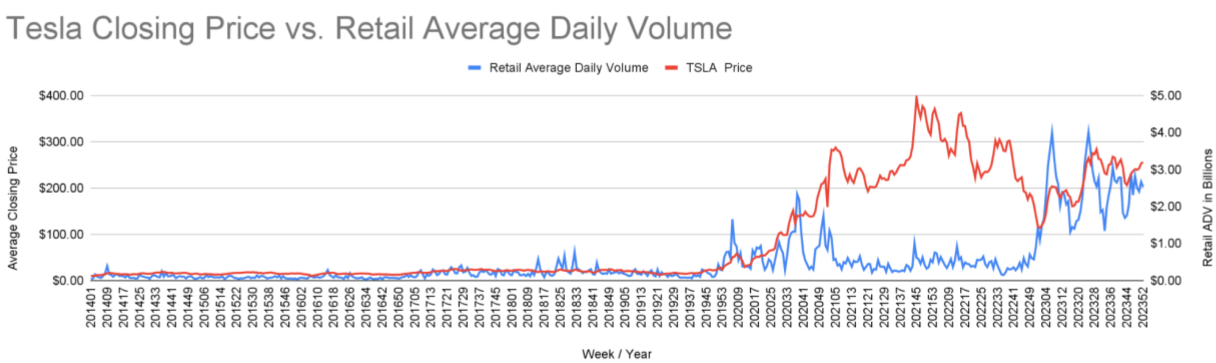
AMC Price/Short Interest Ratio



Tesla (2014 - 2023)

VandaTrack Retail Trades (8.77%) Estimated Total Retail Percentage of Volume (13.49%)

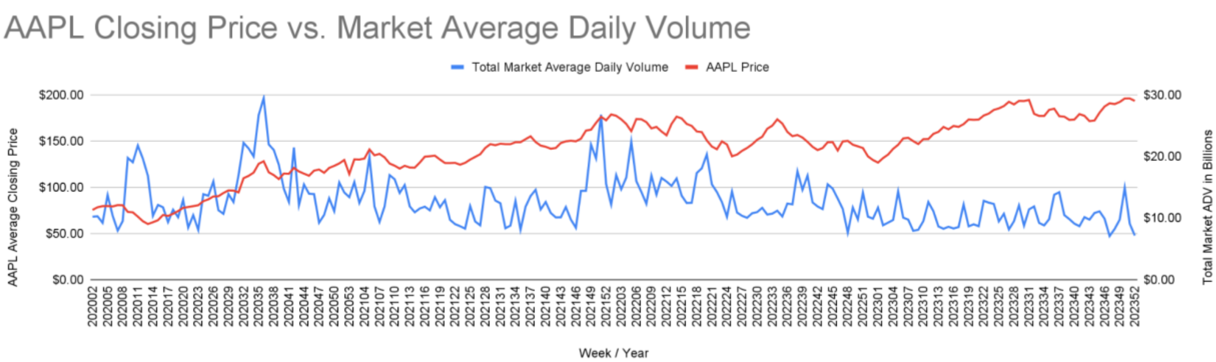


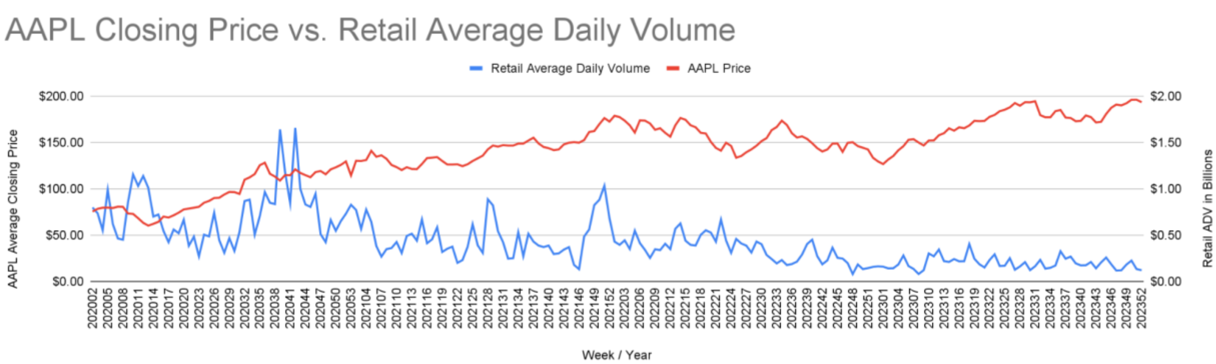


Compared to the meme stocks, Tesla had a much more positive sentiment from institutional investors throughout 2020 to 2023. Tesla was a Wall Street darling that seemingly came out of nowhere in the beginning weeks of 2020. Tesla's price had its initial jump in 2020 and sparked a spike from both retail investors of 2 billion and total market volume showed 33 billion at their peaks in early 2020. However, this surge in average daily volume was stifled during the COVID-19 pandemic and didn't fully recover until 2023. This is an anomaly as total market volume was still relatively high during the pandemic. Especially as Tesla's price continued to surge, retail investors lacked in their average daily volume during the quarantine. This could be for a few reasons, Tesla was seen as a riskier stock during quarantine and investors chose to safeguard their capital in less risky investments. Or the stock was seen as overvalued and blue chip investors chose to stray away while meme stock investors chased the meme craze. Lastly, there may be an issue with VandaTrack's collection data during this period. VandaTrack is estimated to collect around 65% of retail trades and may not have collected all retail flows during this period.

Apple (2020 - 2023)

VandaTrack Retail Trades (6.37%) Estimated Total Retail Percentage of Volume (9.8%)

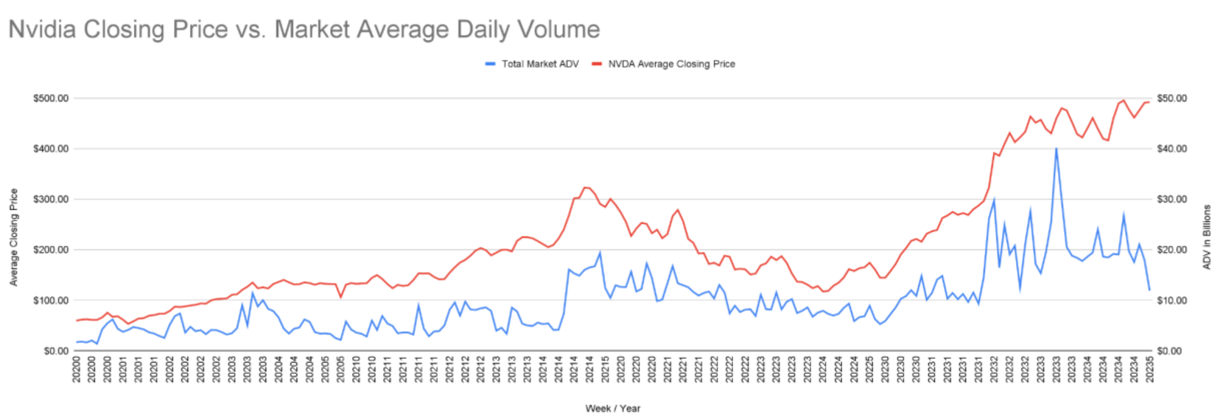


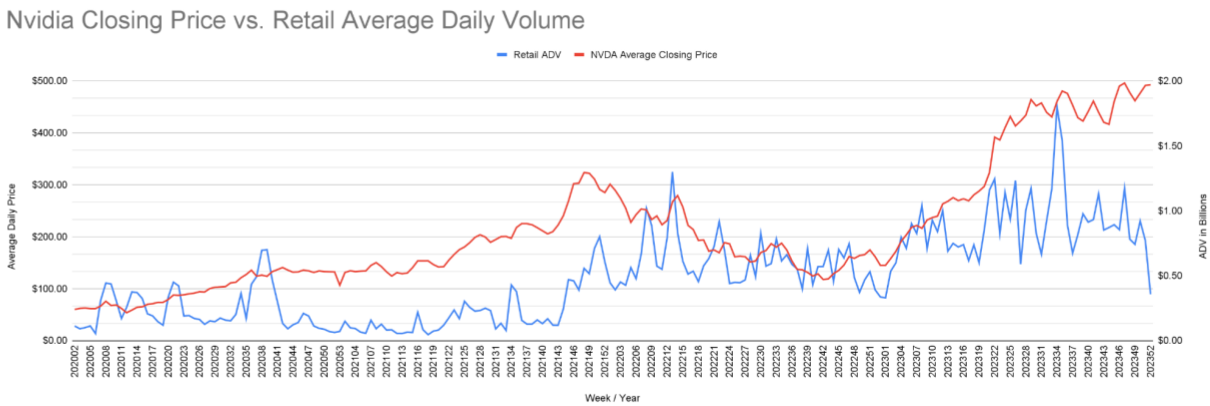


Apple is one of the highest market cap companies in the world and a front-runner for many of the major indices. Almost all retail investors are familiar with Apple, and it is known for its positive returns over the past decade. Retail flows have much less volatility than the total flows in Apple, which could demonstrate an overall positive sentiment from retail investors and trust in the company's returns. The total market's volatility signals that the institution's trading flows are much more volatile than retail investors, as institutions make up an estimated 90% of the trading volume on this stock. This difference in volatilities between the two trading volumes means that the institutions are trading this stock much more often. Whereas retail investors have a much more stable volatility in their volume, which can signify that retail investors see this stock as a long-term investment that reduces volume and therefore flattens the graph. When there is volatility in the retail flows, it is reflective of the overall market, the highest retail flows we see are the pandemic run-up around the 40th week of 2020 and the last weeks of 2021 where the stock price reached a local maximum.

NVidia (2020 - 2023)

VandaTrack Retail Trades (8.8%) Estimated Total Retail Percentage of Volume (13.53%)

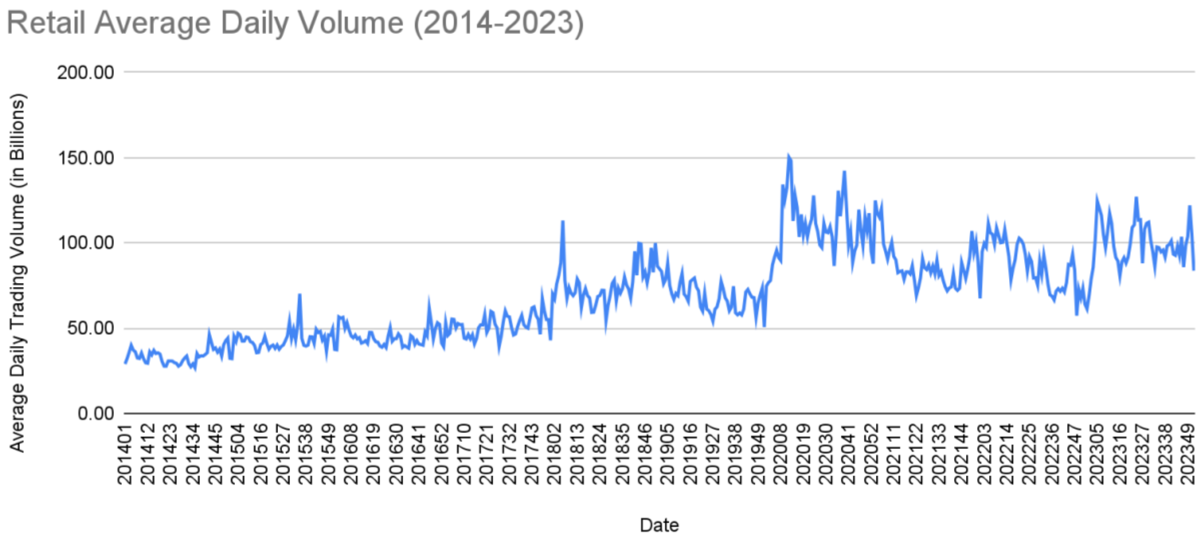




Comparatively, NVidia as a stock did not receive as much public attention as a stock until the beginning of 2020 as new technologies called for increasingly more powerful computer chips and processors, NVidia quickly became a star. The ticker attracted quite a bit of attention from both the market and retail investors. Compared to other tech stocks, retail investors' volume flows were higher as a percentage of total market flows. This can signal that retail investors "caught on'' earlier to the Nvidia ticker, especially in the 40th week of 2020, a period with a large price jump; there was a large comparative increase in retail ADV, significantly more of a percentage increase than the total market. It is not until week 20 of 2023 after a massive price increase that the total market catches up to the performance of the stock, something that it seems retail investors were more attuned to. In the case of Nvidia, it seems that retail ADV was leading institutional flows ahead of NVidia's price jumps.

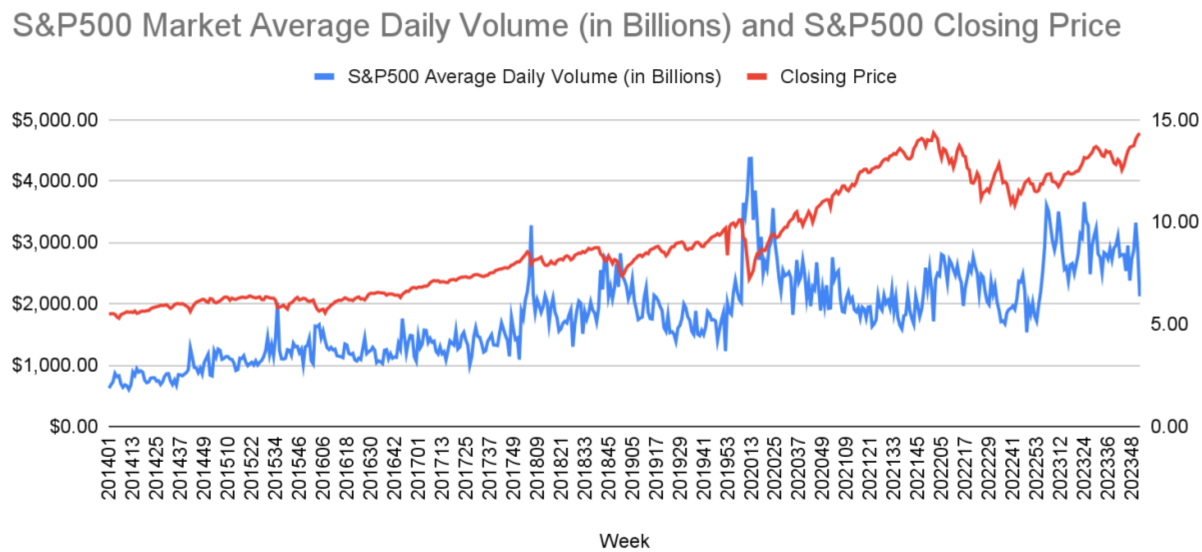
C. Sectors Traded In

Total Market (2014-2023)



After taking a look at some of the individual stocks that have seen a trend of retail investor volume, it is helpful to take a step back and look at the retail trading volume of the market as a whole. From 2014 to 2017, retail trading remained relatively steady around 50 billion average daily trades. After 2018, retail trading steadily increased until the COVID-19 pandemic began in 2020 when government stimulus checks lined retail investors' pockets and boosted retail trading volume to nearly 150 billion trades per day on average. Since then, retail trading volume has stayed elevated averaging 100 billion trades per day across the market as a whole. Regardless of individual stock retail trading volume, this 100% increase in retail trading volume in the market as a whole is something that institutional investors must be aware of no matter what corner of the market they are investing in.

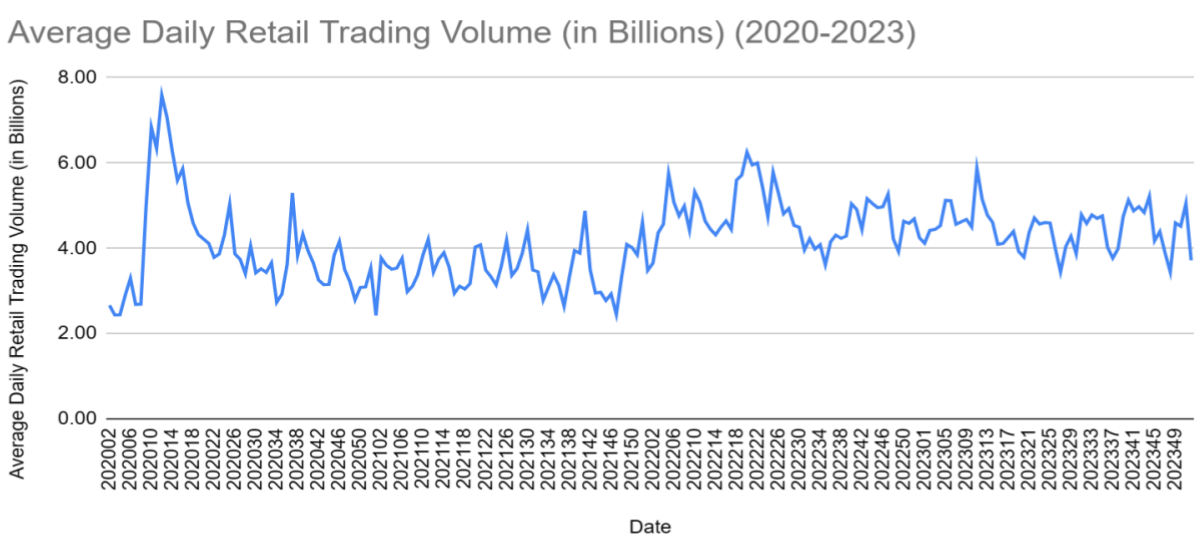
S&P500 (2014-2023)



The S&P500 has seen coinciding increases in retail trading volume as the entire stock market since the stimulus checks of 2020. In the early months of the pandemic, retail trading volume spiked over 100% from pre-pandemic reaching over 12.5 billion trades per day on average. This rapid increase in volume signifies that retail traders were willing to take on the risks of the stock market during the pandemic by utilizing the recently popularized fee-free trading applications like Robinhood. Based on the graph, the retail trading spike along with institutional investors sparked life into the market with increased confidence in the recessionary indicators subsiding and life returning to normal. The spike in retail volume nearly perfectly coincides with the dip in the S&P 500 showing that retail investors played a pivotal role in the recovery of the market after the S&P reached lows of around $2,500 in early 2020.

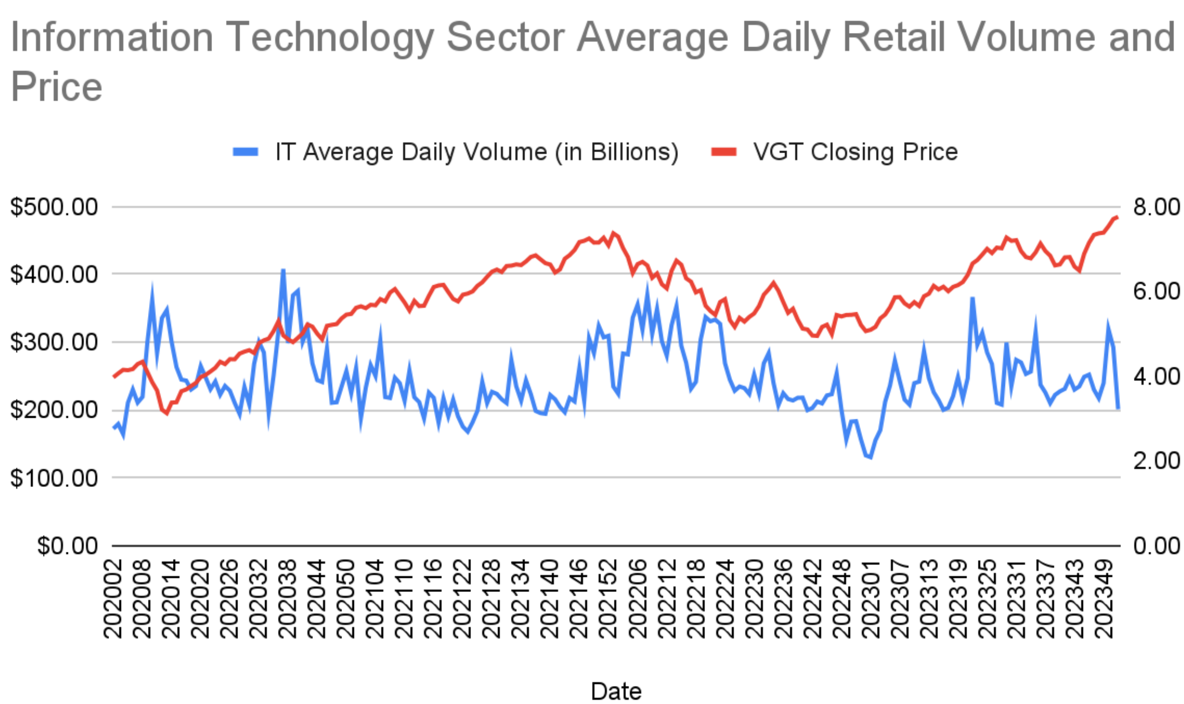
In addition to the spike of retail trading in 2020, there is another noticeable increase in retail average daily volume in early 2023. From March 2022 to November 2022, the Fed hiked interest rates a total of six times to 3.75%-4.00% (Rodini). This rapid rate increase shifted investors' focus to more favorable bonds and incentivized retail investors to take their profits from the bull run following the pandemic. Following three consecutive 0.75% rate hikes, the Fed raised rates again in December 2022, but this time by only 0.5% (Rodini). The slowing of interest rate hikes began to shift the focus of investors back towards the stock market and likely caused retail investors to re-invest money they had previously been saving. In addition, the Fed hiked rates only 0.25% in February 2023 confirming investors’ suspicion of slowing rate hikes and further incentivizing retail investors to re-enter the market. Slowing inflation, less substantial rate increases, and more favorable market conditions are likely contributors to the large increase in retail trading volume in the first eight weeks of 2023.

ETFs (2020-2023)



Looking deeper than the overall market, the graph above shows retail investors’ daily trading volume of ETFs according to VandaTrack’s data. Beginning in 2020, the trading volume showed a heavy spike that coincides with the retail influx of the previous two graphs. This shows that not all retail investors in early 2020 were looking to join a get-rich-quick pump scheme like that of GME and AMC. Instead, many retail investors chose to invest their excess cash in safer ETF investments with the hope of growing their capital gradually over time. The portion of the retail investor market that chose the safer route with ETFs seems to have continued to invest money over time as there is a much smaller drop off in volume post-pandemic, remaining around 5 billion shares traded per day.

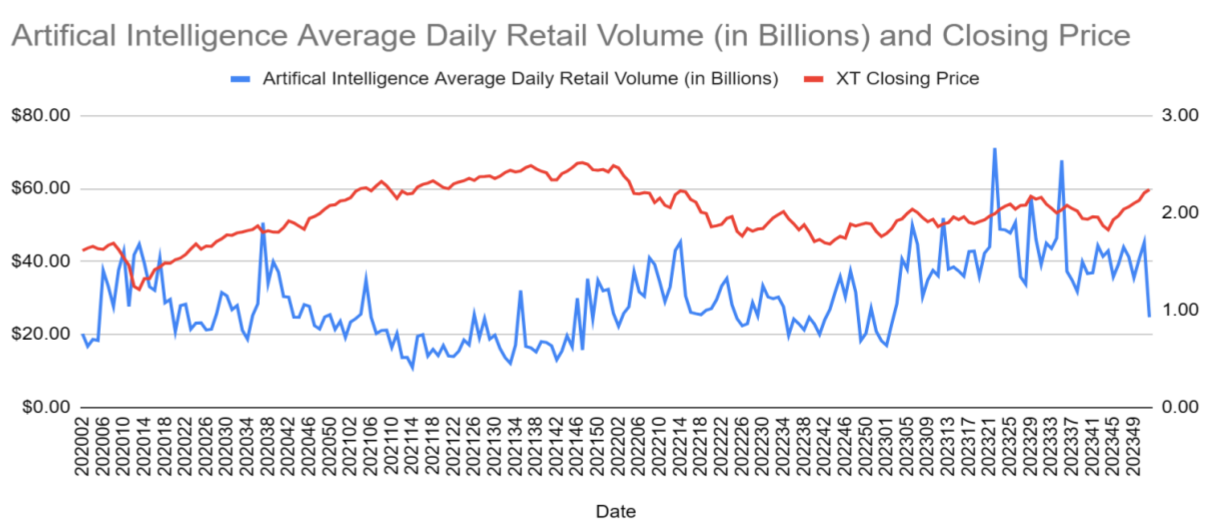
Information Technology



One of the sectors where retail traders have shown the most retail trading activity is Information Technology. The IT sector aligns with the values of many retail traders, and the promise of life-changing technological advancements is something that draws a lot of attention from the general public. In this graph, the Vanguard Information Technology ETF was used to represent the

Information Technology sector as a whole since they have large stakes in companies including Apple, Microsoft, Nvidia, Cisco, Salesforce, and more. By graphing the VGT ETF, it allows for a comparison between retail trading volume and the performance of the sector overall. Similarly to the S&P 500, the retail boom of early 2020 coincides identically to the dip in the performance of IT stocks, and the volume of trades placed by retail investors helped to boost the market back to pre-pandemic levels. Another interesting trend in retail trading is that the volume of retail trades only deviates significantly from the average when the sector is trending up or down. For example, during 2021 the VGT ETF remained around $400 per share for a majority of the year. During that same time frame, the retail trading volume remained relatively stagnant around 3.5 billion shares traded per day on average. Although, during the first half of 2022 when the VGT ETF dropped from around $450 to $325 per share, retail trading spiked almost 50% and reached an average of over 5 billion trades per day. Retail traders seem to be willing to take risks and invest more when the market appears to be uncertain.

Artificial Intelligence (2020-2023)



Lastly, retail investors have shown increased interest in investing in the Artificial Intelligence sector as the release of chatbots and other AI services like ChatGPT have proven the value of AI to people, companies, and governments around the world. Where there is a large perceived growth potential, retail traders are going to invest their money heavily. In this case, iShares Exponential Technology ETF was used to represent the AI sector and its overall trends. This ETF has holdings in many companies that are invested heavily in both AI software and AI hardware like microchips and semiconductors. As shown by the graph, retail investments in AI companies have increased quickly since the release and success of ChatGPT in November of 2022. Even though OpenAI was privately held at the time, the AI sector as a whole saw nearly 300% increases in retail investment volume. Regardless of industry, retail investors are gaining more and more influence on the overall movement of the market, and institutional investors must keep their opinions in mind.

D. Parallels between Meme Stock Hype and AI Hype

Since the start of the first week of 2023, we have seen a sharper increase in AI technology volume flows even more dramatic than the gradual increase leading up to it. This dramatic increase is similar in some ways to the 2021 run up of meme stocks. Albeit this run-up is over a slightly longer period of time, however the concept remains similar. Financial news, social media, and culture shifts all hype up a certain stock or industry and retail investors invest in droves. They show a much sharper increase in their trading than the market does as if a lightbulb went off in their head. As this trend continues, institutions can potentially take insights as retail investors flock to the AI stocks,

8. Changes in Market Dynamics

a. Increased price volatility/liquidity in markets

Overall, the increase in participating parties in the market is beneficial. The introduction of the retail investor into the financial markets increases market health and liquidity. According to a paper published in the Swiss Finance Institute's journal titled "*Do institutional investors stabilize equity markets in crisis periods? Evidence from COVID-19"* (Glossner), where the authors alleged that stocks with higher retail ownership performed better during the Covid-19 pandemic along with higher retail investing flows reduce the risk of a massive price drop in case of a rare event which is referred to as tail risk as retail investors provide much needed liquidity to stocks which reduces tail risk to institutions. With their retail trades, retail investors also introduce more total volatility or "noise" into the markets, filtering through this "noise" has the potential to create investment opportunities when stocks are misvalued. Price volatility increase in the markets is also advantageous for the value of derivatives under the Black-Scholes model.

b. Retail Investing Trading Event Flow Reaction

Using a paper from Purdue University titled *Retail Investor Trade and the Pricing of Earnings,* a research investigation into the reactions of inexperienced retail investors to earnings and the alterations in their portfolio holdings showed that the number of retail investors holding shares in a company increased in response to both positive and negative earnings news (Michels). Although retail trades seemed to respond to announced earnings, retail investing volume tracking shows RIs more consistently reacted to market returns following the earnings announcement rather than the earnings themselves.

9. What measures are institutions taking to accommodate the new retail investors?

A. Investor Relations Departments for Fortune 500s 'advertising' their stock to retail investors

Since retail investors are a growing investment group, investor relations departments are catering to the different needs of retail investors versus institutional investors. Many of these investor relations departments are focused on building long-standing relationships with these retail investors in light of their recent rise (Nunziati). Some of these changes to better include retail investors in investor relations include:

Unifying their brand image - Retail investors that have a positive sentiment about a brand are much more likely to invest. Retail investors trade with more emotion than institutional investors.

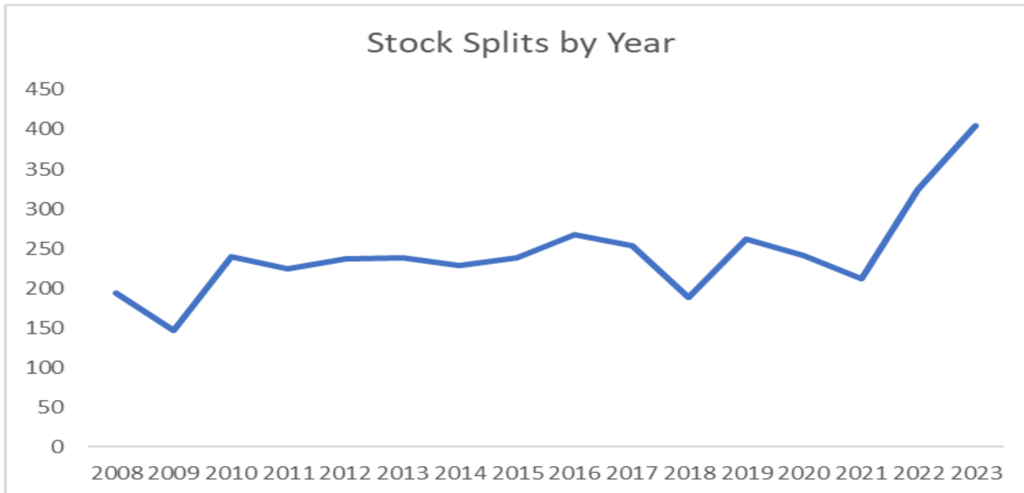
More user-friendly and transparent reporting - With a diverse range of financial knowledge and savviness, IR departments can make their financial reporting easily accessible on their website and create short graphics and briefs to carry across important points.

Investor Outreach and Education - Tailoring communication and engagement initiatives to individual retail investors can strengthen their connection with the company. Companies can consider segmenting their retail investor base based on investment preferences, demographics, or investment experience to provide more personalized and relevant communications.

B. Stock Splits

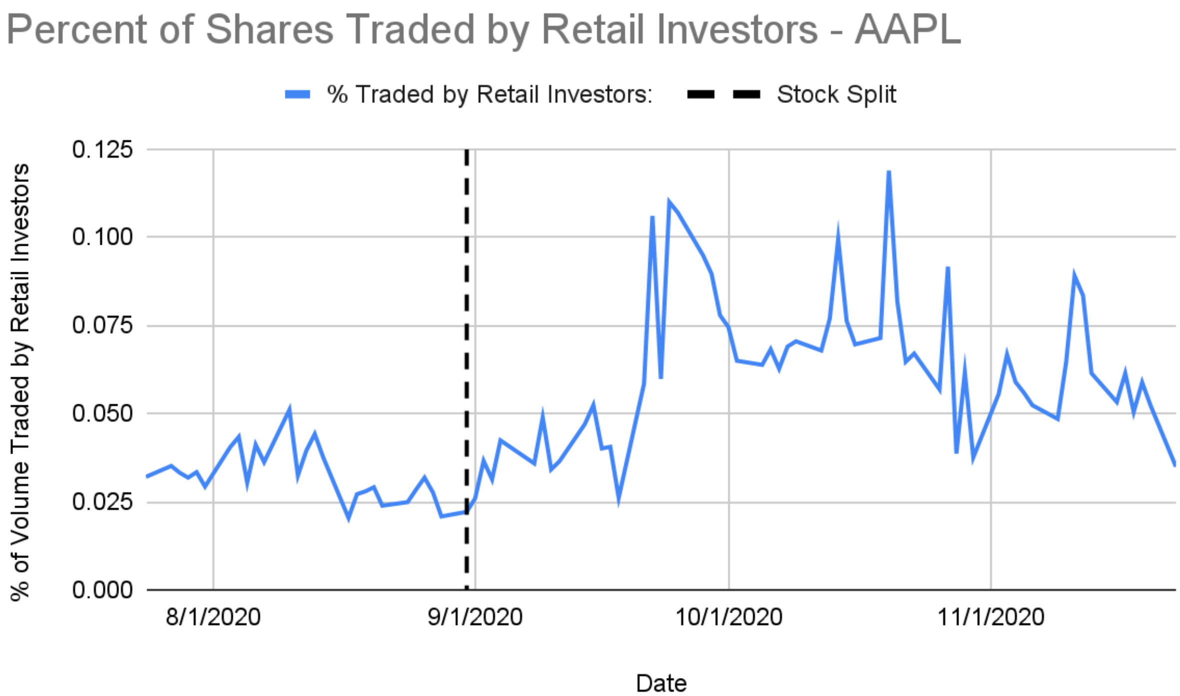
When a company's stock reaches a price that is deemed by management to be too high to an extent that they believe it will impact the willingness of retail investors to buy the stock.

Companies will split the stock price, which lowers the price although the underlying value does not change. Some retail investors see higher stock prices as "expensive" and lower prices as "cheaper". According to StockAnalysis, the number of stock splits has remained steady following the 2008 financial crisis but has increased rapidly in the last three years (Uhlhorn). The chart above shows the rapid increase in stock splits between 2021 and 2023. This coincides with the increase in retail investors and points to the fact that investor relations departments are trying to cater to retail investors by splitting their stocks.



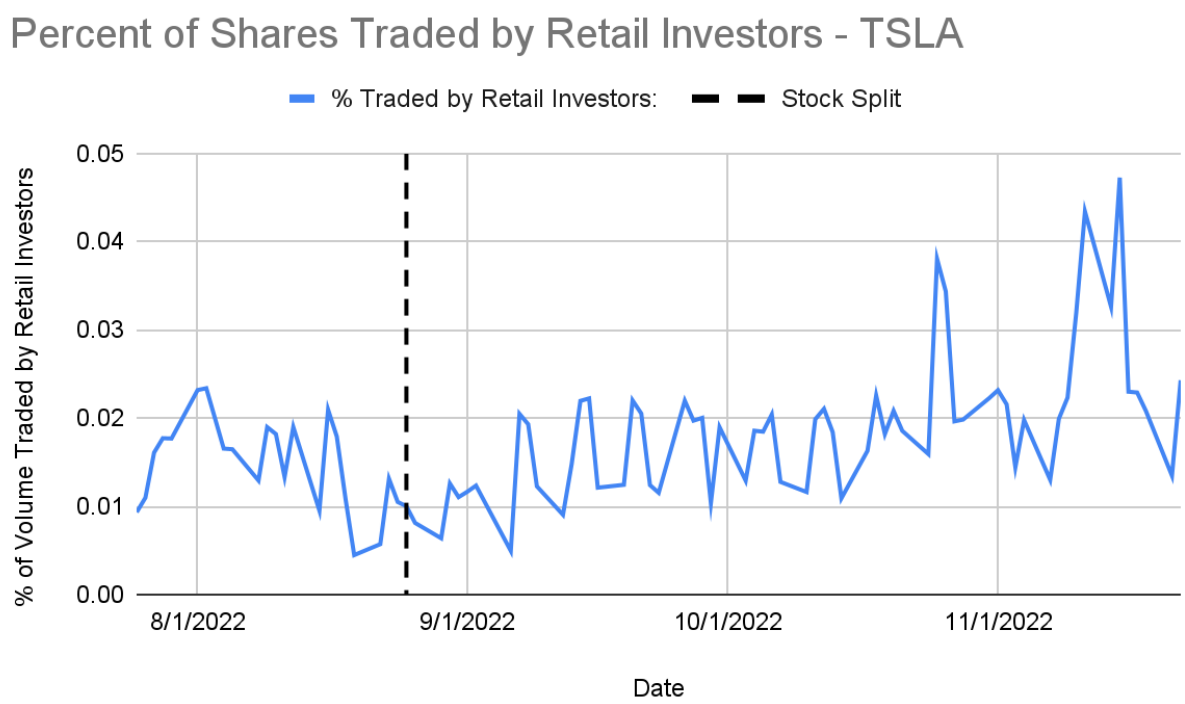
Below are three graphs tracking retail investing of Apple, Tesla, and Google. These three stocks have undergone splits over the course of the last 4 years. The retail trading volume is computed as the percentage of overall volume that is attributable to retail investors, and the dotted lines mark the exact date the stock underwent the split. On the date of the split, both Apple and Google saw upticks in retail trading volumes; however, Tesla actually saw a downturn in trading volume. When comparing retail trading volumes of the 60 days prior to the stock split to the 60 days following, there is an increase in retail trading volumes in all three stocks. This shows that stock splits do increase retail trading interest in the weeks following the split.

Apple:



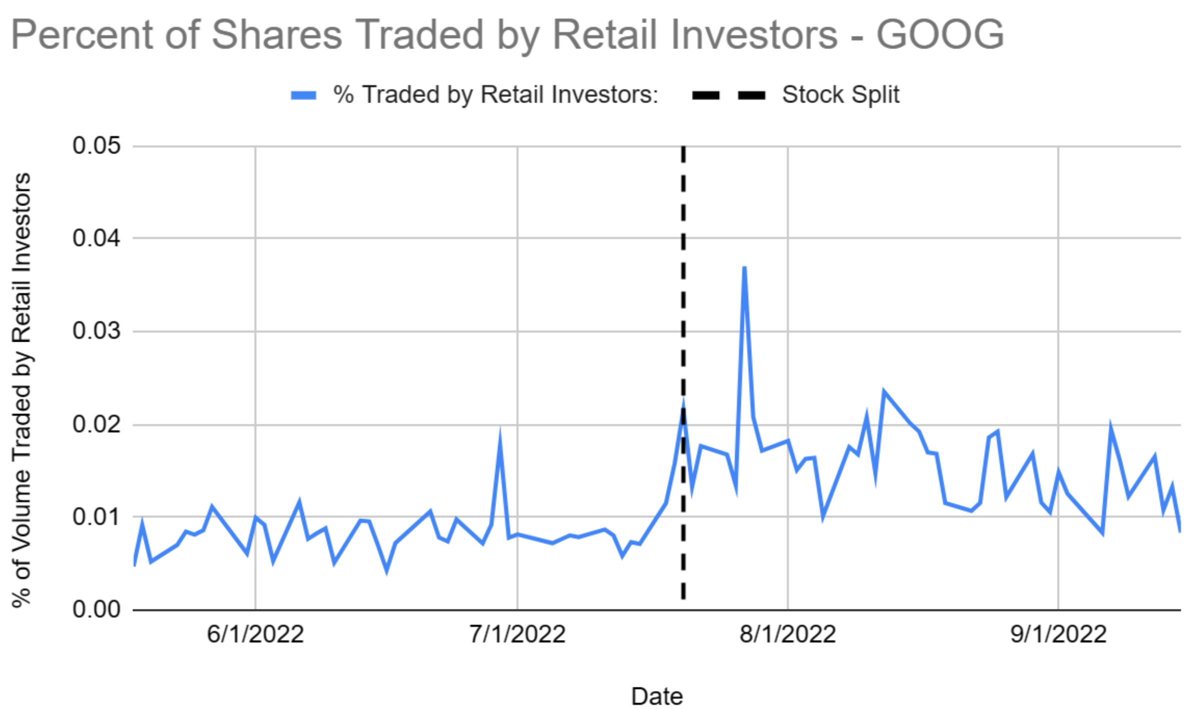
AAPL had a 4-1 stock split on August 24th, 2020 during which each shareholder received three extra shares of AAPL stock. As shown in the graph, retail trading remained steady between 2.5% and 5% prior to the 2020 stock split. Although in the days following the split, retail volume ballooned to over 10%. This increased volume continued for nearly 90 days following the split before tapering off and returning back to normal levels.

Tesla:



TSLA underwent two separate stock splits in the past five years, the one in reference is the stock split on August 24th, 2022. While the split was announced in early August, the retail trading volume seemed to taper off following the announcement. However, a little over a month after, the retail trading volume saw a similar uptick in volume that is similar to the other two stock splits that were analyzed.

Google:



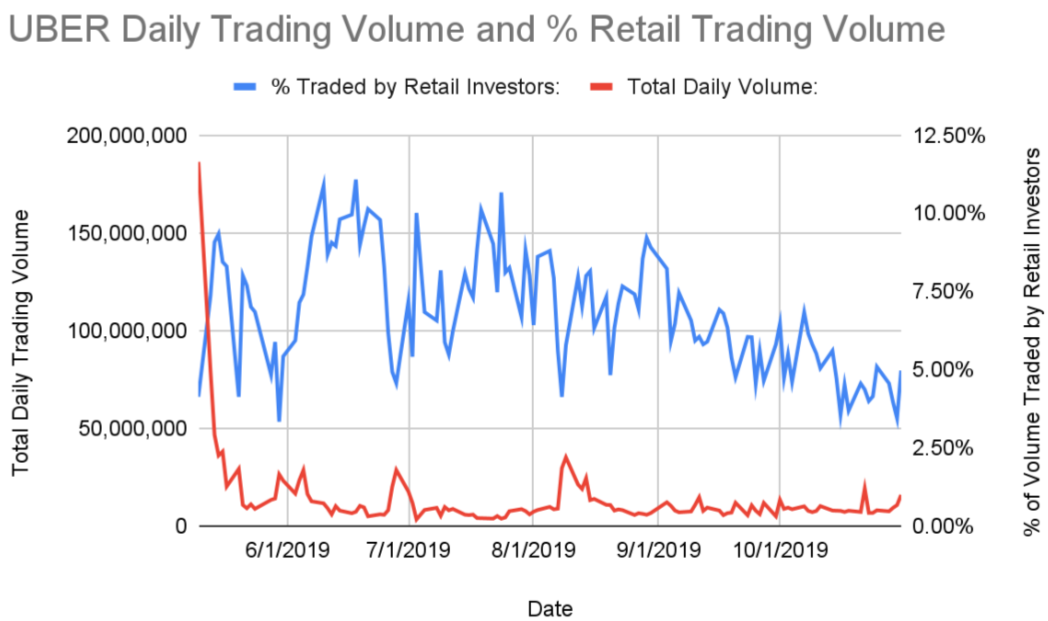
Google had a 20-1 stock split on July 18th, 2022. The split was approved and announced on June 1st, 2022. This graph focuses on the non-voting shares that were issued (GOOG) and shows a dramatic uptick in trading volumes on the day of the split and the weeks following. Out of the three stock splits, Google 20-1 had by far the largest impact on the price of each share. With a lower price, the stock appealed to more retail investors immediately and the data supports that claim.

C. IPOs targeting retail investors

In addition to stock splits, companies have noticed that retail investors tend to invest heavily in IPOs or Initial Public Offerings with hopes of seeing high returns in the early trading days of a stock. This interest from retail investors can be seen through Vandatracks' "Wall Street Bets Favorites" theme in their retail investor data. This theme includes 30 stocks that are the most mentioned across social media, specifically in the r/wallstreetbets subreddit. Out of these 30 stocks, 10 of them had their IPO in the past 5 years. These stocks include more established online brands like Robinhood (HOOD), Wish.com (WISH), alongside smaller more speculative investments like Intelligent Bio Solutions Inc. (INBS). These IPOs generate incredible amounts of buzz amongst retail investors as Robinhood reported that 45.3% of their users own the Robinhood stock following their IPO in 2021 (Lindner). Looking forward, companies will be able to capitalize on retail investor interest to push their stocks above the IPO price and raise large amounts of capital.

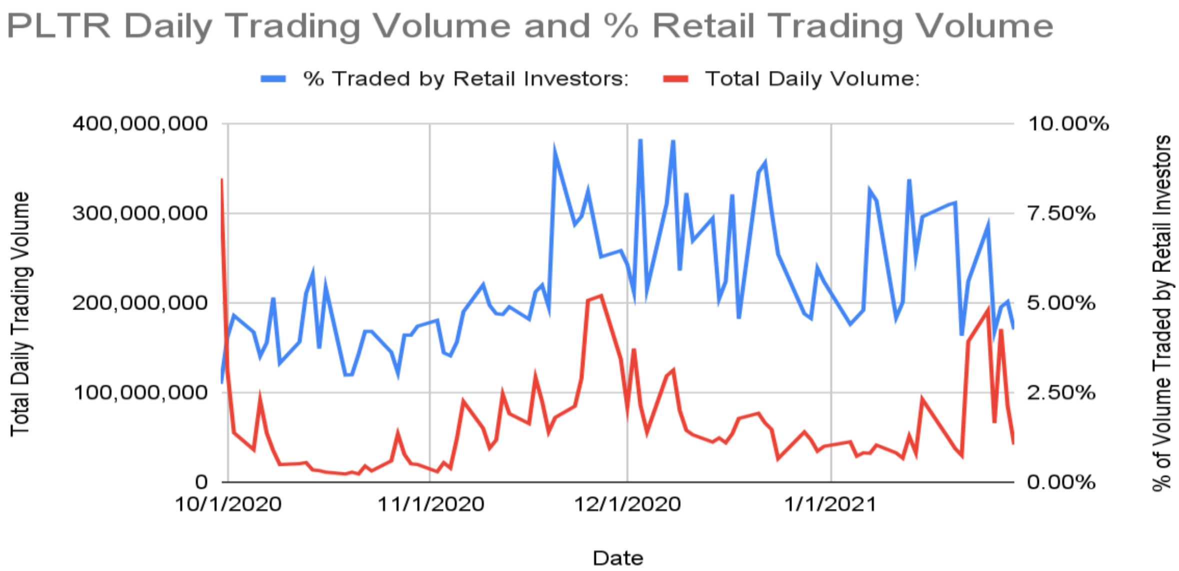
Below are graphs of Uber, Palantir, and Robinhood. These stocks were chosen to represent three different periods of time throughout the rise of the retail investor. The first stock, Uber, had their IPO in May of 2019, which occurred before the retail investor influx during the COVID-19 pandemic. The second stock, Palantir, had their IPO in September of 2020, which was during the height of the COVID-19 pandemic and therefore the retail investor boom. Lastly, Robinhood was chosen to represent the post-COVID era following the retail investor boom in the middle of 2021. These three stocks were also some of the most discussed IPOs among retail and institutional investors alike. The commonalities in the data show that retail investors have dramatically higher investment rates compared to the total market right when the IPO is offered. This evidence suggests that retail investors more easily buy into the initial "hype". However, after the hype subsides, retail investing participation levels even out to normal rates for large-cap stocks.

Uber (May 31st, 2019 IPO) - Pre Retail Trading Boom



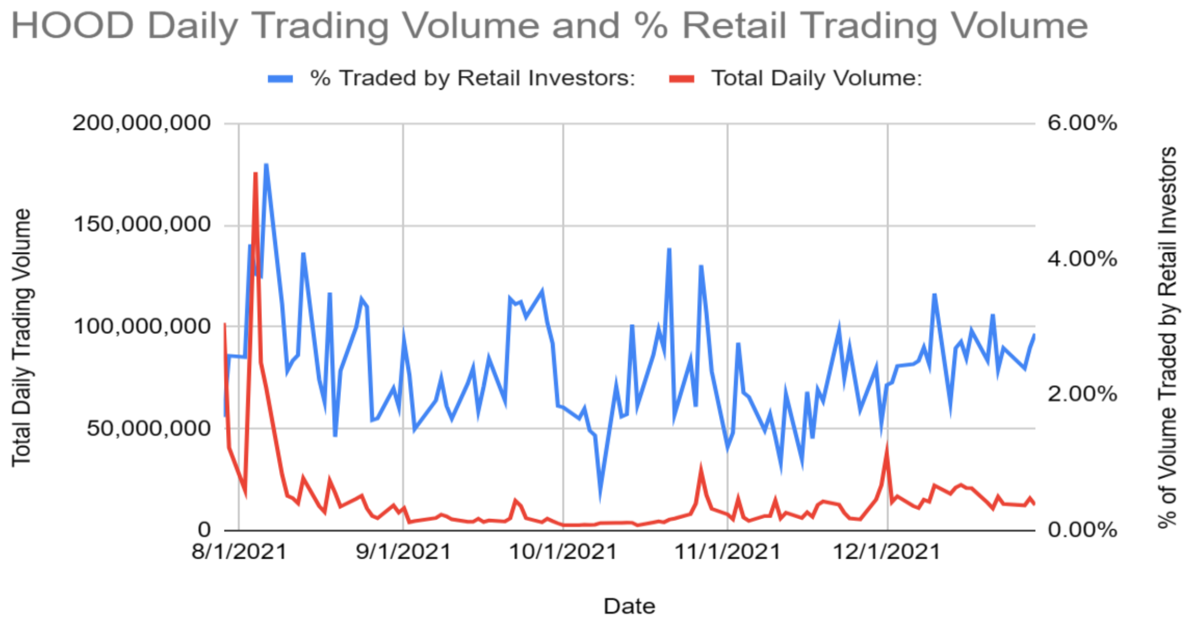
This graph shows the total daily trading volume and the % of that overall volume that is attributable to retail investors over the 6 months post-IPO. Shares first began trading on 5/10/2019, and the chart extends until the end of the year. As shown by the % Traded by Retail Investors line, the initial "hype" of the stock shot retail trading volumes to north of 10% in the two months following the IPO. However, the volume tapered off and dropped to a more sustainable amount between 2.5% and 5% as the year continued and the "hype" wore off.

Palantir (September 30th, 2020 IPO) - Mid Retail Trading Boom



This graph shows the total daily trading volume and the % of that overall volume that is attributable to retail investors over the 6 months post-IPO. Shares first began trading on 9/30/2020, and the chart extends until the end of January 2021. Similar to Uber, the initial "hype" of the Palantir IPO brought in heavy retail trading numbers once again nearing the 10% mark. The chart also includes a similar retail investor fall off down to a more reasonable level as the months progressed.

Robinhood (July 30th, 2021 IPO) - Post Retail Trading Boom



This graph shows the total daily trading volume and the % of that overall volume that is attributable to retail investors over the 6 months post-IPO. Shares first began trading on July 29, 2021, and the chart extends until the end of the year. Once again, this chart shows the “hype” that is generated around an oversubscribed IPO in the retail space. Retail trading volumes boom in the weeks following the IPO and then drop to below half the initial level by the end of the calendar year.

D. Meme Stock ETF

In the wake of the GameStop retail pump, institutions began to look into creating ETFs that invest in stocks following similar paths as GameStop and AMC in terms of social media buzz. In December 2021, Roundhill Investments, an SEC-registered investment advisor focused on offering innovative ETFs, launched the Roundhill MEME ETF under the ticker MEME. This ETF was designed to track the Solactive Roundhill Meme Stock Index, which contains 25 equities (Kolakowski). that are selected using various proprietary screens of social media. Since its launch, MEME is down over 50% from its initial value to a price of over $70 per share. While trading volume is quite low, generally between 1,000 and 10,000 shares. The existence of this innovative ETF shows that the influx of retail investors has created a trend that institutional investors are noticing.

10. Conclusion

The rise of the retail investor has changed the landscape of the financial markets. Retail investors have proven that their effects on the stock market are lasting and here to stay. Considering this, financial institutions should adapt to the retail investor and pay attention to the trends and behavior of retail investing. Following the GameStop and AMC retail investing frenzies, where retail institutions took advantage of the high short interest held by institutions on these stocks, retail investors pumped the price up to previously unfathomable numbers. This caused many of the institutions that had short positions to lose billions of dollars. However, this sent a message to financial institutions that retail investors should be paid attention to, and consideration should be given to their investing trends and behaviors.

Financial institutions can pay attention to these retail investing trends in a variety of ways, especially with the development of new retail investing data services such as volume tracking with VandaTrack and social media measures such as Bloomberg velocity measures. A sophisticated investor or financial institution can take advantage of retail investing flows and social media chatter to develop new investment ideas, gauge social sentiment, and better predict returns. By surveying retail investing flows such as the ones provided by VandaTrack, financial institutions can better predict volatility and gauge how retail investors feel about a stock to better categorize whether retail investors' reaction and sentiment on certain stocks and the markets. Financial institutions have already begun to adapt their strategies by surveying this retail investing data along with protecting themselves of the risk of an incident like Gamestop happening again. Institutions have already begun adjusting their strategies for retail investors with retail data pointing towards the increase in stock splits and corporate investor relations departments altering their outreach to include retail investors, along with specifically targeting retail investors with IPOs on specific platforms such as Robinhood. Overall, the financial markets have been drastically affected by the involvement of the retail investor and financial institutions are beginning to adapt to the presence of retail investors. However, the presence of the retail investor is better for the stock market as a whole as the presence of retail investing flows provides increased liquidity and reduces the tail risk of stocks.

Authors' Background, Honors College Grant, Annotated Bibliography

11. Authors' Background

Nick Murray

In my previous experience, I have worked at a financial data vendor that specifically sells to institutional investors. In this role, I have learned about institutional investing data needs and what is required for the analysis and evaluation of financial research. I have also worked at a digital brokerage firm that cleared the trades for some of these brokerages and connected them with market makers. I've conducted market research on many digital brokerage apps, neo banks, payment apps, and almost every other kind of financial app. This has given me insight into the changing landscape of fintech and how the financial industry has already changed from the traditional way of doing things and is continuing to change. I believe that the ability to involve oneself in the financial markets after downloading an app on your phone is extremely powerful. However, the increase in retail investors is a double-edged sword. I believe that it benefits market health but also can increase volatility in markets, which warrants notice and consideration from financial institutions.

Spencer Brosnan

Throughout my life, I have been enthralled by the world of finance, with the stock market being a main point of interest for me since well before I was old enough to invest. In addition, being active on social media in the finance space has allowed me to experience the rise of the retail investor from a first-hand point of view. The ability for everyday people to influence the stock market to the extent that they have over the past few years has been the catalyst for a huge shift in the way that we view financial markets. Through this research, I hope to uncover the true power that the retail investor holds in the stock market and how low-volume individual traders across the country influence the decisions made by institutional investors. Furthermore, I hope to produce research that will exemplify to institutional investors the extent to which retail investors affect the stock market as a whole.

Following graduation, I am beginning a career in investment banking. Through this research, I hope to be able to better my knowledge of the impact of retail investors in the stock market, and my knowledge of the movement of the stock market overall. In the end, this research will prove to be valuable not only to myself in my future career, but also to individuals across the country who want to increase their knowledge of the growing influence of the retail investor.

12. Honors College Grant

The main source of data for this thesis, VandaTrack is typically reserved for institutional investors and charged at a premium that is typically not available to individual investors. The access to this data is only made possible by the combination of funds received by the University of South Carolina Honors College Thesis Grant and the Darla Moore School of Business Data Grant.

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