THE GAMESTOP FRENZY: LESSONS AND CONSEQUENCES

The Redditors' Revenge on Hedge Funds

A Story for the ages…

- The Big Story: The last few days have been filled with news stories of how small investors, brought together on online forums, have not only pushed up the stock prices of the stocks that they have targeted (GameStop, AMC, BB etc.), but in the process, driven some of the hedge funds that have sold short on these companies to edge of oblivion.
- David vs Goliath? The story resonates because it has all of the elements of a David versus Goliath battle, and given the low esteem that many hold Wall Street in, it has led to sideline cheerleading. As with everything in life, this story has also acquired political undertones, as populists on all sides, have found a new cause.
- My perspective: I don't have an axe to grind in this fight, since I don't own GameStop or care much about hedge funds, but I am interested in how this episode will affect overall markets and whether I need to change the ways in which I invest and trade.

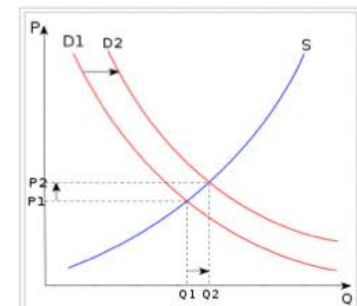
Price versus Value

Value versus Price

Drivers of intrinsic value
- Level of cash flows
- Growth in cash flows
- Risk in cash flows

Drivers of price
- Market moods & momentum
- Surface/small stories & rumors
- Liquidity (transaction costs/ease)

Demand and Supply



Value of cashflows, adjusted for time and risk

INTRINSIC VALUE

Value

THE GAP
Is there one?
Will it close?

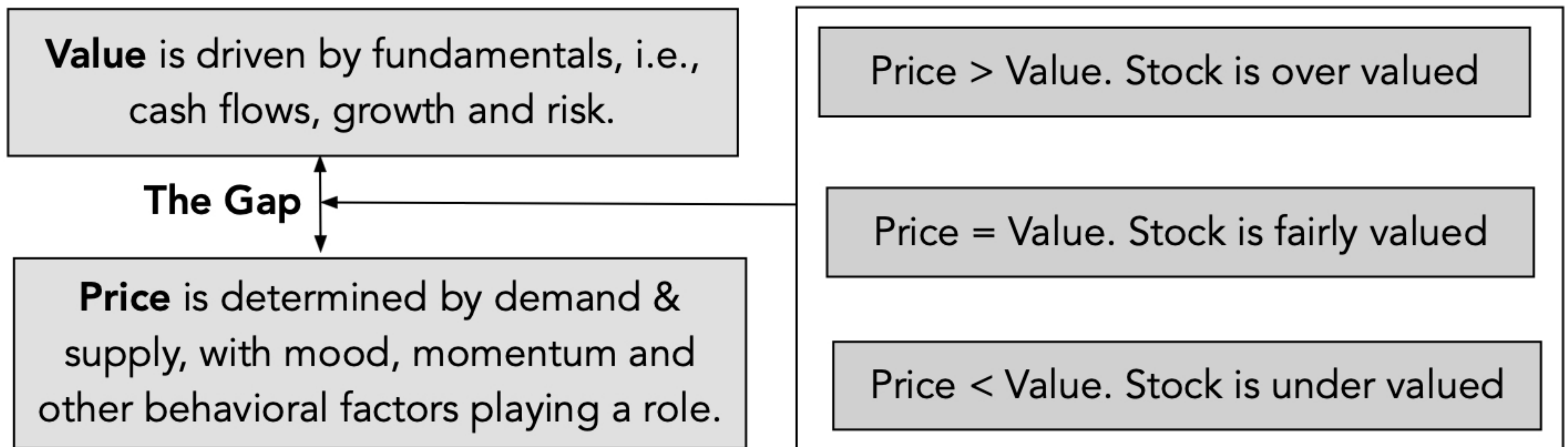
Price

PRICE

Intrinsic valuation models that try to forecast future cash flows & adjust for risk.

Pricing history as well as pricing of "similar" or "comparable" investments

Price, Value and the Gap



Short Sales: A Quick Introduction

- The Long: When most of look at investing, we think of stocks that we believe (based upon research, instinct or innuendo) will go up in value and buying those stocks.
  - In investing parlance, if you do this, you have a "long" position.
- And Short of it: But what if you think a stock is too highly priced and is likely to go down? If you already own the stock, you can sell it, but if you don't have a position in the stock and want to monetize your pessimistic point of view, you can borrow shares in the stock and sell them, with an obligation to return the shares at an unspecified point in time in the future.
  - This is a “short” sale, and if you are right and the stock price drops, you can buy the shares at the now "discounted" price, return them to the original owner and keep the difference as your profit.

Short Sellers: Much maligned, and unfairly so..

- **Short sellers have never been popular in markets**, and that dislike is widely spread, not just among small investors, but also among corporate CEOs, and many institutional investors.
  - In fact, this dislike shows up not only in restrictions on short selling in some markets, but outright bans in others, especially during periods of turmoil.
  - I don't believe that there is anything inherently immoral about being a pessimist on markets, and that short selling serves a purpose in well-functioning markets, as a counter-balance to relentless and sometimes baseless optimism.
- In fact, mathematically, all that you do in a short sale, relative to a conventional investment, is reverse the sequence of your actions, selling first and buying back later.

A Short Squeeze

- It is true that short sellers face a problem that their long counterparts generally do not, and that is they have far less control over their time horizons.
- While you may be able to sell short on a very liquid, widely traded stock for a longer period, on most stocks, your short sale comes with a clock that is ticking from the moment you initiate your short sale.
  - Short sellers often try to speed the process along, going public with their reasons for why the stock is destined to fall, and they sometimes step over the line.
  - While short sellers wait for the correction, they face multiple threats, some coming from shifts in fundamentals and some from investors with a contrary view on the stock, buying the stock and pushing the stock price up.
  - There stock price increases force them to buy back shares in the market to cover their short position, in the process pushing prices up. In a short squeeze, this cycle speeds up to the point that short sellers have no choice but to exit the position.

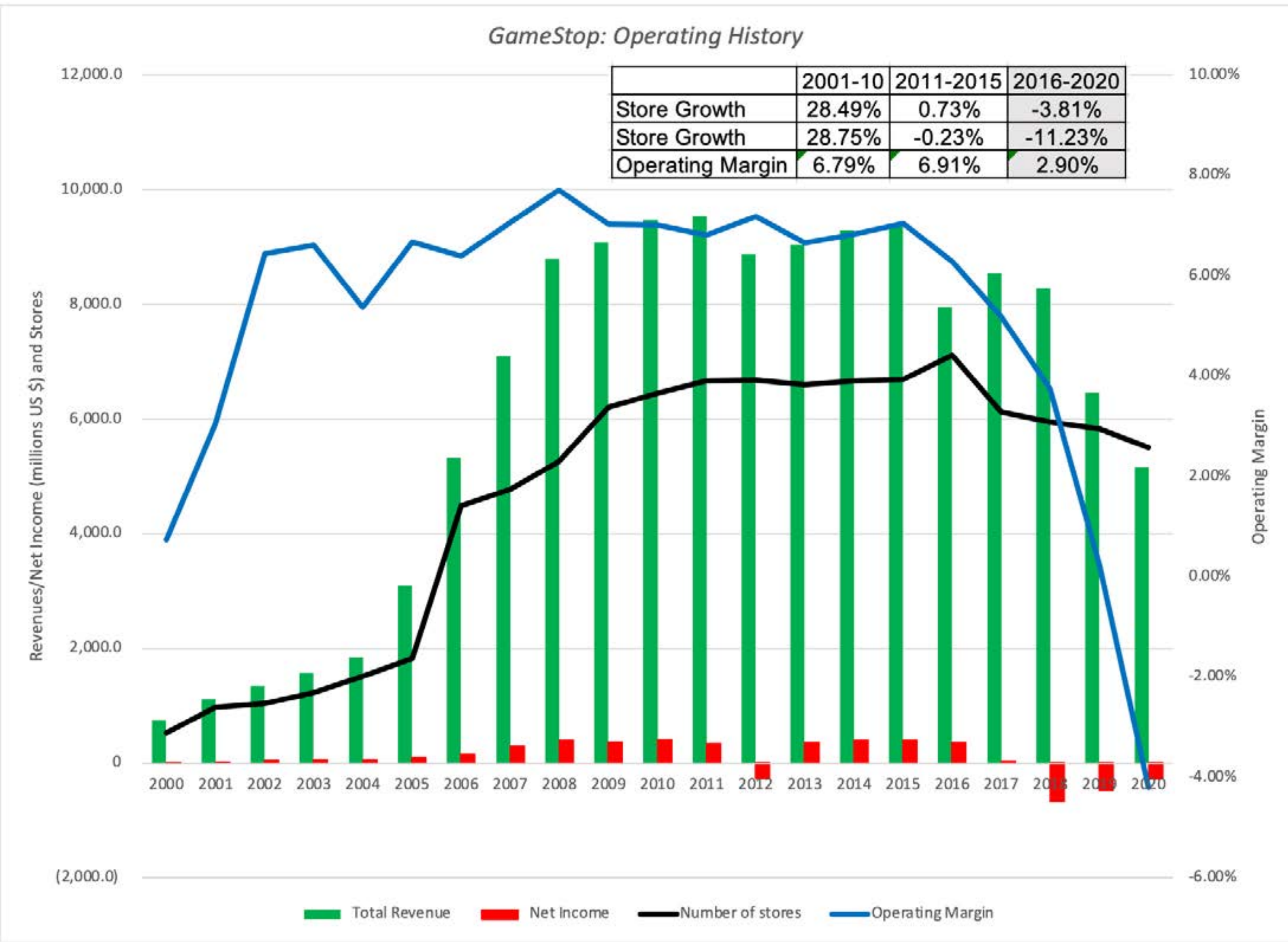
A Short History of Short Squeezes

- Its not new: In 1862, Cornelius Vanderbilt squeezed out short sellers in Harlem Railroad, and used his power to gain full control of the New York railroad business. In 1923, Clarence Saunders, the founder/lead shareholder in Piggly Wiggly, the grocery company, squeezed short sellers, won the battle, but lost the war.
- And not just the US: The short sale with the largest dollar consequences was the one on Volkswagen in 2008, when Porsche bought enough shares in Volkswagen to squeeze short sellers in the stock, and briefly made Volkswagen the highest market cap company in the world.
- With large players as squeezers: Until this decade, though, most short squeezes were initiated and carried through by large investors on the other side of short sellers, with enough resources to force capitulation.
- Until the last decade: The game has changed, and the company where this changed dynamic has played out most effectively has been Tesla. In the last decade, there have been at least three and perhaps as many as five short squeezes on Tesla, with the most recent one occurring at the start of 2020. With Tesla, individual investors who love the company have been at the front lines in squeezing short sellers, but they have had help from institutional investors, either true believers in the company, or too greedy not to jump on the bandwagon.

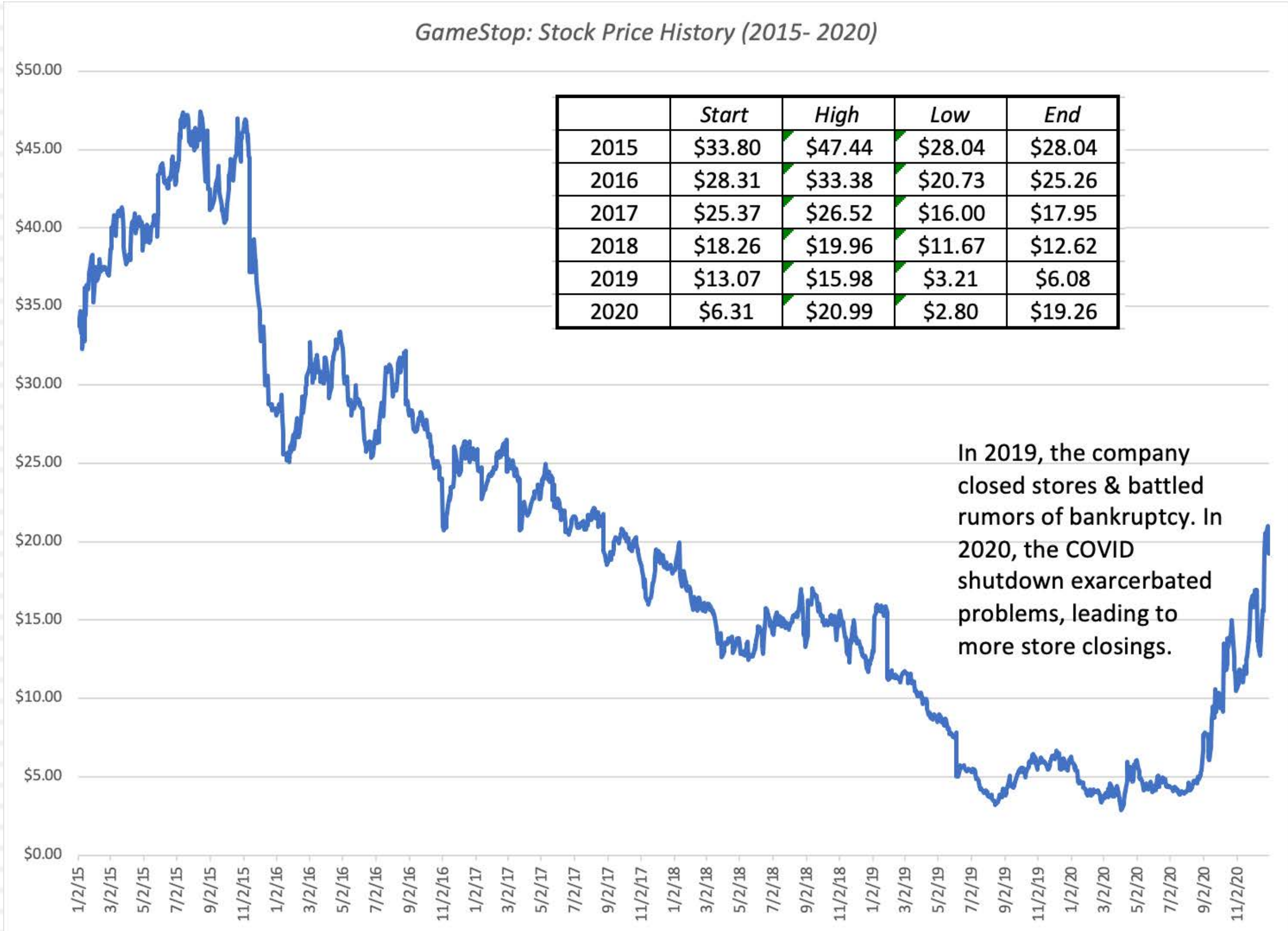
The GameStop Story

Nostalgic?

The Back Story

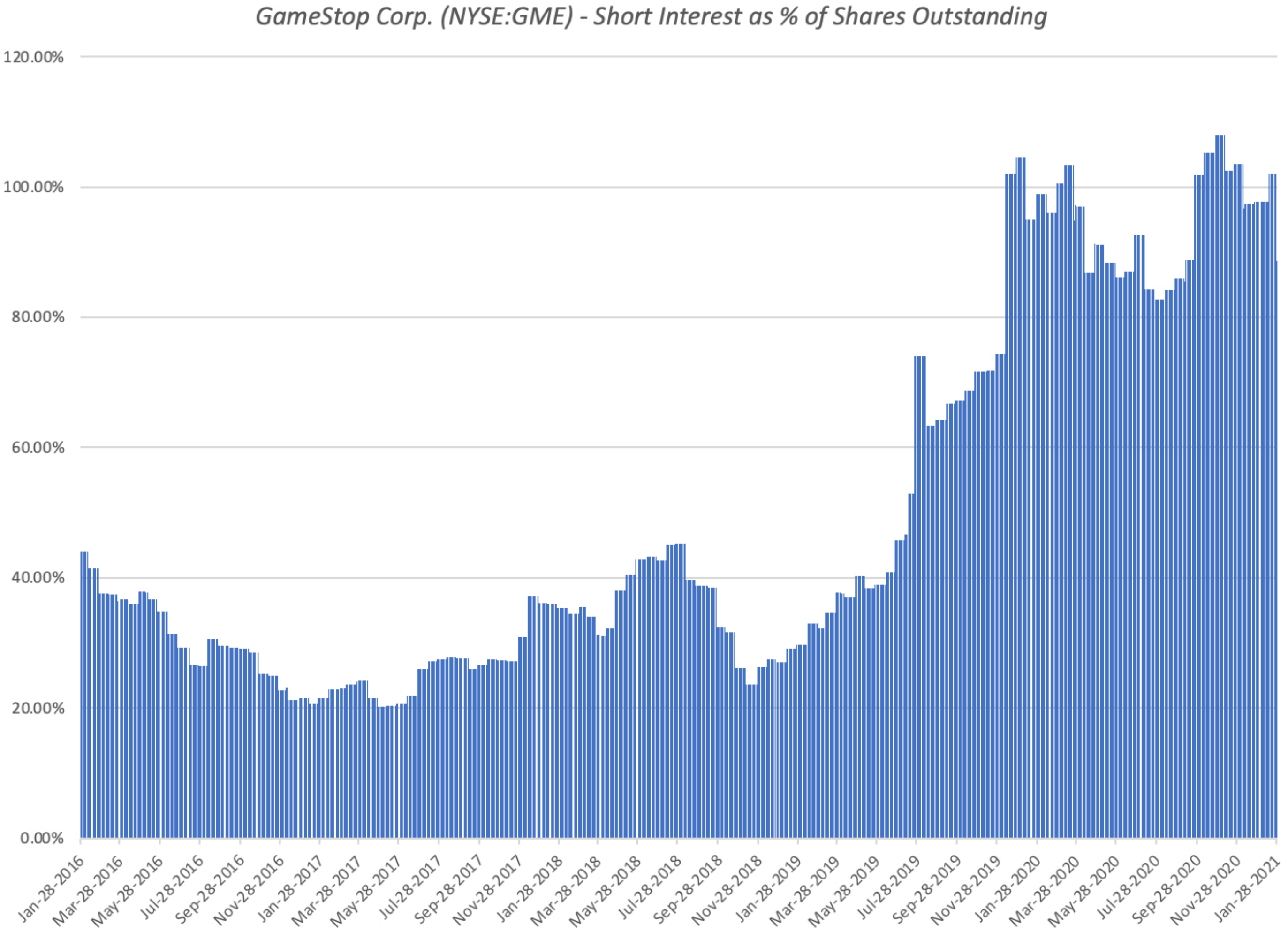


The COVID Effect..



	Start	High	Low	End
2015	$33.80	$47.44	$28.04	$28.04
2016	$28.31	$33.38	$20.73	$25.26
2017	$25.37	$26.52	$16.00	$17.95
2018	$18.26	$19.96	$11.67	$12.62
2019	$13.07	$15.98	$3.21	$6.08
2020	$6.31	$20.99	$2.80	$19.26

The Congregation of Short Sellers..



The Crowds rise up…

Roaring Kitty @TheRoaringKitty · Jan 19

$GME 40 LIVE STREAM TONIGHT AT 7ET 🚀🚀🚀

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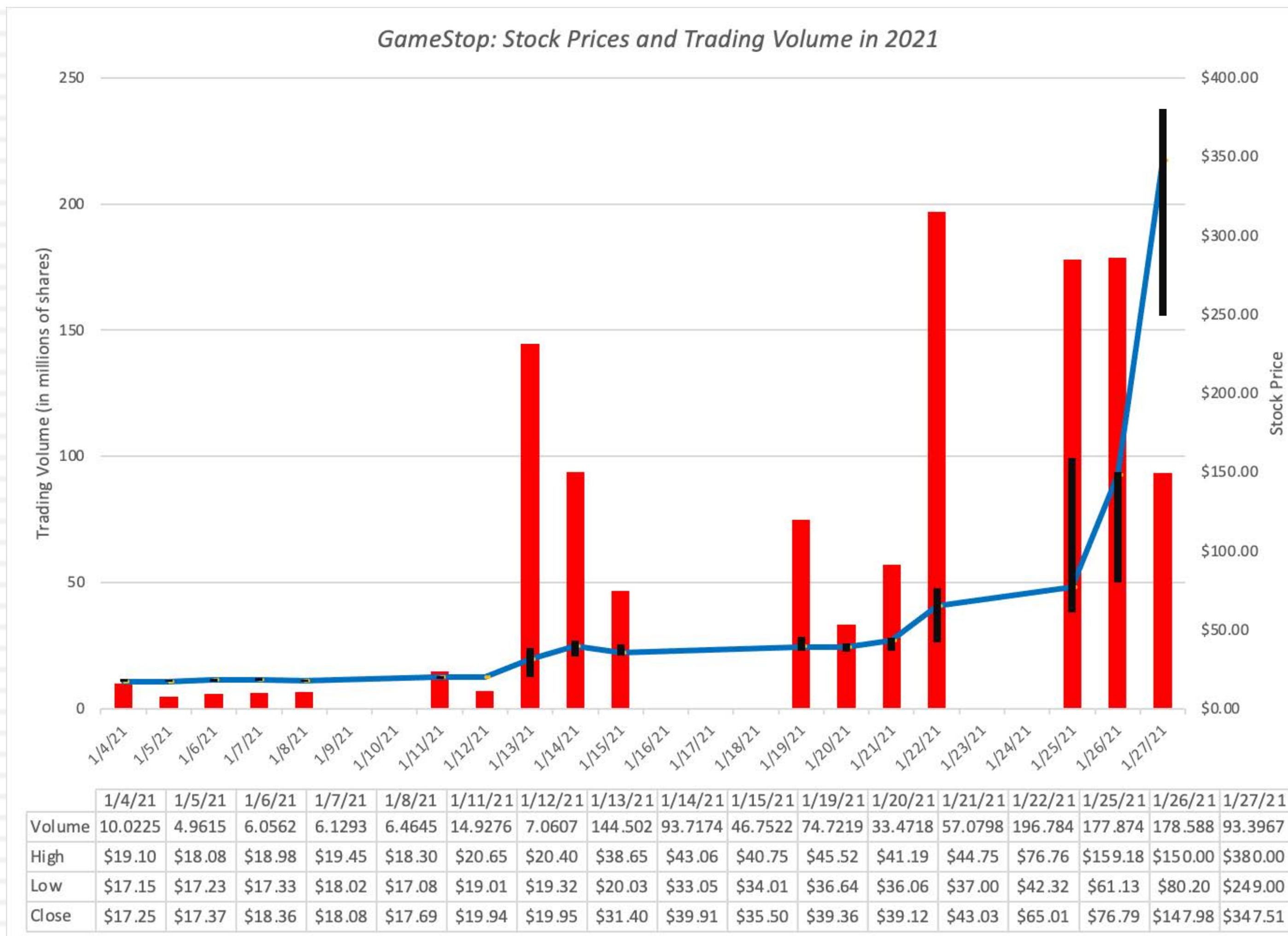
Taking the stock with them: GameStop from 1/4/21 – 1/27/21



	1/4/21	1/5/21	1/6/21	1/7/21	1/8/21	1/11/21	1/12/21	1/13/21	1/14/21	1/15/21	1/19/21	1/20/21	1/21/21	1/22/21	1/25/21	1/26/21	1/27/21
Volume	10.0225	4.9615	6.0562	6.1293	6.4645	14.9276	7.0607	144.502	93.7174	46.7522	74.7219	33.4718	57.0798	196.784	177.874	178.588	93.3967
High	$19.10	$18.08	$18.98	$19.45	$18.30	$20.65	$20.40	$38.65	$43.06	$40.75	$45.52	$41.19	$44.75	$76.76	$159.18	$150.00	$380.00
Low	$17.15	$17.23	$17.33	$18.02	$17.08	$19.01	$19.32	$20.03	$33.05	$34.01	$36.64	$36.06	$37.00	$42.32	$61.13	$80.20	$249.00
Close	$17.25	$17.37	$18.36	$18.08	$17.69	$19.94	$19.95	$31.40	$39.91	$35.50	$39.36	$39.12	$43.03	$65.01	$76.79	$147.98	$347.51

My base case valuation…

GameStop: Base Case Scenario?						Jan-21
The Story						
Like other brick and mortar companies, GameStop struggled with the COVID shutdown, with a surge in online sales not offsetting the lost sales from closed stores. However, the company's troubles predate 2020, with revenues dropping and stores being closed for much of the prior five years, and operating margins dropping down to close to nothing. In thia valuation, I look at a an upbeat and perhaps close to best-case valuation of the company, with sales recovering quickly in 2021 to close to 2019 levels, and subsequent growth primarily in online sales more than making up for fewer stores. In addition, I assume that the company's margins will move towards the online retail average, and that the ratings agencies' assessment of their bankruptcy risk (which is viewed by some as over optimistic) are correct (the Ba1 rating drives the risk of failure).						
The Assumptions						
	Base year	*In 2021*	*Years 2-5*	*Years 6-10*	*After year 10*	*Link to story*
Revenues (a)	$ 5,162	10.0%	2.00%	→ 2.00%	2.00%	Quicky 2021 recovery + Growth to pre-crisis revenues
Operating margin (b)	-4.20%	2.0%	2.00%	→ 5.00%	5.00%	Move towards online retail margins
Tax rate	25.00%		25.00%	→ 25.00%	25.00%	NOL of $730 million buffers tax impac
Reinvestment (c)		Sales to Capital =		1.80	29.76%	Net decrease in stores, more tech investmer
Return on capital	-20.80%	Marginal ROIC =		61.64%	6.72%	Margin expansion and stagnant revenues
Cost of capital (d)			7.04%	→ 6.72%	6.72%	Cost of capital relatively stable, but failure probability based on Ba1 bond rating
The Cash Flows						
	Revenues	*Operating Margin*	*EBIT*	*EBIT (1-t)*	*Reinvestment*	*FCFF*
1	$ 5,678	2.00%	$ 114	$ 114	$ 287	$ (173)
2	$ 5,792	3.20%	$ 185	$ 185	$ 63	$ 122
3	$ 5,908	3.80%	$ 224	$ 224	$ 64	$ 160
4	$ 6,026	4.40%	$ 265	$ 251	$ 66	$ 185
5	$ 6,146	5.00%	$ 307	$ 230	$ 67	$ 164
6	$ 6,269	5.00%	$ 313	$ 235	$ 68	$ 167
7	$ 6,395	5.00%	$ 320	$ 240	$ 70	$ 170
8	$ 6,522	5.00%	$ 326	$ 245	$ 71	$ 174
9	$ 6,653	5.00%	$ 333	$ 249	$ 72	$ 177
10	$ 6,786	5.00%	$ 339	$ 254	$ 74	$ 181
Terminal year	$ 6,922	5.00%	$ 346	$ 260	$ 77	$ 182
The Value						
Terminal value			$ 3,863			
PV(Terminal value)			$ 1,973			
PV (CF over next 10 years)			$ 840			
Value of operating assets =			$ 2,813			
Adjustment for distress			$ 270		Probability of failure =	12.00%
- Debt & Minority Interests			$ 1,155		*Based on Ba1 rating from Moody's*	
+ Cash & Other Non-operating assets			$ 446			
Value of equity			$ 1,834			
- Value of equity options			$ -			
Number of shares			65.10			
Value per share			$ 28.17		Stock was trading at =	$240.00

And if things go really well…

GameStop: A Best Case Scenario? — **Jan-21**

The Story

Like other brick and mortar companies, GameStop struggled with the COVID shutdown, with a surge in online sales not offsetting the lost sales from closed stores. However, the company's troubles predate 2020, with revenues dropping and stores being closed for much of the prior five years, and operating margins dropping down to close to nothing. In thia valuation, I look at a an upbeat and perhaps close to best-case valuation of the company, with sales recovering quickly in 2021 to close to 2019 levels, and subsequent growth primarily in online sales more than making up for fewer stores. In addition, I assume that the company's margins will move towards the online retail average, and that the ratings agencies' assessment of their bankruptcy risk (which is viewed by some as over optimistic) are correct (the Ba1 rating drives the risk of failure).

The Assumptions

	Base year	*In 2021*	*Years 2-5*	*Years 6-10*	*After year 10*	*Link to story*
Revenues (a)	$ 5,162	15.0%	3.00% →	2.00%	2.00%	Quicky 2021 recovery + Growth to pre-crisis revenues
Operating margin (b)	-4.20%	2.0%	2.00% →	5.74%	5.74%	Move towards online retail margins
Tax rate	25.00%		25.00% →	25.00%	25.00%	NOL of $730 million buffers tax impac
Reinvestment (c)		Sales to Capital =		4.96	29.76%	Net decrease in stores, more tech investmen
Return on capital	-20.80%	Marginal ROIC =		136.16%	6.72%	Margin expansion and stagnant revenues
Cost of capital (d)			6.23% →	6.72%	6.72%	Cost of capital relatively stable, but failure probability based on Ba1 bond rating

The Cash Flows

	Revenues	*Operating Margin*	*EBIT*	*EBIT (1-t)*	*Reinvestment*	*FCFF*
1	$ 5,936	2.00%	$ 119	$ 119	$ 156	$ (37)
2	$ 6,114	3.50%	$ 214	$ 214	$ 36	$ 178
3	$ 6,298	4.24%	$ 267	$ 267	$ 37	$ 230
4	$ 6,487	4.99%	$ 324	$ 276	$ 38	$ 238
5	$ 6,681	5.74%	$ 384	$ 288	$ 39	$ 248
6	$ 6,868	5.74%	$ 394	$ 296	$ 38	$ 258
7	$ 7,047	5.74%	$ 404	$ 303	$ 36	$ 267
8	$ 7,216	5.74%	$ 414	$ 311	$ 34	$ 277
9	$ 7,375	5.74%	$ 423	$ 317	$ 32	$ 285
10	$ 7,522	5.74%	$ 432	$ 324	$ 30	$ 294
Terminal year	$ 7,673	5.74%	$ 440	$ 330	$ 98	$ 232

The Value

Terminal value	$ 4,915		
PV(Terminal value)	$ 2,649		
PV (CF over next 10 years)	$ 1,531		
Value of operating assets =	$ 4,180		
Adjustment for distress	$ 401	Probability of failure =	12.00%
- Debt & Minority Interests	$ 1,155	*Based on Ba1 rating from Moody's*	
+ Cash & Other Non-operating assets	$ 446		
Value of equity	$ 3,069		
- Value of equity options	$ -		
Number of shares	65.10		
Value per share	$ 47.14	Stock was trading at =	$240.00

What if?

GameStop: Value per Share today					
		Revenues in 2031 in $ billions (Revenues in 2020 = $5.2 b)			
Operating Margin in 2031		*$ 5.00*	*$ 7.50*	*$ 10.00*	*$ 12.50*
	2.50%	$ 11.78	$ 14.44	$ 17.07	$ 19.71
	5.00%	$ 29.82	$ 40.14	$ 50.43	$ 60.84
	7.50%	$ 47.79	$ 65.79	$ 83.76	$ 101.94
	10.00%	$ 65.76	$ 91.44	$ 117.07	$ 143.02

The Feedback Loop

	Price > Value (Over Valued)	*Price < Value (Under Valued*
Perception	1. Lenders/Bondholders are more likely to cut the firm some slack and/or renegotiate debt. 2. Attracting and keeping new employees becomes a little easier.	1. Lenders/Bondholders tighten constraints more and are less likely to renegotiate debt. 2. Attracting and keeping new employees becomes difficult.
Implicit Effects	1. Convertible debt converts to equity, at the higher price, reducing distress/default risk. 2. Existing employees see a rise in the value of their stock-based compensation, making them more likely to stay.	1. Conversion options in convertible debt become less valuable, making it almost all debt, increasing distress/default risk. 2. Existing employees see a fall in the value of stock-based compensation, making them more likely to leave.
Explicit Effects	1. Issuing new stock at a price > value augments the value per share. 2. Cash proceeds from the issuance can be used to change business models (new investments & acquisitions).	1. Buying back shares at price < value, will increase the value per share. Issuance will have the opposite effect. 2. To get the cash for the buybacks, the firm will have to liquidate assets and shrink its business.

And its limits with stock issuances..

- Regulations and legal restrictions: A share issuance by a company that is already public is a secondary offering, and while it is less involved than a primary offering (IPO), there are still regulatory requirements that take time and require SEC approval.
- Demand, supply and momentum: If the price is set by demand and supply, increasing the supply of shares will cause price to drop, but the effect is more insidious. To the extent that the demand for an over valued stock is driven by mood and momentum, the very act of issuing shares can alter momentum, magnifying the downward pressure on stock prices.
- Value transfer, not value creation: The increase in value per share that you get comes from a value transfer, from the shareholders who buy the newly issued shares at too high a price to the existing shareholders in the company.
- Cash and trust: If you can live with the value transfer, there is one final hurdle. The new stock issuance will leave the company with a substantial cash balance, and if the company's business model is broken, there is a very real danger that managers, rather than follow finding productive ways to fix the model will waste the cash trying to reinvent themselves.

And with buybacks..

- With buybacks, the benefits of buying shares back at below value are much touted, and Warren Buffett made this precept an explicit part of the Berkshire Hathaway buyback program, but buybacks face the same problems often in reverse.
- But it too has its limits:
  - A large buyback may require a tender offer, with all of the costs and restrictions that come with them.
  - The act of buying back stock may push the price up and beyond value and buybacks too create no value.
  - The value transfer in buybacks, if they occur at below fair value, is also for existing shareholders, but the losers will be those shareholders who sold their shares back.
  - Finally, a buyback funded with cash that a company could have used on productive investment opportunities is lost value for the company.

Reality Checks for GME and AMC

- Perception: For the moment, the rise in the stock price has bought breathing room in both companies, as lenders back off, but that effect is likely to be transient. Perception alone cannot drive up value.
- Implicit effects: On this dimension, AMC has already derived tangible benefits, as $600 million in convertible debt will become equity, making the company far less distressed. For those Redditors primed for revenge, it is worth noting that the biggest beneficiary in this conversion is Silver lake, a hedge fund that invested in these bonds in the dark days for the company.
- Explicit effects: On December 11, well ahead of the stock run-up. In that offering, AMC filed for approval for issuance of up to 178 million additional shares, from time to time, primarily to pay down debt. If the stock price stays elevated, and that is a big if, AMC will be able to issue shares at a price > value and increase its value per share. It is unclear whether GameStop has the time to even try to do this, especially if the stock price rise dissipates in days or weeks, rather than months.

Feedback Loop at GME – Value per share effect

- I modified my base case GameStop valuation, which gave me an intrinsic value of $28.17, and allowed for two additional inputs: new shares issued and an issuance price.

# Shares Issued (in millions)	Issuance Price/Share				
	$ 20.00	$ 28.17	$ 50.00	$ 100.00	$ 200.00
2.50	$ 27.86	$ 28.17	$ 28.97	$ 30.82	$ 34.52
5.00	$ 27.58	$ 28.17	$ 29.72	$ 33.29	$ 40.42
10.00	$ 27.08	$ 28.17	$ 31.07	$ 37.73	$ 51.05
25.00	$ 25.90	$ 28.17	$ 34.22	$ 48.10	$ 75.85
50.00	$ 24.62	$ 28.17	$ 37.65	$ 59.37	$ 102.81

The Context for the GameStop
Crowd Squeeze

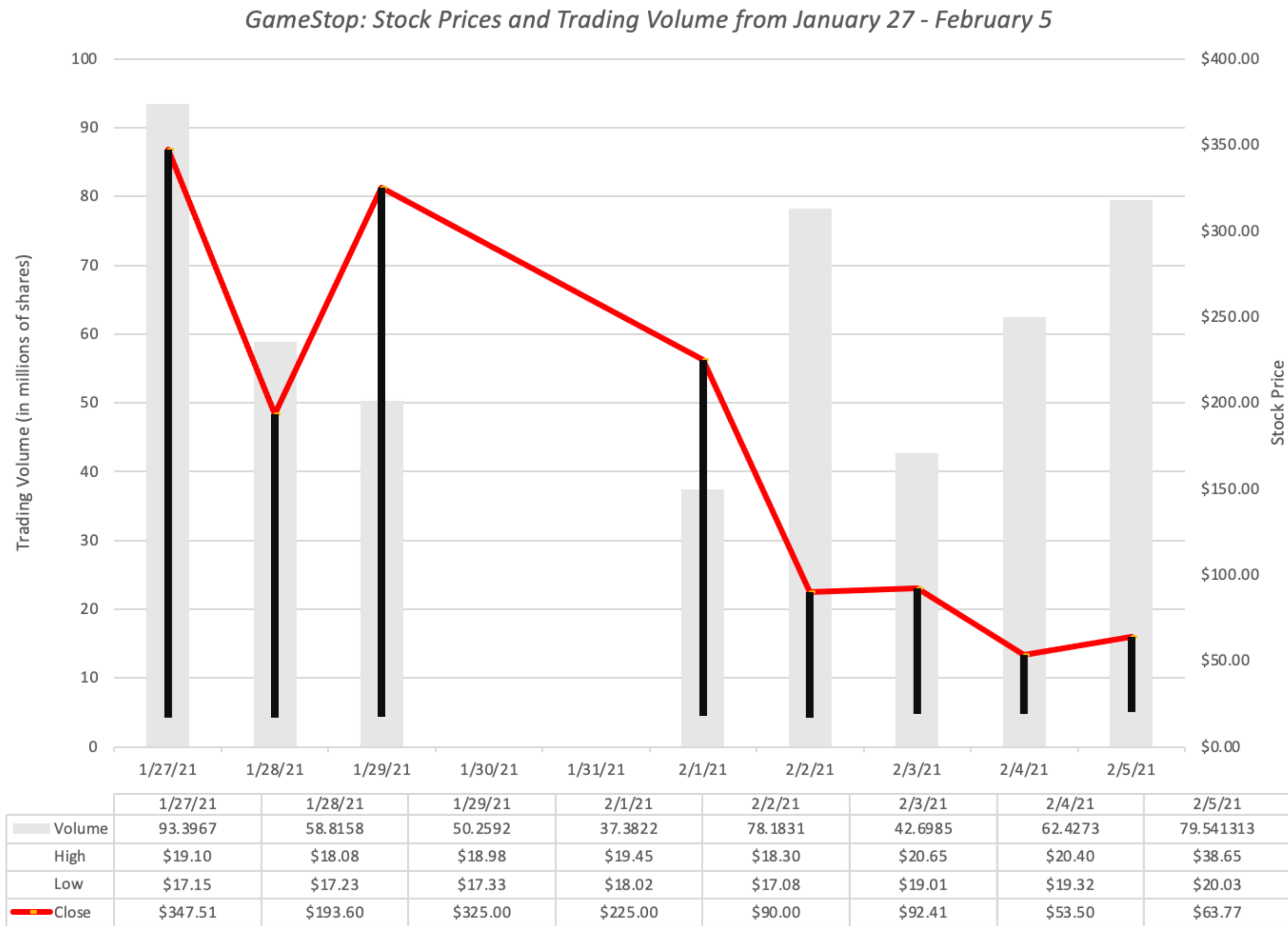
Societal changes..

- A loss of faith in experts (economic, scientific, financial, government): During the 20th century, advances in education and increasing specialization created expert classes in almost every aspect of human activity, who we trusted to take the right actions, and when they were wrong, we were kept in the dark. That pact has been shattered by a combination of arrogance on the part of experts and catastrophic policy failures, with the 2008 banking crisis acting as a wake-up call.
- An unquestioning worship of crowd wisdom, combined with an empowering of crowds: We have also seen the rise of big data and the elevation of "crowd" judgments over expert opinions, and it shows up in our life choices. Social media has made it easier to get crowd input (online), and precipitate crowd actions.
- A conversion of disagreements in every arena into the personal and the political: While we can continue to debate the reasons, it remains inarguable that public discourse has coarsened, with the almost every debate, no matter in what realm, becoming personal and political.

Make the pushback understandable, but what's the end game?

- It is a good value: It is possible that you believe that the company is a good value, and that you can hold on to it as an investment. That may be a viable path, if you bought GameStop at $40 or $50, but I don't see how this works if you paid $200 or $300 a share
- It is a good trade: It is more likely that you believe that you can sell the stock to someone else at a higher price, but to whom? You may get lucky and be able to exit before everyone else tries to, but the risk that you will be caught in a stampede is high, as everyone tries to rush the exit doors at the same time.
- It is to do damage to hedge funds: I don't think much of hedge funds either, and view most of them as fee-earning machines, run by managers who bring nothing to the investment table. That said, driving a hedge fund or two out of business will not do serious damage to that business, since others will quickly fill the void.
- It is to help the targeted companies: How has any of what's happened in the last two weeks help these companies? Their stock prices may have soared, but their financial positions are just as precarious as they were two weeks ago. In a perverse way, you might have made it more difficult for GameStop and AMC to find a pathway to survive as parts of larger companies, by pushing up stock prices, and making them more expensive as targets

GameStop: Easy come, easy go…



	1/27/21	1/28/21	1/29/21	2/1/21	2/2/21	2/3/21	2/4/21	2/5/21
Volume	93.3967	58.8158	50.2592	37.3822	78.1831	42.6985	62.4273	79.541313
High	$19.10	$18.08	$18.98	$19.45	$18.30	$20.65	$20.40	$38.65
Low	$17.15	$17.23	$17.33	$18.02	$17.08	$19.01	$19.32	$20.03
Close	$347.51	$193.60	$325.00	$225.00	$90.00	$92.41	$53.50	$63.77

After shocks?

Market Lessons

- Flattening of the Investment World: I believe that the investment world has flattened over the last few decades, as access to data and powerful tools widens, and trading eases. Portfolio managers and market gurus are no longer are the arbiters of whether markets are cheap or expensive, and their path of least resistance might come from following what individual investors do.
- Emptiness of Investment Expertise: Professional money management has always sold its wares (mutual funds, hedge funds, investment advice) as the products of deep thinking and serious analysis, and as long as the processes stayed opaque and information was scanty, they were able to preserve the delusion. In the last few decades, as we have stripped away the layers, we have discovered how little there is under the surface.
- Value and Price: Almost everything that is being talked about (the rising power of the individual investor, the ease of trading, social media investing forums) are about price, not value. It does mean that increasing access to data and easing trading may have the perverse effect of causing price to vary more, relative to value, and for longer periods.

A Danger to the Market?

Valuing the S&P 500 on January 1, 2021

Expected earnings in 2021 & 2022 represent consensus estimates for earnings on the S&P 500 from analysts. After 2022, earnings grow at the same rate as the riskfree rate.

Assume that the **10-year T.Bond rate** will rise garudally over the next 5 years to 2%.

Intrinsic Value Estimate (based on your choice of ERP)							
	2020	1	2	3	4	5	*Terminal Year*
Expected Earnings	$138.12	169.18	197.20	200.36	203.96	208.04	212.20
Expected cash payout as % of earnings	70.00%	75.00%	78.16%	81.33%	84.49%	87.65%	87.65%
Expected Dividends + Buybacks =	$96.68	$126.89	$154.14	$162.94	$172.33	$182.36	186.00
Expected Terminal Value =						$ 3,720.08	
Riskfree Rate	1.00%	1.20%	1.40%	1.60%	1.80%	2.00%	2.00%
Required Return on Stocks	6.00%	6.20%	6.40%	6.60%	6.80%	7.00%	7.00%
Present Value =		$ 119.48	$ 136.41	$ 135.27	$ 133.96	$ 2,835.03	
Intrinsic Value of Index =	**3360.14**	*Present value of expected cash flows & terminal value*					
Intrinsic Trailing PE =	**24.33**	*Based upon estimated earnings for 2020*					
Intrinsic Forward PE =	**19.86**	*Based upon expected earnings in 2021*					
Intrinsic CAPE =	**28.50**	*Based upon 10-year average earnings, adjusted for inflation*					
Level of the Index (1/1/21)	**3756.07**						
% Under or Over Valuation	**11.78%**						

Expected cash payout of 75% in 2021 is well below the 93% returned in 2019 & the 88% ten-year average but a step above the 70% returned in 2020. Over 2022-25, it moves to the payout in the terminal year, which is based upon a growth rate = risk freee rate and a ROE of 16.20% (2019 estimate for the S&P 500):
Payout ratio = 1 - g/ ROE

Required Return = T.Bond Rate + ERP. I am using a 5% ERP, higher than the 4.21% average from 1960-2020, but lower than the 5.5% average in the last decade.