Learning from GameStop: How Bandwagon Effect Influence Trading Decisions

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Abstract

This paper examines the short squeeze event of the GameStop stock in Q1 2021. While the GameStop event was not the sole example of the short squeeze phenomenon, there is a uniqueness in the event that it was orchestrated by individual investors (non-institutional) using online social media such as Reddit. Using fundamental analysis of the GME, we conclude several advantages and disadvantages, how to detect, and how to profit from short squeezes. Using the Dividend Discount Model and Free Cash Flow Model, it is also found that the GameStop stock is quite overvalued, which might be the reason for the increased number of short sells in GameStop's stock. We also examine some of the possible causes of the occurrence of the short squeeze in a (rather likely) efficient market. Overall, this paper gives a comprehensive exposition of the phenomenon of short squeeze through this rather rare and unique GameStop event

Abstrak

Paper ini mengkaji peristiwa short squeeze saham GameStop pada Q1 2021. Meskipun peristiwa GameStop bukan satu-satunya contoh fenomena short squeeze, ada keunikan pada kejadian ini karena didalangi oleh investor individu (non-institusional) dengan menggunakan media sosial online seperti Reddit. Dengan menggunakan analisis fundamental GME, kami menyimpulkan beberapa keuntungan dan kerugian, cara mendeteksi, dan cara mendapat untung dari short squeeze. Dengan menggunakan Model Diskon Dividen dan Model Arus Kas Bebas, juga ditemukan bahwa saham GameStop dinilai terlalu tinggi, yang mungkin menjadi alasan meningkatnya jumlah short sell pada saham GameStop. Kami juga mengkaji beberapa kemungkinan penyebab terjadinya short squeeze di pasar yang (diduga) efisien. Secara keseluruhan, tulisan ini memberikan eksposisi komprehensif tentang fenomena short squeeze melalui peristiwa GameStop yang cukup langka dan unik.

Kata Kunci: Efek Bandwagon; COVID-19; Analisis Fundamental; GameStop; Short Squeeze

INTRODUCTION

Every day, we happen to see some competitions. Take sports, for example. The probability of the professional and well-known team winning against some small makeshift team is clearly huge, as professionals are usually better equipped and have more experiences. A match where the professionals are winning is very usual. However, what if the one winning is the small makeshift team? What if a small community not knowing each other more than a month could overthrow the professionals? Can mere people win against such overwhelming odds? Could it really happen in real life?

The illustration from the previous passage can be likened to institutional and individual investors. As we know, institutional investors have an edge against the individual ones in that they possess superior analytical tools, greater networking, and more budgets. With these advantages in mind, one could quickly deduce that individual investors stand no chance against their institutional counterpart. However, what if the opposite happened? That was the case for retail investors who "triumphed" over the hedge funds who invested in GameStop shares. Long story short, a company that was almost bankrupt skyrocketed from a few dollars to over $480 on 28 January 2021 when a group of day traders decided to challenge some hedge funds who were shorting the stock. This unique yet interesting event caused a change of perspective in momentum trading.

GameStop Corporation itself is a digital-first omni-channel retailer that offers products in a form of games and entertainment not less than 5,000 stores and comprehensive e-Commerce channel across ten countries. The company's consumer product network includes a website (www.GameStop.com), a customer loyalty program (powerup rewards), Game Informer® magazine, the world's leading print and digital video game publication (www.GameInformer.com). The company's related brands are GameStop, Micromania, ThinkGeek, EB Games, and Game Informer® magazine.

A. Operating and Business Models

GameStop's business goal is straightforward and simple: Selling video-games and video-game accessories. However, no matter how simple it is, more and more customers are willing to pay less for digital content that can be otherwise downloaded from their homes. Also, the video-game industry is one of the most transient businesses that exists in today's world, where products and platforms rapidly change on the market in a short period of time. New competitors also could rise just in a matter of weeks and the distribution channels become less and less significant as technology evolves.

B. What Happened?

WallStreetBets, a group on the popular social-media forum site Reddit, was optimistic about GameStop's fortunes, which helped to push the share price higher during the end of 2020. GameStop's stock was trading at almost $20 at the end of the year. This upturn attracted the eye of Wall Street and many considerable hedge funds. However, they think that GameStop was overvalued, and so, they started to short its stock. They borrowed the stock and sell it with the anticipation that its price would fall, in which they would buy the stock again and net a profit from the capital gain.

After WallStreetBets members noticed this shorting activity, most of them schemed a plan to buy and hold GameStop stock in order to drive the stock price higher and trigger a short squeeze, which caused the stock borrowed by the hedge funds to have to be bought by them at much higher prices, ending up with a massive loss on their side. This was only the beginning. In January 20, GameStop's price had doubled to about $40 per share in just three weeks. In no more than a week, it had surged to $76. Finally, on the dawn of the 28th, it skyrocketed to a massive peak of $483. The Figure 1. shown below illustrate the six years price developments of GameStop's share price.

Source: Yahoo Finance

Figure 1. GameStop shares' price process from 2015 to early 2021

C. GameStop Timeline

- Sept 2019 ($16) - GME reports a 14.3% drop in quarterly sales. GME said it is committed to act "with a sense of urgency" to address failing areas of its business. A WallStreetBets user (DFV) posts about buying $50,000 worth of GME call options and is mocked by other users.
- Aug 2020 ($5) - GME's share price reaches an all-time low. Ryan Cohen, co-founder of e-commerce giant Chewy starts acquiring GME shares.
- Sep 2020 ($8.75) - GME's share price rises. As Ryan Cohen plans to transform GME into an Amazon competitor.
- Oct 2020 ($13.49) - GME's share price increases. Following the announcement of a strategic digital partnership with Microsoft.
- Dec 2020 ($17) - Ryan Cohen now owns approximately 13% of GME shares. GameStop reports dismal earnings. GME stock takes a tumble. GameStop shares dropped nearly 20% on the following day, closing on Dec. 9 at $13.66 a share.

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- 11 January 2021 - GameStop appoints 3 new directors to its board. Including Ryan Cohen. This news sparked some starting topics on the Reddit page r/wallstreetbets.
- 13 January 2021 ($31.40) - Stock surges more than 50%. Some traders hyped on the announcement of GameStop, and in just a matter of day, the stock closed at $31.40 per share on Jan. 13 - a spike of more than half since the announcement in Jan. 11.

- 19 January 2021 ($43.03) - Citron Research calls GameStop buyers 'suckers'. On Jan. 21, the stock closed at $43.03.
- 22 January 2021 ($96.73) - GameStop surges 50%. During afterhours and pre-market trading that weekend, the GameStop continued to climb. On Jan. 25, it opened at $96.73.
- 26 January 2021 ($354) - 'GameStonk' gets celeb backing from Elon Musk. In that very day, Chamath Palihapitiya, a high-profile venture capitalist also tweeted that he was investing in GameStop. His tweet garnered as much as 26,000 likes. Shares jumped by about 140% in after-hours trading. The stock opened on Jan. 27 at a whopping $354.83 a share. We can see the sudden jump in GameStop's share price after the tweet in the following Figure 2.

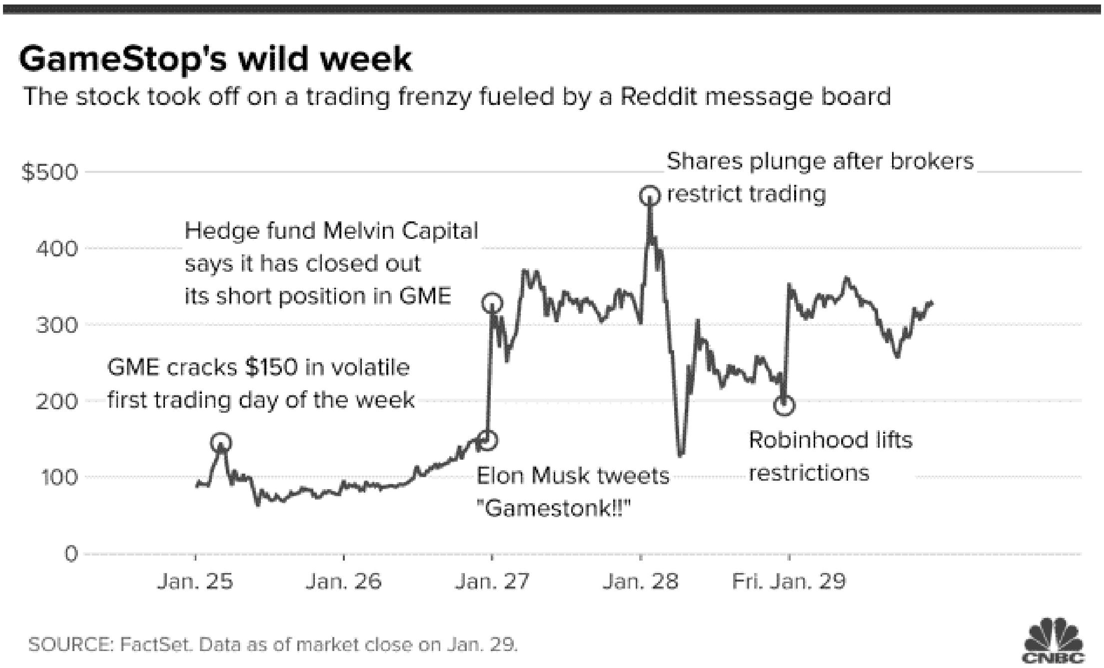
Source: Yahoo Finance

Figure 2. The candlestick and volume of GameStop Shares during the short selling.

- 27 January 2021 - Major short sellers close - at a significant loss. Citron Capital and Melvin Capital, two firms shorting GameStop stock that they were closing their positions.
- 28 January 2021 - Robinhood and other platforms restrict transactions for GME. The move sparked immediate backlash and also triggered an extremely volatile trading day - that saw shares reach their intraday peak of $483.00 - before plunging down to

$112.25 by the time markets closed.

- 29 January 2021 - SEC weighs in, trading platforms re-allow most GME transactions. it is "closely monitoring and evaluating the extreme price volatility of certain stocks' trading prices over the past several days".
- 4 Feb 2021 ($53.33) - Janet Yellen meets with regulators. Janet Yellen publicly addressed the saga saying she was meeting with regulators to discuss if the agencies need to take "further action". Before long after that, GameStop price opened at $91.19 a share. On Thursday afternoon, they closed at $53.33 a share.



Source: FactSet

Figure 3. The development of GameStop shares' price and some of the events during its wild week

D. GME Short Interest History

GameStop currently has issued a total of 69,747,000 shares. It saw a drop in short interest in the month of February. As of February 12th, there was short interest totaling 16,470,000 shares, a drop of 23.1% from the previous total of 21,410,000 shares. This change of volume can be used as a benchmark to see whether investors have positive or negative sentiment.

GAMESTOP (NYSE:GME) SHORT INTEREST HISTORY

Report Date	Total Shares Sold Short	Dollar Volume Sold Short	Change from Previous Report	Percentage of Float Shorted	Days to Cover	Price on Report Date
2/12/2021	16,470,000 shares	$1.68 billion	-23.1%	30.2%	0.5	$101.74
1/29/2021	21,410,000 shares	$1.10 billion	-65.3%	42.0%	0.7	$51.20
1/15/2021	61,780,000 shares	$11.96 billion	-13.2%	N/A	2.5	$193.60
12/31/2020	68,130,000 shares	$1.36 billion	+0.2%	N/A	5.7	$19.94
12/15/2020	68,130,000 shares	$1.18 billion	+0.2%	N/A	5.7	$17.37
11/30/2020	67,980,000 shares	$1.06 billion	+0.8%	N/A	5.6	$15.63
11/15/2020	67,450,000 shares	$1.12 billion	+1.0%	N/A	5.7	$16.56
10/30/2020	66,810,000 shares	$735.58 million	-5.0%	N/A	5.8	$11.01
10/15/2020	70,340,000 shares	$892.61 million	+2.5%	N/A	6.4	$12.69
9/30/2020	68,630,000 shares	$815.32 million	+3.3%	N/A	7.6	$11.88

Ref: https://www.marketbeat.com/stocks/NYSE/GME/short-interest/

Figure 4. GME Short Interest History

According to marketbeat, here is the comparison of companies' short interest in the sector of "retail/wholesale" with GameStop:

- Chipotle Mexican Grill, Inc. (2.83%)
- eBay Inc. (3.01%)
- Seven & i Holdings Co., Ltd. (0.00%)
- H & M Hennes & Mauritz AB (0.00%)
- O'Reilly Automotive, Inc. (1.46%)
- Yum! Brands, Inc. (1.40%)
- Tesco PLC (0.00%)
- Wayfair Inc. (0.00%)
- AutoZone, Inc. (1.78%) and
- Z Holdings Co. (0.00%).

There were a lot of financial literature that contributed to the study of the GME (the ticker name for GameStop stocks). Those researches examined various aspects of the event. For example, the textual analysis that examine its sentiment (Long, Lucey, & Yarovaya (2021)), the data panel of Google trends, (Lyócsa, Baumöhl, & Vŷrost (2021)), the abnormal returns and the anti-leverage effect that emerged during the GME market crash and their EMH violation implication (Vasileiou (2021)), as well as the analysis on the tweet counts, the influence of the ratio of put-call, the short sales, and the historical GME performance (Umar, Gubareva, Yousaf, & Ali (2021)).

E. Research Questions

From the above illustrations, several questions naturally arise. Short selling won't happen without any reason, especially in today's market where information spread quickly and equally. In reality, some new "information" announcement could steeply affect the share prices as sown in Figure 3. The risk of short squeeze also poses a threat for many investors who attempt short-selling. From there, we address the following research questions:

- What happened to GameStop and what caused this phenomenon?
- It is assumed that US market is already stable and mature, yet events and phenomena like GameStop can happen. Is this a normal and acceptable event that will always happen?
- What should stakeholders do to deal with this phenomenon?

The novelty of this research is the appliance of the DDM and FCF method in fundamental analysis to explain the short selling phenomenon. Just like a black swan effect, this study aims to explain the recent unique and rare event that people naturally will never think of happening

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II. LITERATURE REVIEW

A. Short Selling

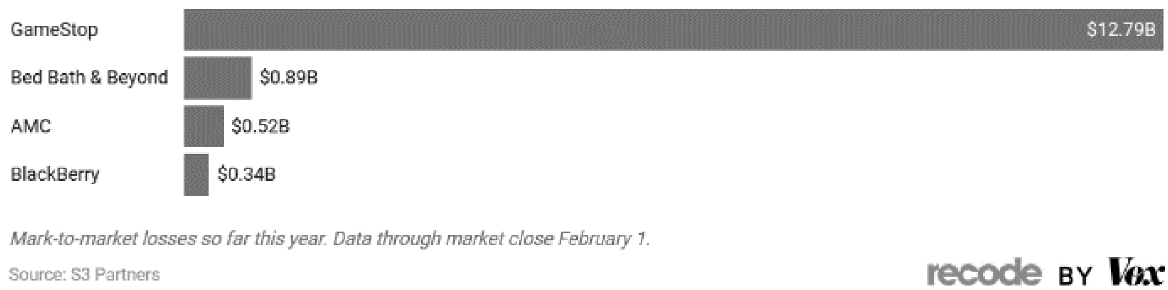
The initial case of short selling dates as far as back to 1609, which concerns a Dutch named Isaac Le Maire who was a big shareholder of the Compagnie (VOC). In 1602, he invested about 85 thousand guilders within the VOC. By 1609, the VOC still was not paying dividend, and Le Maire's ships on the Baltic courses were on the danger of being assaulted by the British ships due to the trading clashes between the British and the Dutch. Le Maire chose to sell his shares and sold them much more than he had.

The process of short selling is rather simple. First, short sellers borrow shares from a broker, then they sell the shares because they anticipate that the price will fall. When the price has been fell, they then buy the shares back at discount, returning them to the broker, and gaining profit from the price decline. This act was perceived as a magnifying effect in the violent downturn in the Dutch tulip market in the seventeenth century. Even nowadays, short sellers are disdained for betting against the continuing party. In regards to this, the short sellers defended themselves by claiming that they are only raising flags for stocks that are overvalued.

While a short selling tactic (commonly referred as "speculative short selling") could be used as a hedge against traditional investing or an aggressive play against a stock that seems to be overpriced, the perception that short sellers benefit from the misfortune of others does not change. The U.S. Securities and Exchange Commission (SEC) created an emergency ban on short selling in 2008 soon after the stocks are plummeted due to the fall of Lehmann brothers.

In the studies that primarily focus on the analysis of short selling, the implication of EMH (Efficient Market Hypothesis) is usually brought up together with it. Miller (1977), Diamond and Verrecchia (1987), Duffie, Garleanu and Pedersen (2002) and Bai, Cheung and Wang (2006) give theories which suggest that prices may not fully reflect information when agents hold heterogeneous beliefs, while some agents are prevented from trading to express those beliefs. Diamond and Verrecchia (1987) argue that rather than the prices become higher, it is just the speed of adjustment to new information that becomes slower.

Bai et al. (2006) argue that prices may actually be driven down by short sales constraints as the market knows that some information is not priced and therefore, demands a higher risk premium. In the presence of short sales constraints, Miller (1977) suggests prices will be biased upwards.



Source: S3 Partners

Figure 5. Comparison of the total investor loss during early 2021.

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Nowadays, short selling is a common tactics performed by hedge funds to earn profits from a drop in price. Some prior researches hinted that banning short selling is ineffective and has negative effects on markets. Even so, short selling is subject to criticism and usually frowned upon by society and policymakers, while proponents of short selling argue that the practice is an essential part of the price discovery mechanism.

A. Short Squeeze

A short squeeze refers to an event where stock that is heavily shorted suddenly gets positive news or some other kind of catalyst which resulted in a lot of new buyers investing in the stock. When short squeeze happens, the stock is being bought up and people who currently shorted the stock are now forced to cover their positions (getting squeezed out), which then by chain reaction results in even more buying, causing the stock to jump high up in a short span of time.

One of the most notable short squeezes, other than the GameStop phenomenon which is the main focus of this paper, centers on the stock of European brand Volkswagen. Back in 2008, Volkswagen's stock price soar by more than triple its price in just a matter of days, which made the company seemingly worth more than $400 billion, higher than the valuation of any other companies at that time.

Prior studies often refer short squeezes as a component that contributes to the cost of short sale (Danielsen and Sorescu (2001), Alia et al. (2003), Chen and Singal (2003), and Christophe et al. (2004)). The expectation of short squeezes by short sellers could explain some of the puzzling findings in past studies. For instance, D'Avolio (2002) found that about 10% of stocks are never shorted even though they are readily available shares to borrow. Lamont and Stein (2004) noted that the short squeeze fear can also explain why short interest is low during the apparent market overvaluation. Lastly, the occurrence of short squeezes could help resolving the problem on the missing of short sale constraint. D`Avolio (2002) and Geczy et al. (2002) both find that most stocks are easy to borrow and the costs of borrowing are small.

While short squeezes can't be predicted with 100% accuracy, there are factors that can contribute to the proverbial spark lit in a kerosene-soaked warehouse. These signs include:

- High short interest in a stock - Short interest is considered "high" when it rises above the 20% mark. The more it rises, the more likely for a squeeze to happen. For instance, a stock with a 48% short interest is more susceptible to squeeze than a stock with a 26% short interest.

- Low float stocks - Low float stocks are very susceptible to short squeezes due to the lack of liquidity which causes prices to spike with little volume and the inability to easily locate short inventory. Due to its low liquidity, these stocks usually belong into the hard-to-borrow (HTB) type of stocks which are expensive and limited in short inventory. The share prices become even harder to borrow as it accelerates.

- Increased volume and volatility – When a stock has high volume and large price spikes, it draws attention as the stock hits price tickers and radar screens. This invites more investors to the game as they pile into the shares, be it long or short.

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- Trapped majority - Short squeezes usually resulted with the majority being "trapped" on the wrong side of the trade and desperately escape from the situation. Both the long and short side of the trade experience this. When a short squeeze happen, there will also be longs that get trapped at the peaks trying hard to average their size and escape from their positions.

B. Bandwagon Effect

The bandwagon effect refers to a habit of adopting certain behaviors simply because many other people do the same. The more popular an idea is, the more likely people will adopt it. The first reason being that the bandwagon effect serves as a heuristic by allowing people to quickly make a decision. People tend to ignore the long process of self-evaluation and rely on others to do it for them. The more popular it is, the more likely that idea is favored, and as a result, more people will also decide to adopt it. The other reason of bandwagon effect is a fear of missing out. People are naturally avoid standing out so as not to being excluded. As a result, people support the ideas of their community. One other reason is because people simply want themselves to be on the "winning team."

In the GameStop case, the initial motivation to invest in GME was based on the perspective that GameStop was undervalued. That was when a group of retail (individual) investors realized that there was a chance for a short squeeze. If that group buys enough stocks, they would raise the stock's price enough to "squeeze" the short sellers into rebuying their stock to prevent their losses. As word got around the world wide web, more and more individual investors joined in seeing the chance to hurt hedge funds. Some also hoped to make money from the expected boost in stock price when the short sellers buy their stocks back. The short squeeze phenomenon initiated retail investors into the bandwagon effects, where more and more retail investors joining in the game.

C. Efficient Market

During the end of 1700s, some merchants made the Buttonwood Tree Agreement. They conducted daily meetings to trade stocks and bonds alike, a practice that eventually become the New York Stock Exchange. The Philadelphia Stock Exchange was formed not too long after that, reinforcing the development of the United States' financial sectors and the country's expansion. In 1896, the Dow Jones Industrial Average was created. It initially had 12 components that were mainly industrial companies

We can see that the US Stock Market is one of the oldest stock Market that is conjectured to be efficient, but why do events like that of GameStop still happen to this day? This study aims to uncover the reason with empirical fundamental analysis on why many institutional investors short sell the GameStop stock while some individual ones were holding the stock.

III. METHODS

A. Research Methods

Price is an essential consideration in stock investing. A lot of factors cause the stock price to fluctuate. The movement and the trends cannot be predicted reliably, especially on the economic turmoil situation where there are a lot of stocks that is mispriced. One way to anticipate the uncertainty of stock price movements is by doing fundamental analysis, which is a valuation on the intrinsic value of shares. By doing intrinsic valuation, investors could see a

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long-term projection on the value of the actual stock, which also means the fundamental value of the company.

In this study, valuation using fundamental analysis is conducted by applying the dividend discount model and free cash flow model to obtain the intrinsic value of price per share and comparing them to its actual value, in order to determine whether the stock was undervalued or overvalued. The following are the model and their assumptions.

DIVIDEND DISCOUNT MODEL

We employ the dividend discount model (DDM) as a method to value GameStop's stock price based on the theory that its stock is worth the sum of all of its future dividend payments, which are discounted back to their present value. The model is used to value stocks based on the NPV of the future dividends.

The most commonly used calculation, is the Gordon Growth Model (usually referred as "GGM"). It was named after Myron J. Gordon (Gordon, 1962). The model is expressed as follows:

$$P = \frac{D_1}{(r-g)} \qquad \text{eq.(1)}$$

While the variables are:
P denotes the stock's intrinsic value.
g denotes the constant growth rate in perpetuity expected for the dividends.
r denotes the constant cost of equity capital for that company / hurdle rate.
D_1 denotes the value of the next year's dividends.

We use the following assumptions:

Hurdle Rate 10%
Pessimistic: Zero Dividend Growth
Optimistic: 7.5% Dividend Growth

Optimistic conditions are viewed from the difference between industry growth and corporate management targets and is regarded as the highest growth conditions for the company. On the other hand, pessimistic condition is the condition under industrial growth and is regarded as the lowest growth condition for the company.

FREE CASH FLOW MODEL

Free Cash Flow Model uses the fair value/intrinsic value per stock that is derived from dividing the Company's Equity with its outstanding shares. The Fair value is calculated by the following formula:

$$P = \frac{Equity\ Value}{(Shares\ Outstanding)} \qquad \text{eq.(2)}$$

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We use the following assumptions:

Hurdle Rate 10%
Operating Margin = 4%
Tax = 38%
Change in NWC = 0
Current Debt = $ 1,238 million
Pessimistic: zero sales growth
Optimistic: 10% sales growth in 5 years, then 2.5% steady

B. Data

The data Source was taken from Yahoo Finance, Marketbeat, and several other market sources from 2014 to 2020. The range of the data is selected based on the saturation of the GME stock price, which did not show any sudden jumps from 2014 to 2020. This way, the bias in the analysis could be minimized. The sales, operating income, and financial ratio data were obtained, as well as the data used to calculate WACC for the equity value in the model.

B. Results and Discussion

A. Fundamental Analysis - Cash Flow

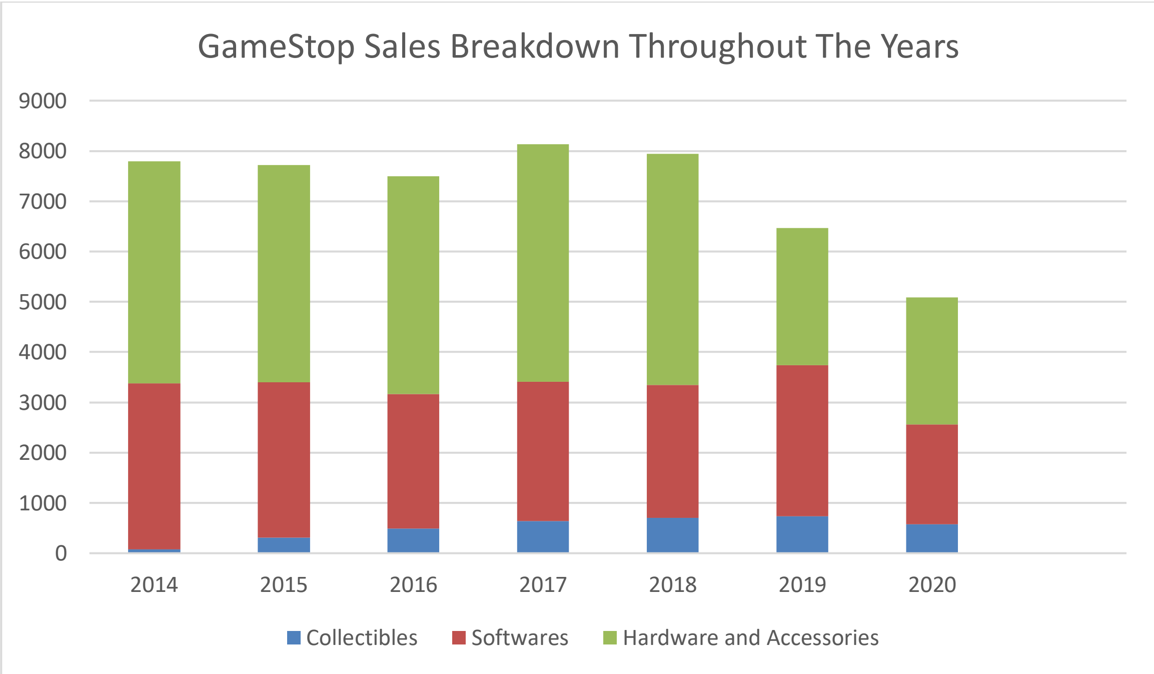

Figure 6. Sales Breakdown of GameStop Products

Figure 6. shows the stick chart of the GameStop product's sales throughout the years. From the figure, we can see that the once stable sales underwent negative trends in recent years, as evidenced by the decreasing sales in 2019 and 2020. One of the reasons of the downturn of GameStop during the Covid-19 pandemic is supported by the fact that as a

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physical retailer, it still relies on non-digital product sales, which accounts for the majority of the product sales.

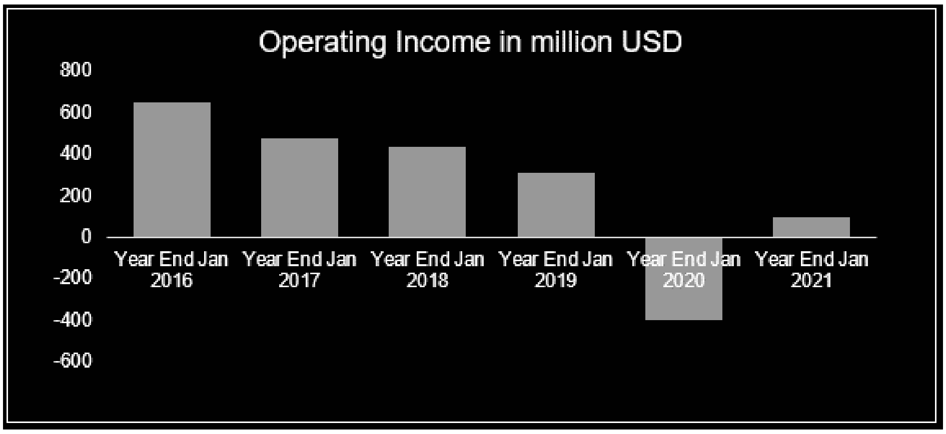

Figure 7. GameStop Operating Income.

The GameStop's operating income over 6 years is exhibited in Figure 7. It generally shows declining trend that culminated in 2020, which is when its operating income went negative. This could be explained with the fact that GameStop's sales comprised mainly of tangible products (Hardware, Accessories, and Collectibles), so they are affected negatively by the COVID-19 Pandemic.

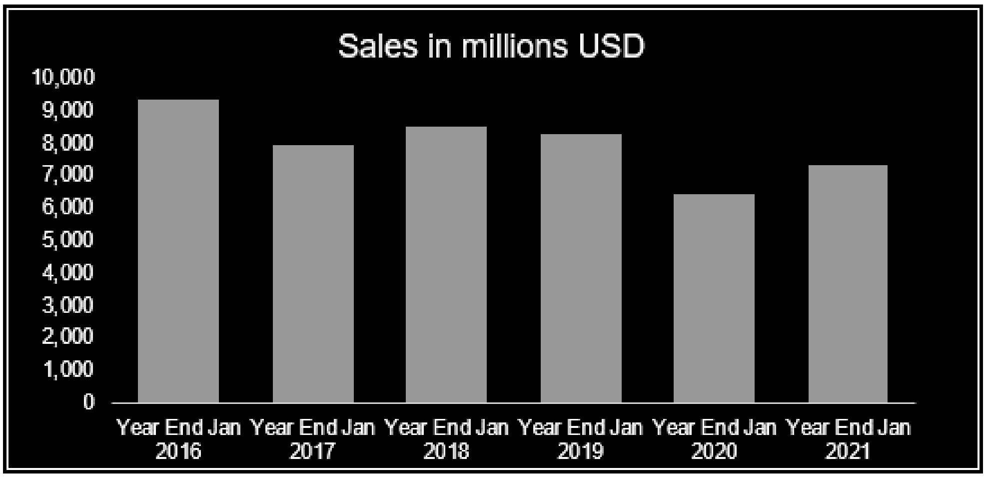

Figure 8. GameStop Sales

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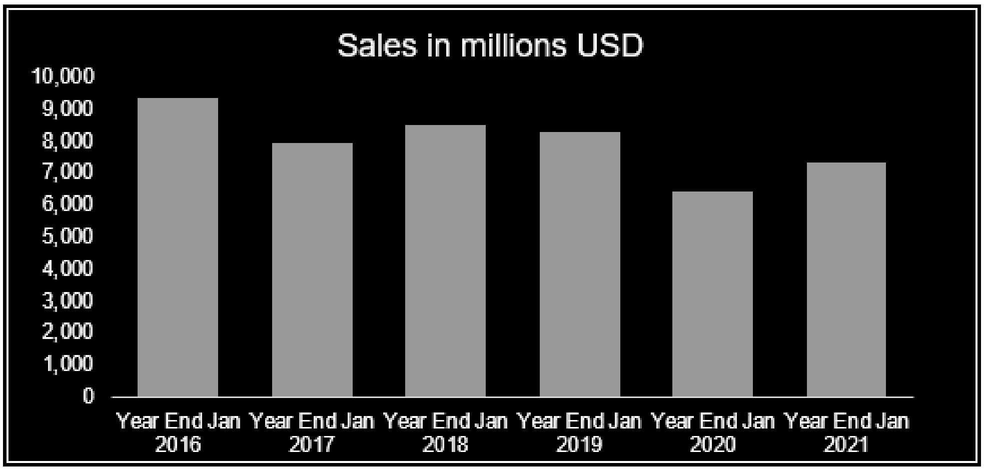

Figure 9. GameStop's Free Cash Flow

Figure 8. and Figure 9. both exhibit the sales and the free cash flow of GameStop, respectively. Similar with the operating income diagram, the trend tends to be declining until 2020, which starts to move up again in 2021. This downturn in 2020 could be the reason of why there were a lot of mutual funds that are willing to short sell the GME stocks. They might anticipate the price to go lower so they can rebuy the stock at discount.

B. Fundamental Analysis - Financial Ratios & Dividend

Table 1. GameStop's Dividend Per Share and Dividend Yield

	DIVIDEND PER SHARE	DIVIDEND YIELD
2014	1.32	3.91%
2015	1.44	5.14%
2016	1.48	5.86%
2017	1.52	8.47%
2018	1.52	12.04%
2019	0.38	12.5%
2020	-	-

Table 1. Shows the development of GameStop's dividend per share and dividend yield. A steep drop in 2019 in dividend per share might be caused by the official announcement which stated that its Board of Directors has declared a quarterly cash dividend, announced its intention to retire the company's $350 million 2019 notes, and approved a new share repurchase authorization. This was a 2 for 1 split, meaning for each share of GME owned pre-split, the shareholder now owned 2 shares.

The followings are the other information and financial ratio that we managed to find during the calculations.

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Shares Outstanding	= 69.75 million
Current Market Price	= $ 260
Earning per Share	= $ -4.22
Price per Earning	= minus (not relevant)
Profit margin	= -5.32%
Total Debt/Equity	= 347.71
Current Ratio	= 1.05
Book Value/share	= 5.09

C. Fundamental Analysis - Valuation

We valuate the intrinsic value of GME shares using two methods: Dividend Discount Model and Free Cash Flow Model. Both methods also calculate two scenarios: Pessimistic and Optimistic. Pessimistic condition is when we assume that GME will have little or no dividend growth after the event, and optimistic condition is when we assume that GME will have significant growth after the event.

DIVIDEND DISCOUNT MODEL

Assumption:

1. Hurdle Rate r =10%
2. Pessimistic: Zero Dividend Growth
3. Optimistic: 7.5% Dividend Growth

Stock Value = (Dividend/Share)/(Hurdle Rate-Growth)
Or,

$$P = \frac{D_1}{r - g}$$

Where P denotes the stock's intrinsic price, D_1 denotes the value of next year dividend, r denotes the constant cost of equity capital, and g denotes the constant growth rate in perpetuity.

Because the dividend value of the previous year is $0.38, the value of the next year dividend is calculated by the following formula:

$$D_1 = 0.38(1 + g)$$

Now, calculating the stock value for both the pessimistic and optimistic condition using the assumption that in pessimistic condition, there is zero dividend growth (or in other words, $g = 0$), and in optimistic condition, there is 7.5% dividend growth ($g = 7.5\%$).

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Pessimistic condition:

$$P = \frac{0.38(1 + 0)}{0.1 - 0} = 3.8$$

Optimistic condition:

$$P = \frac{0.38(1 + 0.075)}{0.1 - 0.075} = 16.34$$

And thus, we obtained the following intrinsic stock value.

Pessimistic = \$3.8/share
Optimistic = \$16.34/share

It is noted that the actual price per share of GME stock is constantly above \$16.34 since December 2020. By comparing the fair value with the actual price per share, we can see that both scenarios (optimistic condition and pessimistic condition) conclude that the stock was overvalued. This might be the reason why a lot of institutional investors shorted the stock. They anticipated the price to go lower so they can sell the borrowed stock for a lower price.

FREE CASH FLOW MODEL

Assumption:
1. Hurdle Rate (WACC) $r = 10\%$
2. Operating Margin = 4%
3. Tax = 38%
4. Change in NWC = 0
5. Current Debt = \$ 1,238 million
6. Pessimistic: zero sales growth
7. Optimistic: 7.5% sales growth in 5 years, then 2.5% steady

We use the following formula to calculate the firm value,

$$Firm\,Value\ = \frac{FCFF_0(1\ +\ g)}{WACC - g} = \frac{FCFF_1}{WACC - g}$$

Where $FCFF_1$ denotes the free cash flow to firm expected next year, WACC is the weighted-average cost of capital and g denotes the growth rate of FCFF. The calculated free cash flow to firm ($FCFF_0$) in current year is 207.79 million.

Pessimistic condition:

$$Firm\,Value\ = \frac{207.79M(1\ +\ 0)}{0.1 - 0} = 2077.9M$$

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Then we calculate the Value of Equity (V_e) by subtracting the Firm Value (V_f) with the Value of Debt (V_d)

$$V_e = V_f - V_d$$

Because market value of debt is $1,238 million, value of equity is $839.85 million, as the calculation imply

$$V_e = 2077.9 - 1238 = 839.9$$

GME Shares Outstanding = 76.35M

Per share intrinsic value:

$$P = \frac{839.9}{76.35} = 11$$

Optimistic condition:

Calculating similarly like above,

$$Firm\,Value = \frac{207.79M(1 + 0.075)}{0.1 - 0.075} = 8720.3M$$

$$V_e = 8720.3 - 1238 = 7482.3$$

$$P = \frac{7482.3}{76.35} = 98$$

So,
Pessimistic = $ 11/share
Optimistic = $ 98/share

The result of Free Cash Flow Model varies by the scenario. Under pessimistic condition, the stock price was overvalued, because our benchmark is the real value of $15/share. However, the optimistic condition imply that the stock was undervalued, believing that the intrinsic price is not less than $98 per shares.

Overall, we conclude that under pessimistic condition (when it is assumed that GME will have little to no dividend growth), the stock price was overvalued, as evidenced by the two methods. However, under optimistic condition (when it is assumed that GME will have significant growth in their dividend), the dividend discount method treats the actual price as overvalued while the free cash flow model treat the actual price as undervalued. This discrepancy in the analysis according to sentiments might be one of the reasons why some investors short the stock while some hold it.

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IV. RESULTS & DISCUSSION

The fundamental analysis of GameStop's cash flow and Valuation both show the reason why some investor shorted the GME stocks. As a physical retailer, it is natural that people see GameStop share to go bearish during the pandemic. Therefore, some investors planned to borrow the stocks from broker, sell them, rebuy it again with a lower price, and return the stocks to the broker. However, the herding activity from redditors caused a bandwagon effect that instead skyrocketed the GME stock price.

Fundamentally, taking short position on a stock is the same as long position, which is taking action based on the estimated value (either current or the future) of a particular company compared to its current market price. Long position allows undervalued companies' market price to appreciate and closing the gap between price and value. The same is also true for short position, which allows overvalued companies' market price to decrease and close the gap between price and value.

Even though the US Stock Market is one of the oldest stock Market, events like that of GameStop still happen to this day, the possible causes might be because:

- Not every stock in the market is the same (in terms of liquidity, completeness of public information)
- Investors sometimes behave irrationally (due to cognitive biases, herd mentality, etc). This prevents the market to behave efficiently, allowing this event to occur repeatedly.

VI. CONCLUSION

To conclude, as a result of the retail traders refusing to sell their shares of stock, short-sellers began losing money, which caused the value of shares to increase significantly. That is what happened to GameStop. This phenomenon created what is known as a short squeeze. Although rare, this is not the first time a short squeeze has occurred. As Volkswagen in 2008 also experienced similar problem.

Short selling is unlikely to happen in Indonesia, as the practice is banned by the Indonesian Stock Exchange (IDX). One of the reasons of the adoption of this regulation is the increasing number of young retail investors in the stock market, according to Laksono Widodo of the Indonesia Stock Exchange. However, the phenomenon can still, and very likely, will happen in Indonesia should the Indonesia Stock Exchange lifts the ban. In fact, the short sell ban has been frozen since March 2020 when the Covid-19 pandemic began. Just shortly after the GameStop event, IDX confirmed the extension of the short sell ban to an undetermined time limit. The rules for prohibiting short sells made this phenomenon minimal to see in Indonesia. While a short sell can be done at any price in the US stock market, that is not the case in domestic market.

Short squeezes can pose as either an opportunity or as a threat for traders. A short-squeeze is good for us if we are long a stock or own a call option on it. On the other hand, a short-squeeze is bad for us if we are short a stock or own a put option on it.

Some takeaways regarding short squeezes are as follows:

Takeaway #1: Short squeezes typically don't last long.

Takeaway #2: The price movement we have already witnessed in GameStop is the most

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dramatic short squeeze we have seen in 20 years.

Takeaway #3: Short squeezes end when a violent reversal day breaks the upward momentum.

Takeaway #4: When a short squeeze runs out of gas, the reversal is fast and severe.

Some indications to detect short squeezes are by looking for high short-interest as a percentage of float, high days to cover, rising price trend, spiking volume, and some kind of good news regarding the stocks.

Profiting from short squeezes is a bit tricky. By making a trade based on a belief that there is a short squeeze happening, we could buy the stock or buy a call option on the stock. It's better to try to avoid short squeezes if we are selling stocks short or buying puts. If we are going long stocks or buying calls, we should look for short squeezes as an opportunity.

Recognizing Short Squeezes earlier occurrence is a better way to avoid losing in stock market. As mentioned before, there are some indicators/signals to detect short squeezes such as high short interest as a percentage of float, high days to cover, a rising trend, significant increase in volume, some kind of "good news", or even something that makes traders to be less pessimistic about the stock.

Buying a call option on the stock is a way to go. If the price continues to rise, we can then use this option to purchase the stock at a lower price and then sell it at a higher price, or alternatively, we can just sell the option to someone else at a higher price than when we bought it at. Money is a tool. Using it properly is the key to make things beautiful, while using it wrongly will make it messy. Lastly, we should choose our investments wisely and invest them in a long term.

VII. LIMITATIONS AND SUGGESTIONS

This study is limited to examining the reason of GameStop short selling and how to anticipate such events as an investor. The behavioral part of the event could be exposed with different approach. Other industries might have different benchmark for the assumptions of optimistic and pessimistic condition. Therefore, future research could be conducted that examine the implications of short selling history to the prospect of the company itself. Alternatively, a longitudinal study using panel data could be conducted to see the differences between a share that is short sold and a share that is not, as an additional insight for investors and stakeholders.

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