Analysis of GameStop Squeeze: Short Squeeze, Gamma Squeeze, and Further Implications

ECON4450 Paper

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Abstract

In January 2021, the share price of GameStop spiked over 2400% due to a potential short squeeze. The share price spiked once more starting from February 24, but this time there was insufficient evidence to state that the short squeeze was the main cause. This study aims to provide a comprehensive overview of the GameStop squeeze event so that the audience can understand which factors played a role in causing significant share price fluctuations. The report starts with providing a fundamental overview of the business, then goes on to explain how a short squeeze and gamma squeeze are the main drivers of the two rallies that we have seen up to March 24. Finally, political and social factors are laid out to help the audience understand why the GameStop Squeeze event is unique compared to other squeezes.

Introduction

From the start of this year, GameStop's (GME) share price has experienced a wild roller coaster ride, gaining more than 2400% from $19 to over $480 in one month before falling back to a low of $38.50 the next month. A group of retail investors, after finding out the stock was short more than 140% of its tradable float by Wallstreet hedge funds, collaborated to cause a short squeeze by igniting a buying frenzy.

After the January short squeeze, many thought the share price would return to its normal level. However, on February 24, the share price doubled after weeks of meagre performance, fooling everyone who thought that the squeeze was over. From February 24 to March 11, GameStop's share price increased from $40 to $348.5. The case with GameStop is in many aspects unique compared to other short squeezes, and we attempt to provide a comprehensive overview of the case and explain how the market displayed such irrational behaviour.

To begin with, we first attempt to show that GameStop's fundamental has not changed so much to justify the sharp change in share price. Then, we explain how a large part of the January rally is caused by a conventional short squeeze. Next, we illustrate how the February – March rally was mainly driven by a gamma squeeze and not a short squeeze. Lastly, we inspect political and social factors that make the GameStop squeeze stand out from others.

It is important to notify that the GameStop event is an ongoing issue that has not seen its end yet. Thus, it is possible that the squeeze might continue to extend further in the future. However, for the purpose of our research, we assume that there will be no future events that could alter our conclusion to a significant extent. We conduct analysis of the event up to March 24, where the closing price of GameStop stock is $120.34, so price fluctuations beyond this date are not included as a part of our analysis.

Company Background Information

GameStop is a physical retail store selling video game hardware (consoles, gaming computers, accessories), software (discs), and collectibles. It currently operates 5048 stores in the regions of US, Canada, Europe, and Australia, and about 2/3 of stores are in the United States. GameStop, like all other retailers, generates the most revenue during the holiday seasons, when many products are sold on discount. The company is also known for having a unique second-hand trading market where customers can trade in used video game products for cash or in-store credit.

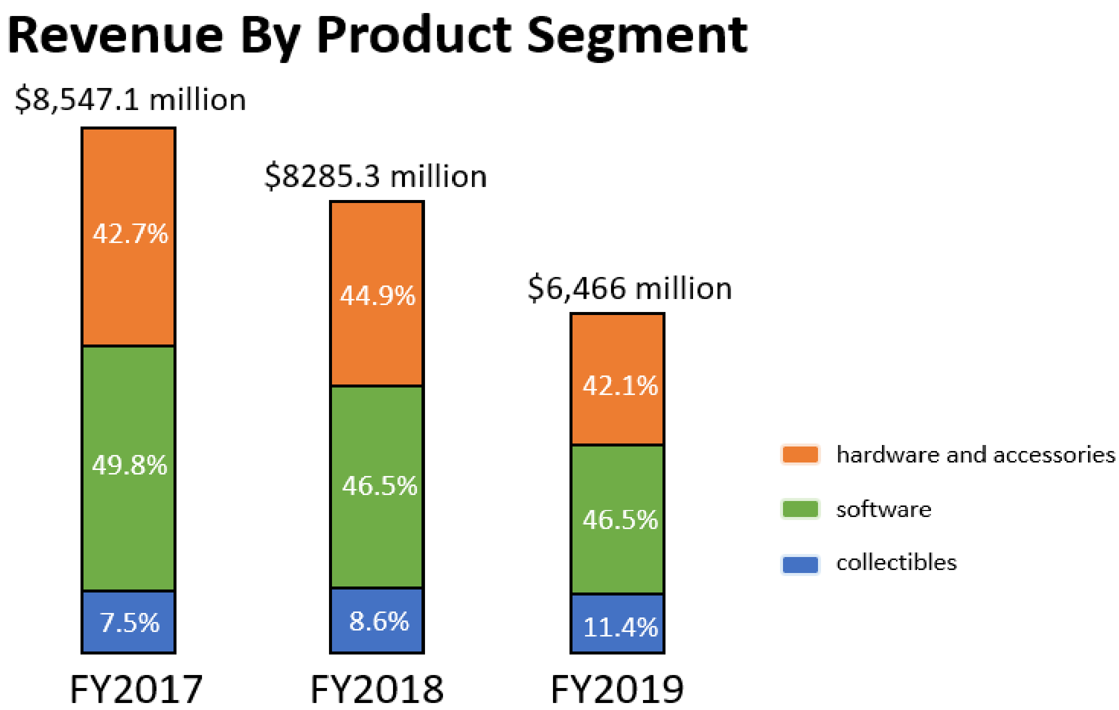

Fig 1: Dissects GameStop's revenue stream into three product segments (hardware and accessories, software, and collectibles) for the year 2017, 2018, and 2019.

GameStop, once a go-to store for purchasing video game related products, reached its peak in revenue of $9.55 billion in 2012. Since then, GameStop's business experienced gradual decline, primarily due to its failure to adapt to a rapidly changing environment where most transactions were being carried out online. From Figure 1, we see how the decline in business has started to accelerate recently, with revenue decreasing by a quarter over the 3-year period.

Realizing the severity of the situation, GameStop appointed George Sherman as the new CEO in April 2019 and implemented several strategies to revive its dying business. However, many believe GameStop's investment into e-commerce was too late for it to rebuild a strong presence and remain competitive in the market.

Timeline Analysis

To make the understanding of our analysis a lot smoother, the following event timeline analysis of what had occurred which factors into GameStop's short squeeze first needs to be addressed. As mentioned previously in the introduction, our observations will focus on the clear squeeze that had occurred from late January up and up to late February. The following are the compilations:

Figure 2: GameStop's Timeline from December 2020 to February 2021

- Jan. 11: (open: $19.35, close: $19.94, highest: $20.64, Trading Vol: 14.93M)
  - GameStop appoints 3 new directors to its board, including co-founder of e-commerce giant Chewy.

- Jan. 19: (open: $41.66, close: $39.36, highest: $45.46, Trading Vol: 74.72M)
  - Citron Research taunts $GME buyers and calls them "suckers" in Tweeter. (Figure 3)

Figure 3: Citron Research's tweet on January 19

- Jan. 22: (open: $42.59, close: $65.01, highest: $76.76, Trading Vol: 197.16M)
  - More and more retail investors pile in. With the growing support from subreddit r/wallstreetbets, the stock surges by 50%.

- Jan. 26: (open: $88.60, close: $147.98, highest: $149.97, Trading Vol: 178.59M)
  - Elon Musk tweets the term “Gamestonk” and a link to the r/wallstreetbets forum. Most short sellers stop resisting and short squeeze starts.

- Jan. 27: (open: $351.94, close: $347.51, highest: $379.80, Trading Vol: 93.40M)
  - Citron Capital and Melvin Capital, two major short position hedge funds, announces that they are closing out their position. In Twitter, Citron Research wrote “Citron will no longer publish short reports...will focus on giving long side multibagger opportunities”.

- Jan. 28: (open: $275.01, close: $193.60, highest: $481.99, Trading Vol: 58.82M)
  - Robinhood and several other trading platforms restricted transactions of several stocks, including GME. (Figure 4) They announced this decision was made “based on clearing house mandated deposit requirements” (Robinhood, 2021). The lawmakers and political figures urge trading platforms to stop restricting transactions of GME.

Figure 4: Robinhood’s tweet on January 28

- Jan. 29: (open: $379.71, close: $325.00, highest: $413.98, Trading Vol: 50.57M)
    - Most platforms allow limited transactions of GME. The SEC issues a statement stating they are "closely monitoring and evaluating the extreme price volatility of certain stocks' trading prices over the past several days".

- Feb. 2: (open: $140.76, close: $90.00, highest: $158.00, Trading Vol: 76.75M)
    - Europe and New Zealand restrict GME stock purchase.

- Feb. 4: (open: $90.81, close: $53.50, highest: $90.81, Trading Vol: 62.43M)
    - The Treasury Secretary meets with regulators to discuss whether the agencies needed to take "further action".

- Feb. 24: (open: $44.70, close: $91.71 highest: $91.71, Trading Vol: 83.11M)
    - Gamma squeeze takes place, resulting in a 104% increase in stock prices. The stock closed at $91.71 and surged up to $180 in after-market.

- Feb. 25: (open: $170.00, close: $108.73 highest: $183.99, Trading Vol: 150.31M)
    - GameStop regains attention from investors.

There may exist other events which may have played a role during our study period; however, we believe the above events are the main factors. Now that we covered an introductory background of the company as well as the time period that we will be analysing, let us move onto the actual short squeeze analysis.

Short and Gamma Squeeze Analysis

Short Selling Summarized

To understand the core of the issue involved with GameStop, one must understand the act of short-selling stocks. An investor can enter a short position in stocks if he/she believes that the future share price will decline. The investor will borrow stocks (usually from a broker) and then sell them at the market. If the price decreases, the investor will buy back these stocks at a lower price and then pay the lender back with the same number of shares, plus the borrowing fees. If we ignore commissions and borrowing fees, the total profit of a short seller can be calculated by subtracting the buying price from the initial selling price.

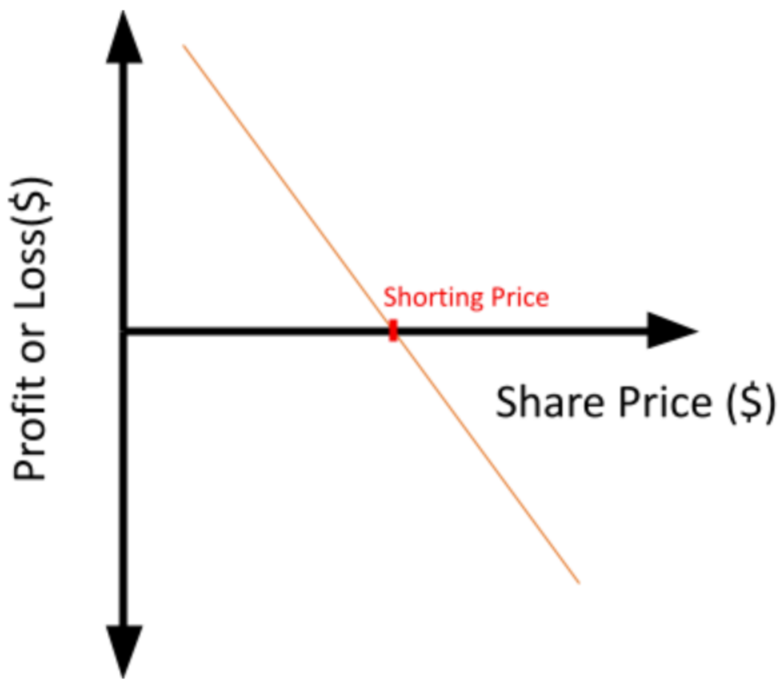

Figure 5: A profit and loss curve for a short seller of stocks

From Figure 5, we can infer that the short-seller can reap profits if the price of the share drops below the shorting price (the price at which the investor enters a short position). However, while the profits are capped because the stock price can only fall to zero, the stock price can increase without a limit, indicating that the short-seller is exposed to an unlimited amount of loss.

Short Squeeze

A short squeeze is a phenomenon in which the share price of a heavily shorted stock is being pumped upwards by investors covering their short position to limit their losses. If the share price starts to increase for some reason and short sellers feel nervous about it, they will start to cover their positions, and this will further inflate the share price. The inflated share price can trigger margin calls, in which short sellers must deliver collateral to maintain their position or be forced to cover their positions. The act of short sellers covering their positions feeds back to the loop, causing the share price to soar above unimaginable levels.

There are several factors that can cause a short squeeze. First, investors entering a short position can tolerate a certain amount of loss for some period, but they will be unlikely to hold their positions if the share price increases above levels they have not thought of. This is because unlike buying a share, short selling requires paying back the lender after a fixed period, and there are borrowing costs that add pressure to these investors. Plus, since their loss is unlimited, short sellers fear upward momentum in price, especially if they do not know when the share price will fall back. Second, a short squeeze is likely to occur for a stock with a high short interest. Short interest is defined as the number of shares that have been sold short but have not been covered yet. Extremely high short interests indicate that investors are very pessimistic about the underlying company, but it also means that an unexpected rise in stock price can cause a short squeeze of a much larger magnitude. Lastly, the floating stock is an important number that indicates whether the company is exposed to the risk of experiencing a short squeeze. Floating stock is the actual number of shares available for trade. It is derived by subtracting the number of closely-held shares and restricted shares from the number of total outstanding shares. A stock with a small float signifies that many of the shares are owned by insiders, major shareholders, and large institutions, so it is difficult for investors to find buyers or sellers. As a result, a stock with a relatively small short interest can still experience a short squeeze if the float is very small because short sellers can have trouble finding buyers to cover their position during emergencies.

GME and Short Squeeze

Taking into consideration the above factors, we will analyse how the January surge in GameStop (GME) stock price was fuelled by a short squeeze. Fundamentally, nothing significant about GameStop changed over the year, except for the fact that an activist investor/e-commerce entrepreneur Ryan Cohen and his two former Chewy (e-commerce platform) executives joined the board. GameStop's revenue declined almost 30% over the last two years, and it was continuing to shut down stores as traffic decreased immensely because of the COVID19. Hedge funds believed in the downturn story of GameStop, leading them to build more short positions on the stock.

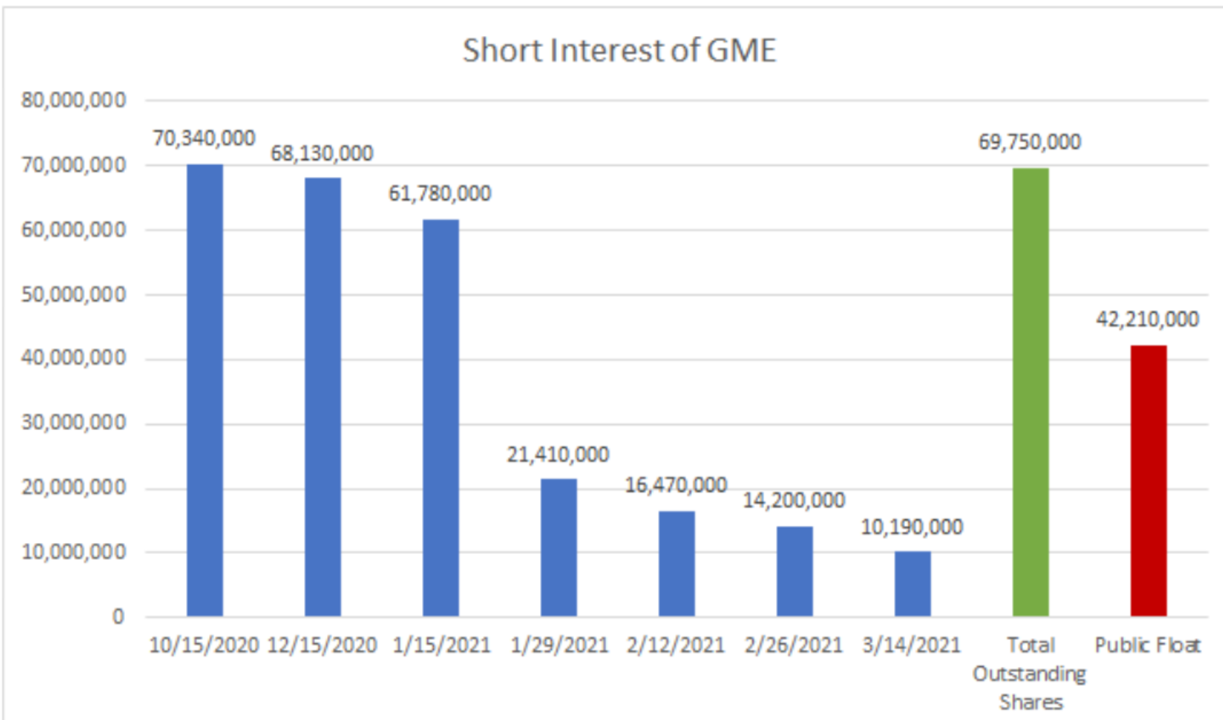

Figure 6: Short interest for selected dates, total outstanding shares, and public float of GME

As a result, its short interest reached 70.34 million shares by October 15, 2020. From Figure 6, we see the short interest was over 100% of the total outstanding shares (69.75 million) and more than 150% of the public float (42.21 million). One can ask how a stock can be short more than its total number of shares; the answer is that a share can be borrowed and lent more than once, so it can switch hands multiple times, leading to a short interest that seems extremely absurd.

Already this state indicated that a sudden surge in share price could trigger a short squeeze quite easily because short sellers would basically have to buy up the total outstanding shares and still more to cover all their positions. Few retail investors noticed this absurd short interest number and formulated a thesis that a short squeeze can occur if enough pressure is put onto the hedge funds. Plus, many viewed GameStop to be hugely undervalued, so buying GME shares was a good deal that had more upsides than downsides.

The increase in GameStop long positions by retail investors of /r Wallstreetbets, a subreddit on an online community called Reddit, led few hedge funds to publicly call out these investors. Citron Research, one of the main short sellers of GME, denounced retail investors on twitter (Figure 3) and told them “we understand short interest better than you” and dismissed the idea of a possible short squeeze.

The tweet published by Andrew Left, founder of Citron Research, added oil to fire, infuriating retail investors with his “know-it-all” attitude. The conflict between the two sides quickly escalated, and this built massive momentum, which is reflected in the daily data for volume of share transactions.

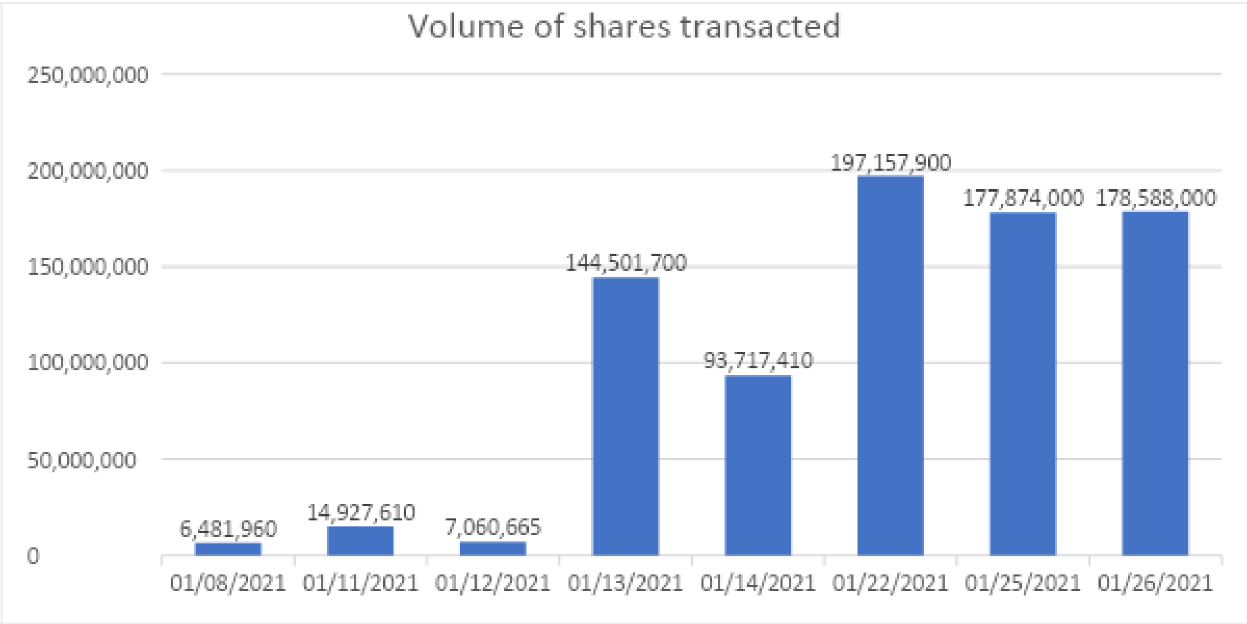

Figure 7: Daily volume of shares transacted for GME on selected dates

Before the short squeeze, the 3-month average of the daily volume of shares transacted was around 14 million. Figure 7 demonstrates that this number spiked to 144.5 million on January 13 as the share price increased by 54%. As retail investors collaborated to buy GameStop shares, the event received attention from around the world, attracting more people who wanted to hop onto the hype train. Soon after, volume exploded for three consecutive market days, reaching 197.15 million, 177.87 million, and 178.58 million respectively. Again, acknowledging the fact that public float is around 42 million, this signifies that people traded more than 13 times the public float over a three-day period. This massive momentum clearly scared off most short sellers into covering their positions; after three days of explosive volume, daily volume decreased significantly, while share price still doubled the next day.

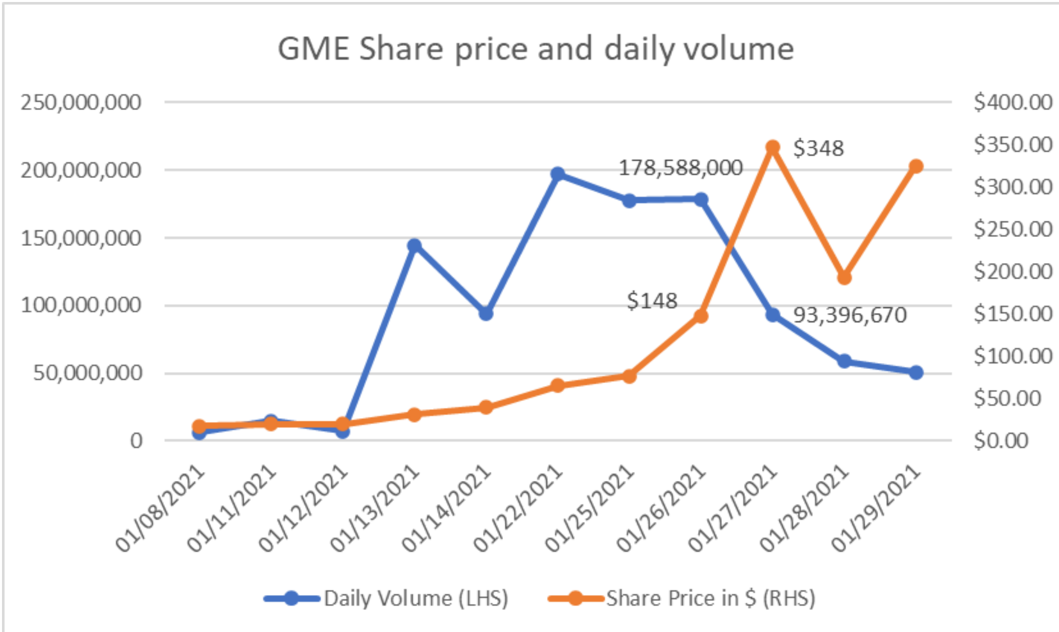

Figure 8: GME share price and daily volume transacted

From Figure 8, it is possible to theorize that most short sellers stopped resisting after the 26th and started to cover all their positions on the 27th, justifying the relatively small volume accompanied by a spike in share price. In addition, the short interest on January 29th (refer to Figure 6) justifies the above theory, as approximately 65% of the shares shorted (40.37 million) were covered over the past two weeks.

Concluding Remarks Regarding Short Squeeze

Therefore, the surge in GameStop share price was first caused by retail investors who attempted to take advantage of the absurdly high short interest on the stock. However, as conflict between hedge funds and retail investors escalated into a full-on battle between the two classes, spectators quickly jumped into the wagon and further pushed up the price, finally triggering a short squeeze of significant magnitude.

Gamma Squeeze

Up till now, we gave an analysis of what many might know of what happened at a much deeper level. However, there is a term that is being spoken of but not thoroughly understood: gamma squeeze. Though it is evident that the price surge in January was fuelled by a massive short squeeze, experts argue that there is another important factor that could have contributed to the January rally. Moreover, a second rally started on February 24th and led the price back up to $348.5 on March 10th, displaying a 700% increase from $40 in two weeks. Since the short interest was reduced to a mere 33.6% of public float (Figure 6) by February 26th, many doubts that the main cause of the second rally was a conventional short squeeze. Instead, gamma squeeze is the most popular theory that people use to explain this phenomenon; some even argue that the January price spike was more affected by the gamma squeeze rather than the short squeeze. However, there are not many studies or articles focusing on gamma squeeze, which is a financial concept that has been engineered quite recently.

Options Trading

To understand gamma squeeze, one must understand the mechanism of options trading. Options are financial contracts that can give the holder the right to sell or buy a certain asset at a predetermined price before a predetermined date. Options are traded by investors who desire to reap profits via speculative bets, take advantage of arbitrage opportunities, or hedge against risks following investment strategies. There are two types of stock options investors can trade: a call option and a pull option. A call option provides the holder the right to purchase a stock at a predetermined price at the expiration date. A put option holder has the right to sell a stock at a predetermined price at the expiration date. Since the holder is given the right and not the obligation to exercise the option, the investor is exposed to limited risks, unlike stock investors or futures traders. For this property, traders must pay a premium to buy options, which is called option premium. Thus, option traders limit their losses by the option premium and maximize their returns instead.

Market Maker

Unlike trading stocks, it is much more difficult to find buyers and sellers in the options market. Hence, there is a very high chance of a market maker providing liquidity when a trader enters his or her order. These market makers are typically brokerage firms, investment banks, and other large financial institutions that are contracted with exchanges. They are very large firms that have enough capital to finance all the orders that are being made by traders. For providing depth and liquidity to the options market, market makers are rewarded by being given the right to profit off from each transaction they make with a trader. They do so by setting an ask price, which is the price at which traders buy the option contracts from the market makers, that is higher than the bid price, which is the price at which traders sell the option contracts to the market makers. The difference between these two prices is called the bid-ask spread.

Delta Hedging by Market Makers

Because market makers usually do not enter long or short positions in the options market to bet on a specific direction in price movement, they hedge their positions to minimize risks. For instance, if they short a call option to provide liquidity, market makers are exposed to limited profits and unlimited losses, since a stock price can increase indefinitely. To hedge against this risk, they will buy the underlying shares. In contrast, if the market makers are short on put options, they will short the underlying stocks to hedge against their position. The number of shares market makers must buy or short for hedging is determined by the delta.

Delta is defined as the rate of change of the option price with respect to the price of the underlying asset (Hull 2017). A call option has a delta value that ranges from 0 to 1, while the put option has a delta value that ranges from -1 to 0. For instance, if the delta of a call option is 0.5, a 1% increase in the stock price will result in a 0.5% increase in the option price. Figure 9 illustrates how a potential delta of a stock option might change for different strike prices, given the current share price (fixed by green dash).

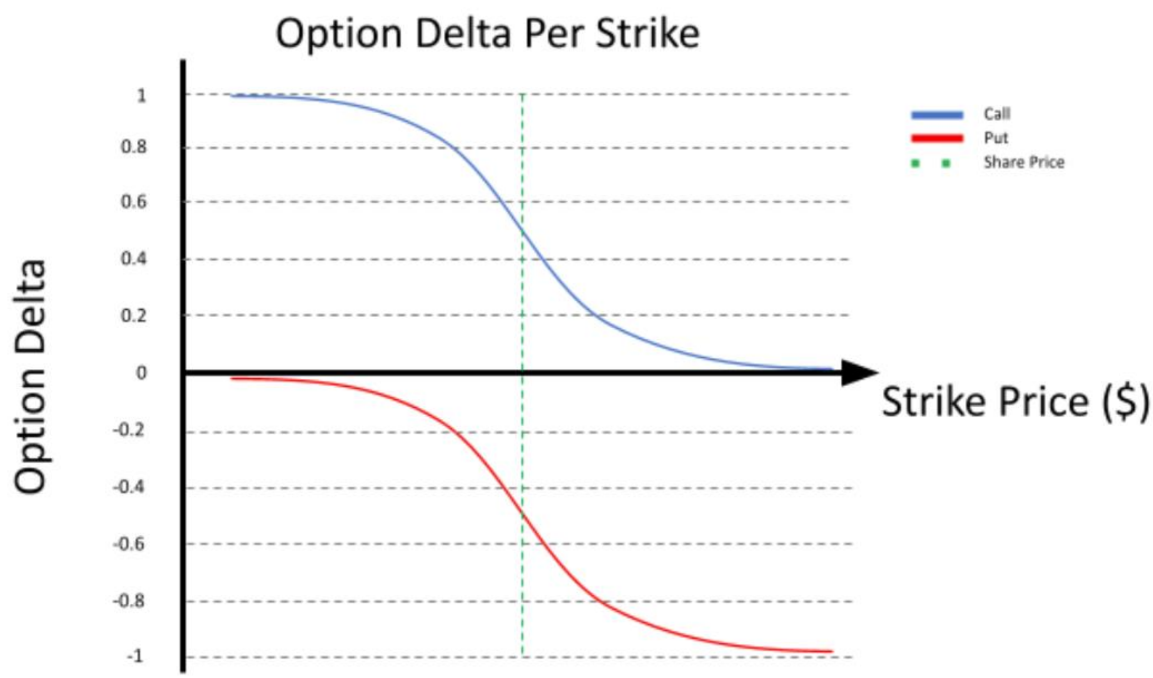

Figure 9: Options Delta Curve for call options and put options at a given share price

Consider again an at-the-money call option, in which the share price equals the strike price, with a delta of 0.5. If the market maker writes off one call option to a trader that is willing to buy, its position will change by 0.5 * 100(option multiplier) * (change in share price). For instance, a $1 decrease in the share price will result in a $50 loss for the market maker with a short position on a call option. To hedge against this position, the market maker will have to buy 50 shares, which is calculated using the equation below.

*Number of Shares=delta*option multiplier*(number of option contracts)*

By doing so, the market maker will now have a position that is delta neutral, or a position in which the delta of the stock position offsets that of the option position. However, it is important to notice that delta of an option is not constant; delta is affected by various factors including expiration date and current stock price. Thus, an investor will be perfectly hedged only for a very short period, and the investor will have to rebalance his/her portfolio frequently to maintain its delta neutral position.

Occurrence of Gamma Squeeze

To understand gamma squeeze, one needs to understand the final piece of the puzzle, gamma. Gamma is the rate of change in delta. From Figure 10, the blue curve represents the delta of the call option while the slope of the blue curve is the gamma. As the graph suggests, gamma is low in both ends of the curve, meaning that delta will change slowly as share price changes for deeply in-the-money options (stock price is well above strike price) and out-of-the-money options (stock price is well below strike price). Gamma is at its highest in the middle of the curve, where the share price equals the strike price. In other words, delta changes the fastest as the option becomes close to an at-the-money option.

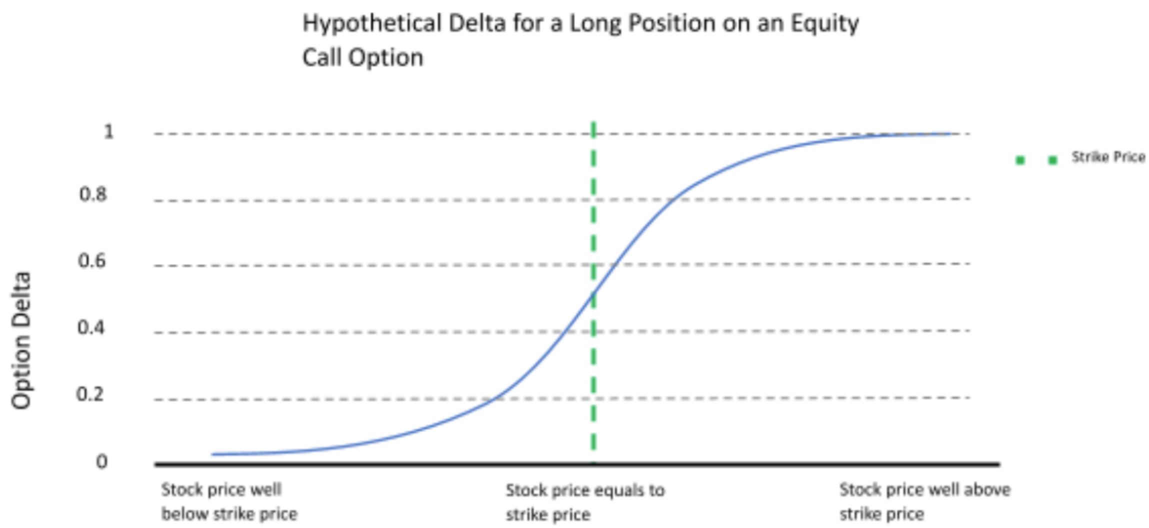

Figure 10: Option delta of a stock call option with a given strike price

Now, for investors using a delta hedging strategy, this signifies that a deeply in-the-money or out-of-the-money option turning into an at-the-money option will cause a major change in delta, so investors will have to rebalance their portfolio more often to maintain a proper delta neutral position.

Gamma squeeze is a phenomenon where the share price surges because massive call buying by the investors triggers a massive buying of the underlying stock by the counterparty that is selling the call options. The market makers are the counterparty that bear the risk of incurring unlimited losses if they do not hedge their position. They will buy the underlying shares, driving the price up. As the price increases, out-of-the-money options become at-the-money options, and during the process gamma rises sharply, as observed in Figure 10. The sharp rise in gamma signifies a faster acceleration in the increase in delta, and the market makers will have to buy more shares to maintain a delta neutral position. This feeds back to the loop and continues to apply upward pressure on the share price, effectively causing a gamma squeeze.

GME and Gamma Squeeze

This is what happened during January and February. Because out-of-the-money options are usually much cheaper, short sellers hoping to hedge their positions purchased these options. In addition, a large portion of retail investors who tried to profit off from the GameStop event bought out-of-the-money call options and hoped for the share price to increase above the strike price before expiration. Because it only cost a fraction of the actual share, retail investors were able to use a large amount of leverage to bet on the upward movement of the GameStop share price. As market makers sold more call options to investors, they had to buy more stocks to minimize their risks. Consequently, share price increased, and the likelihood of out-of-the-money options becoming in-the-money options before the expiration date increased. Delta increased significantly, pressuring market makers to buy more shares to maintain the hedge, and this led to a gamma squeeze.

Evidence of Gamma Squeeze

There is a consensus that the main culprit behind the January surge is the short squeeze, which is backed by evidence as elaborated in previous sections. However, it is very likely that the second price surge that started on February 24th was driven by a gamma squeeze, and there are two main reasons.

First, Figure 6 illustrates that short interest decreased significantly after the first rally, reaching 16.47 million 12 days before the second rally. The short interest before the second rally was lower than 40% of the public float, while the short interest was over 140% of public float before the first major rally. Thus, short sellers were not as pressured as previously when they were faced with a situation in which they could not find potential buyers to cover their positions. The most recent official number shows that short interest after the share price reached a high of $348.5 was 10.19 million, only 6.28 million less than the short interest before the second rally. Thus, we can conclude that short squeeze was not the main driver of the second rally.

Second, share transaction volume on February 24th followed quite closely the pattern of the call option volume on the same day, indicating that market makers were buying up shares as they sold call options to investors.

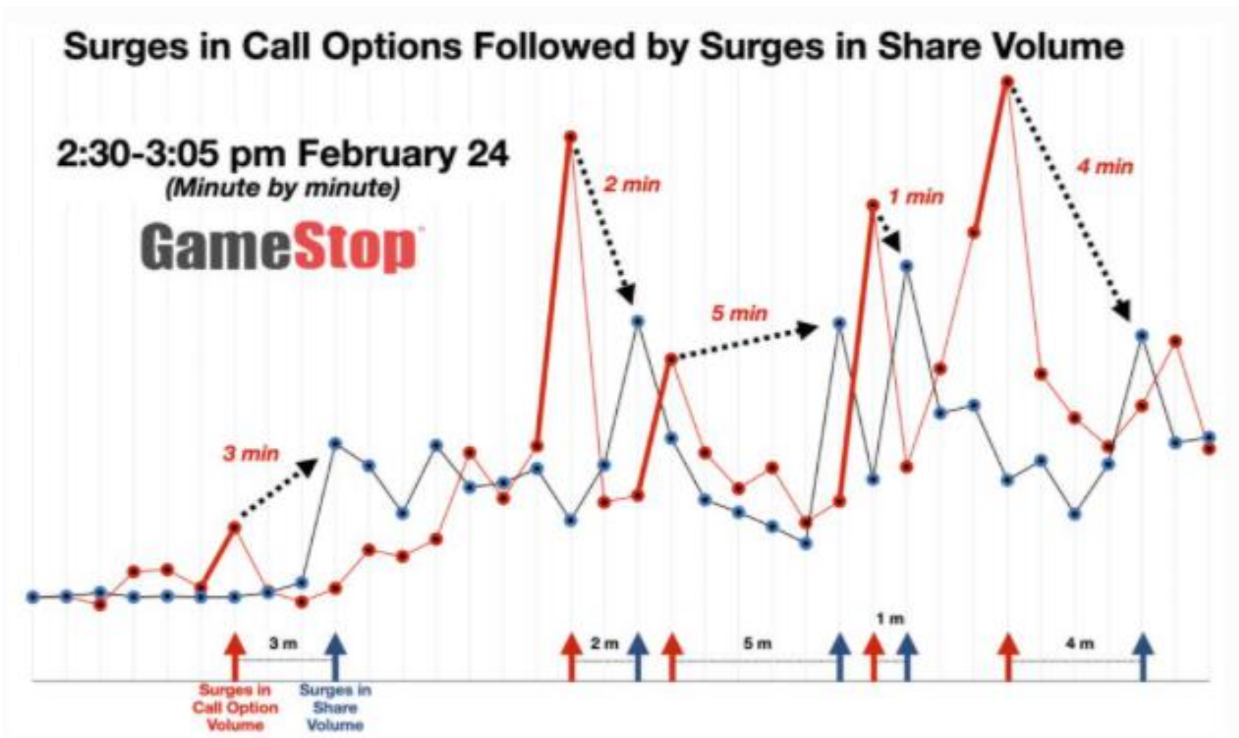

Figure 11: Call option volume superimposed on share volume during 2:30-3:05 pm on February 24

Figure 11 is a minute-by-minute comparison chart of the movements for the call option volume and share volume during 2:30 – 3:05 pm of February 24th. George Calhoun (2021) demonstrates that a spike in call option volume (in red) was quickly followed by a corresponding spike in share volume (in blue) on this day. He argues that this indicates a surge in call option volume caused market makers to respond quickly by hedging their positions through share purchases. Therefore, explosive call option volumes drove share volumes higher, which resulted in higher share price.

An important feature of the gamma squeeze is that it can force a strong selling pressure just as it can force a strong buying pressure. The reason is that the slope of the delta (figure 8) is the highest at the middle, where the option is at-the-money. If the price increases beyond this level, gamma decreases significantly, reducing the frequency of rebalancing carried out by market makers. Moreover, as option contracts are exercised, expired, or closed, market makers are not required to maintain their hedging position, which leads to a massive selling frenzy that can cause a squeeze in reverse. This feature also agrees with observations that we had made in the market, as rapid rises in the GME stock price were followed by rapid declines.

Concluding Remark regarding Gamma Squeeze

An important implication from this event is that a gamma squeeze can be engineered even with a low short interest. In addition, it seems easier to cause a gamma squeeze compared to a short squeeze because investors can spend a fraction of a dollar to buy options that let them have ownership of multiples shares. Consequently, this pressures market makers as they must respond by spending much more to hedge their position. It will be especially important in the future to check whether a gamma squeeze is repeatable in other sections of the market or is a unique event that will be marked in history.

Socio-political Factors

One element which repeatedly played a significant factor is the role of social network and the influencers, ranging from Keith Gill to US regulators. Therefore, one has to closely look at and analyse how those factors were involved in the process of the squeeze. From here onward, we will conduct our socio-political factors analysis by looking at 2 important areas: social media and regulations & intervention.

Influence of Social Media

This extravaganza was able to highlight the importance of social media's role in current and future state of the stock market. There was a significant macro factor of COVID-19 that had pushed many to desperately look for ways to make money, and GME may have lit the fuse in what may be a continuation of sudden surges in stocks backed by different social media platforms. COVID19's economic damage has continued to accumulate and due to this, many have turned to retail investing and the numbers act as evidence to support this claim. According to Reuter's Factbox, retail investors were 17.1% of the market in January 2020 and Jefferies analysts forecast that retail investors now represent up to 32% of the entire U.S. equity volume. Additionally, there are now over 100 million users and accounts combined at six of the top online brokerages such as Fidelity, Vanguard, Schwab, Webull, Robinhood and Interactive Brokers.

Many of the retail investors have little to no training regarding how to trade stocks to meet their financial goals & objectives and have the tendency to invest emotionally, seeking to maximize short term profits. With the market in such circumstances, none could be more inviting to these retail investors when groups of these individual investors decided to significantly buy large amount of GME shares as they believed it was undervalued. Furthermore, the fact that both Ryan Cohen and the famous Michael Burry both had significant positions in GME added the fuel to the fire.

However, this turned out not to be the biggest factor in the huge uprising. Surprisingly, it was the theme of David and Goliath that had motivated the retail investors to hold their positions and buy more. When retail investors discovered that bigger institutional traders and hedge funds on Wall Street had significant short positions on GameStop, hoping to tank the price further, r/WallStreetBets, with its 1 million + members, began to inform investors of how to turn the table around. A reddit user, Stonksflyingup, had posted a video explaining Melvin Capital's strong short position and how a short squeeze could be executed to blow the company up, like a nuclear reactor comparison he had done in his video. That combined with other informational posts led to pageview to break during the actual squeeze. Mashable, a technology news website, reported 73 million + in page views within 24 hours on Jan 27th and that r/WallStreetBets gained additional 500,000 users by Jan 29th. Furthermore, many known celebrities within the financial market were heavily outspoken against short selling and gave the tone of cheering on the retail investors in their crusade against big short sellers, such as Melvin Capital and Citron Research. Figures included Mark Cuban, Morgan Housel, Tyler Winklevoss, Chamath Palihapitiya and the CEO of Tesla Elon Musk, who seemed to have the most significant impact through his many tweets.

This crusade was unlike anything we had seen before and so were its result. By 28th of January, Melvin Capital lost 30% of its value and go on to lose 53% of its investments. This had led to Citadel and Point72 to rescue Melvin Capital by investing USD $2.75b. Morgan Stanley's report showed a net loss of USD $6b by short sellers and the short interest for GME fell from 114% to 39% according to HIS Markit. Ortex also reported that more than 5000 US firms were loss-making in their GME short positions and losses on short positions by U.S. firms went above USD $70billion.

Regulation & Intervention

GameStop's rise in its stock value was indeed the spotlight throughout the period but the restrictions and interventions that had occurred had also shown significant impact throughout the trading community. On Jan 28th, Robinhood, a commission-free trading platforms on the rise, placed a trading limit on GME and along with other heavily shorted stocks such as $AAL, $AMC, $BB, $BBBY, $CTRM, $EXPR, $GME, $KOSS, $NAKD, $NOK, $SNDL, $TR and $TRVG. The trade restriction was justified by Robinhood to maintain enough money to process its clearinghouse as NSCC's formula had required Robinhood to deposit USD $3billion, of which Robinhood was short USD $1billion. This had caused a huge ripple effect, leading to other major trading platforms to place similar limitations. TDAmeritrade and WeBull placed similar heavy restrictions on trading heavily shorted shares while Charles Schwab had only banned trading the heavily shorted shares on margin. Interestingly, CashApp had stated their decision to stop purchases of these shares were not of their accordance but was enforced by their clearing broker, Axos.

After the placement of restrictions, social media platforms were flooded with a common theme: 'breaching of the free market'. The place where everything started, the subreddit r/WallStreetBets, was filled with anger as people felt wronged of being robbed the right to trade freely on trading platforms while hedge funds and institutional investors were able to continue trade normally. This had led to a lawsuit being filed on Jan 28th in the Southern District of New York, accusing Robinhood of "purposefully, willfully, and knowingly removing the stock 'GME' from its trading platform in the midst of an unprecedented stock rise ... deprived retail investors of the ability to invest in the open-market" (Gonzalez & Priest, 2021).

In the political sphere, there was a split in the perspective of whether trading platforms were justified to place the restrictions. Many politicians were in favor of implementing tighter regulation on the stock market; for instance, William F. Galvin, the Massachusetts Secretary of the Commonwealth, pushed for 30 days of pausing the trading of GME. On the other side, a bi-partisan push led by Alexandria Ocasio-Cortez, Rashida Tlaib and Ted Cruz had led Vladimir Tenev to attend the hearing for Robinhood's decision. Due to a weak defense and admission of fault on Robinhood's part, the company agreed to cooperate with inquiries from federal regulators, state attorney generals and the US congress.

Robinhood's actions and hearings led to eye-opening interpretation of usage & restrictions of trading platforms, especially the commission-free ones. However, within those new understandings and interpretations, there are key takeaways that will have a significant impact on what trading platforms will be like in the future. The first takeaway is that "many a little makes a mickle". The combination of COVID-19 and free-commission platforms have led many to participate in trading. Robinhood currently has over 13 million traders and 13% of them have purchased options contracts. Two-thirds of Robinhood's revenue came from those 13% and many within this 13% consists of retail traders who have never done options trading before and many anticipate that this number will rise significantly in both Robinhood and other platforms. r/WallStreetBets started from 1 million members in Jan 2021 but soon accumulated nearly 10 million members ever since the extravaganza had begun. With 10 times the number of followers and a bigger thirst for juicy option trading, all it may require is another banner to stand by in order for its supporters to rally a bigger scale crusade.

Another key takeaway is the severity of the regulation due to this imminent danger. The focus of the regulation seems to be on the scope of 1) how trading platforms are making money and 2) what kind of options / services are available to all type of investors, ranging from professionals to those with very little knowledge. Payment for order flow has always been questioned and on the hotseat; regulators are scrutinizing it further after Ken Griffin, owner of Citadel Securities, avoided answering the question of whether all brokers are equally charged. Many within the brokerage and trading industry has been making money through payment for order flow due to industry's zero cost in commission.

Furthermore, many regulators are requesting for new rules regarding options and short positions. Allison Herren Lee, acting SEC Leader, wrote a letter to Senator Elizabeth Warren, stating that tougher requirements need to be set for brokers that offer options trading and suggesting "consider crafting regulations that require firms providing options trading to retail customers to disclose more information to those customers and more closely examine whether retail customers understand such products.” (Allcot, 2021) Additionally, she states that it should be up to the brokers to “conduct sufficient due diligence about whether individual customers qualify to trade options.” (Allcot, 2021) and that the combination of rumors and wild swings “could pose systemic risks in the future” (Allcot, 2021).

Conclusion

This paper explored the various factors that led to the historical stock price surge that happened in January and February. The stock of GameStop, a company struggling to revive its dying business, experienced two major squeezes: a short squeeze and a gamma squeeze. The short squeeze was caused by the imprudence of hedge funds that shorted more than 150% of the public float. These hedge funds overlooked the potential momentum that retail investors from r/WallStreetBets can build, with its 10 million + members uniting to cause a squeeze. In January, hedge funds surrendered, and stock prices skyrocketed as these Wall Street players scrambled to cover their positions at a huge loss.

The gamma squeeze was caused by a sudden spike in call-option buying, which forced market makers to buy large number of shares to hedge against risk. Retail investors used excessive leverage by buying relatively cheap out-of-the-money call options. As market makers sold more and more call options, they had to hedge against the risk by buying the underlying shares, which drove share price up. As share price increased, the low delta value of out-of-the-money options increased sharply, forcing market makers to buy more shares. This essentially caused a gamma squeeze, increasing share price by a factor of approximately 8 during February 24 – March 11.

One interesting information to note is that the media portrayed winners as the retail investors and the losers as the ‘big bad elite’ wall street players. Clearly, this is not the case. It is inappropriate to characterize this event as a dichotomy with clear winners and losers. Instead, we can view this event as few hedge funds betting on the short side of GME getting demolished by upward price momentum built by retail and institutional investors who wanted to avoid the fear of missing out one of the most speculative events in the stock market history. Diving deeper, we can quickly realize retail investors who bought at the highest price level hoping for the price to increase forever are one of the main victims of this short-lived event.

The combination of COVID-19 and simplified trading platforms created an environment that encouraged many retail investors to take part in this event. Also, celebrities supporting the retail investors and fear of missing out added fuel to the situation. The crusade expedited when several trading platforms placed a trading limit on GME, arousing accusations and criticisms among retail investors. However, there is a divergence in opinion on whether the trading platforms were justified to place such restrictions.

Many officials who are frightened by the recent GameStop stock price fluctuations are calling out for stricter rules for short selling. Although these people argue for tighter regulations to protect market participants, there are ample number of studies that prove short-selling is actually good for the market. Notably, Miller (1977) argues a short sale ban can lead to an overvaluation of equity prices if there is a divergence in opinion. Additionally, Diamond and Verrecchia (1987) argued that short selling can help with the asset price adjustment process, and Beber and Pagano (2013) discussed how short sale bans around the world following the 2007 -2008 financial crisis reduced market liquidity.

Additionally, some argue too much regulation could also hurt safe and risk averse methods of investing, such as index investing. Index strategy, which is essentially a buy-and-hold strategy, creates returns as closely, if not the same, as a specific index. It is a passive investment that is great for risk management and diversification. David Musto, finance professor of Wharton School of the University of Pennsylvania , argues that “asymmetrical information drives price discovery” (Wharton 2021) and that “asymmetric information [which] drives bids and asks apart” (Wharton, 2021). Any attempt to strongly regulate this “could endanger the price discovery that indexers and others depend on” (Wharton, 2021). He also states that short selling can also be a benefit for the trading system as it is the most efficient way to bring a stock value down to its true value if it has been inflated too much. Referring to the GameStop example, if shorting is not an option, many index investors would have paid sky rocketing prices into their small stock index because of the fact that the overvalued price of GameStop shares simply cannot come down due to the price change being driven externally.

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