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A Tale of Two Memes: How Gamestop and AMC Impacted the Credit Market

Hello everyone! This will be the first post in a blog series focusing on applications of quantitative credit data to broader market trends. Having recently joined Moody's Analytics, this blog will be structured akin to the journey of a learner – along the way, I want to share insights as I discover them, and how to best utilize a world of rich consumer, economic, and corporate credit data to paint a fuller picture of what's going on. As someone fascinated by the mechanics of the options markets, meme stocks, and stock market bubbles, it seemed fitting to begin this journey there.

Retail trading is a front-and-center issue in many market participants' minds, having grown dramatically in recent years due to the emergence of low-or-zero transaction fee retail brokerages like Robinhood. While initially the phenomenon was confined to small, highly concentrated niches, it is indisputable that retail traders have become a substantial force. This influence can be felt market-wide, as potentially one of the drivers of the equity options markets boom post-COVID. However, nowhere can it be felt more strongly than in the new 2021 asset class, "meme stocks".

Many still view the trend (and its major epicenters, Gamestop Corporation and AMC Entertainment Holdings Inc.) as temporary price dislocations in the equity markets, driven partly by dedicated online communities like WallStreetBets and by the hedging of equity options market makers. Conversely, both meme favorites have demonstrated a stubborn resilience, with equity prices for both remaining markedly elevated since the first signs of the squeeze. This begs the question – **what, if anything, materially changed for both companies?**

A classic short squeeze (as many viewed the initial January 2021 squeeze) does not tend to drag on for months after an initial rapid price increase. Comparing recent price action to the 2008 Porsche-Volkswagen short squeeze or the more recent March 2020 squeeze of Blue Apron, usual short squeeze, we see a stark difference in duration. While in all cases we observe substantial declines in short interest post-squeeze, the Blue Apron and Volkswagen culminating events were brief (lasting days) rather than a protracted battle lasting multiple months. It is hard to explain the current situation as a simple short squeeze.

Looking at the credit data, we can see a different perspective. For both AMC and Gamestop, the presence of a price-insensitive, loyal shareholder base fundamentally changed the solvency and credit outlook of both firms by allowing them to draw capital from increased equity pricing and sustained interest. This capital injection led to creation of fundamental value, improving debt structure, creditworthiness, and reducing default risk dramatically. While many discount these squeezes as one-off events, I argue that the advent of retail trading and social media-driven investing creates a novel factor in understanding future credit risk, especially in the context of heavily shorted and indebted companies (which tend to be retail favorites). This can be used by both short sellers and yield-seeking investors to better model risk and find asymmetric return opportunities.

Equity and Defaults

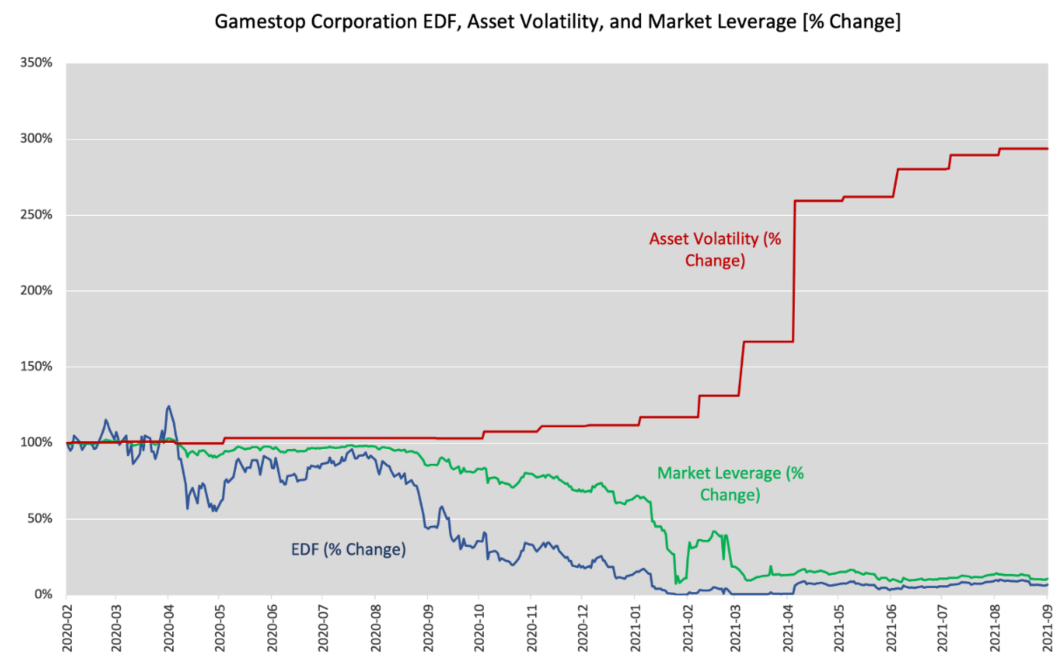
It is well-known that the market capitalization of a firm must reflect implicitly the likelihood that a firm will default in the future. During a default, shareholder equity becomes worthless (although in some cases after reorganization shareholders can negotiate some positive value in the recapitalization). In 1974, Robert Merton provided the key realization that due to limited liability, if a firm is underwater on debt, shareholders can choose to simply liquidate the firm rather than pay back debt. From that perspective, the equity value of a firm can be viewed as a call option on the firm's assets, with the option for the shareholders to liquidate if debt exceeds asset value (the option expires out-of-the-money) or not liquidate (the option expires in-the-money and is exercised).

This core thesis underpins how to quantitatively model defaults, best summarized as an Expected Default Frequency (EDF). Prior research using the EDF9 Model (derived from the Merton model) has supported the tacit link between equity valuation and default frequency, with significant excess returns noted for firms with lower probabilities of default than riskier firms.

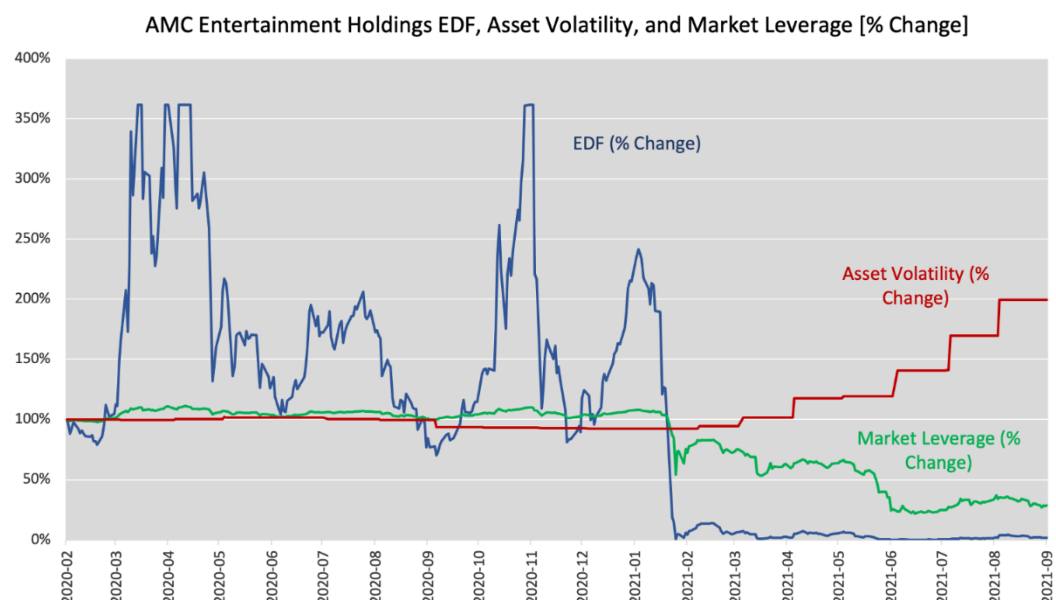
From this, we can observe that equity markets, despite potentially uninformed or faddish trading, over the medium-term should reflect credit market information. All things otherwise held similar, the greater liquidity and smaller notional size involved in equity markets implies greater investor accessibility, and investors can often express their credit outlooks more rapidly and easily via equity versus credit. An extreme example of this should occur for companies near to a credit event – as a company approaches default or bankruptcy, it should see precipitous declines in stock price, with the converse (e.g. a rescue package or cancellation of debt) also holding true.

Interestingly, the relationship between EDF and equity returns tends to be smile-shaped: poor equity performers have higher credit risk, but firms with highly positive equity performance **also** exhibit heightened default risk, likely correlating with increased use of debt leverage.

However, this relationship is not unidirectional, as we can see strongly for both AMC and Gamestop. For both meme stocks, the rapid increase in equity price and interest allowed them to raise substantial capital via offerings, materially impacting their ability to service debt and avoid insolvency. Although pre-squeeze most investors discounted both firms as eventual casualties of the macro changes driven by the COVID-19 pandemic, using EDF data, we can see both companies underwent dramatic shifts in credit risk.



Per our EDF model, the 1-year forward chance of default for Gamestop Corporation peaked around May 2020 at nearly 20% (nearly 1200% higher than in 2018). While since then the default point (the time-weighted value of Gamestop's outstanding debts) remained largely constant, as asset value increased during the squeeze its market leverage (asset value versus default point) markedly decreased while asset volatility (the volatility of the dollar value of Gamestop's assets) increased.



For AMC Entertainment Holdings, Inc., the pre-squeeze credit picture was even bleaker. Due to the forced closures imposed on movie theaters during the COVID-19 pandemic, our EDF model implied a 1-in-2 chance of default in the next year at multiple points in 2020 (specifically March and December 2020, both peaks of COVID-19 severity).

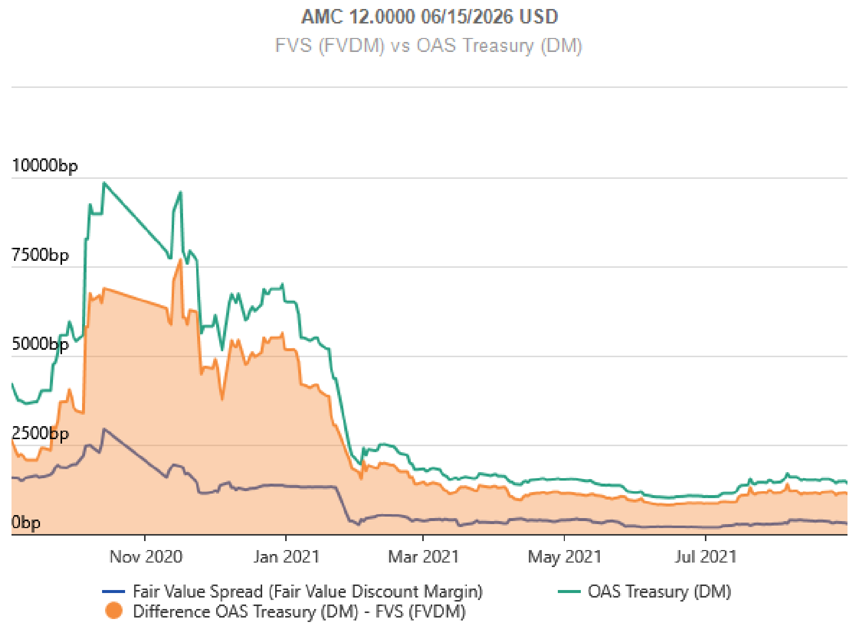
If we imagine the default point to be the option strike price, unlike in traditional vanilla options asset volatility (which is related but not identical to equity volatility) only **positively correlates** with the risk of default. The intuitive rationale for this behavior is that a default acts as an absorbing barrier – once the issuer hits the point of default, the Merton model assumes it cannot fall out of default (without credit actions). Conversely, the market value of assets has a strongly **negatively correlates** with default risk – as asset value increases, all other factors held identical, the default point (when asset value equals our default point) moves farther and farther away.

In most cases, we see asset volatility increases as the market value of the assets decreases. This is like the relationship between equity volatility and equity price – volatility tends to be higher on the way down than the way up. Of course, meme squeezes rarely follow nice rules.

As we can see above, both AMC's and Gamestop's asset volatility markedly increased at the same time its asset value increased. We can imagine this as a tug of war – asset volatility increasing brought them closer (in EDF terms) to default, while asset value increasing drew it farther away. Luckily for our meme favorites, the expansion of asset value won over, and the probability of default remains low post-squeeze.

Bond Alpha?

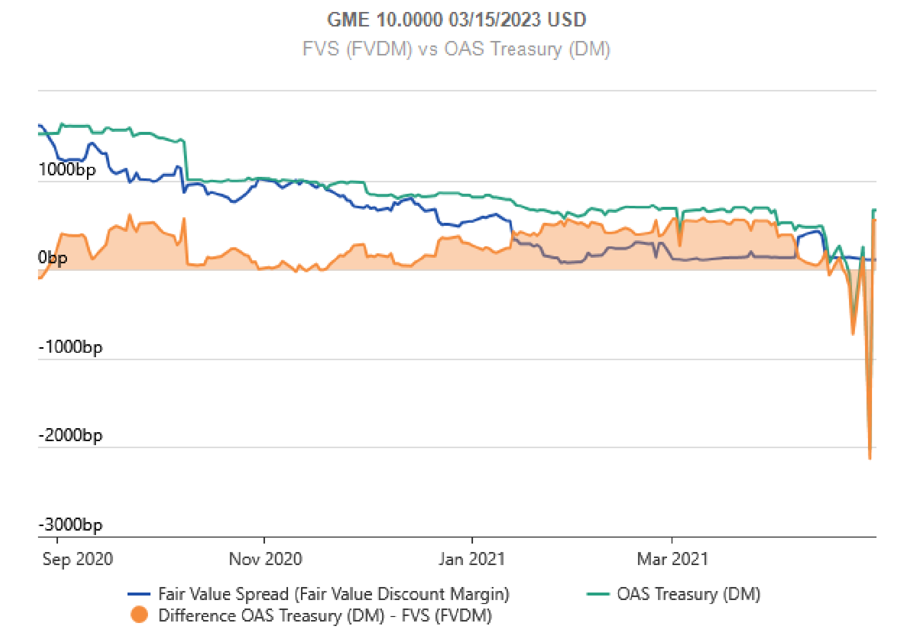
We can more granularly observe this turnaround by looking at AMC's outstanding bond prices over the same period. Pre-retail fixation, AMC's 2026 12% subordinate bonds (Ca-rated) traded at $4.14 at their low in November 2020, a strong market signal that those bonds were likely to default. Interestingly, our model-computed fair value spread disagreed strongly with the worthlessness of the 2026 bond issue, indicating a much narrower spread than the market's estimates. Historically, CreditEdge-implied spreads narrower than market-derived spreads tend to produce excess returns, and AMC's dramatic rise proves to be no exception.



After the equity squeeze and AMC's announced at-the-money share offerings, the same bond spreads collapsed, and a speculative investor would have made impressive returns. Even now, the alpha factor (a ratio of the market-implied bond spread versus our model-implied spread) for the above bond series (AMC 12.0000 06/15/2026 USD) remains well over 1, indicating potentially strong forward returns.

However, the excess remaining spread may also be in large part due to concerns about the company's long-term viability. If we instead view AMC's Alpha Factor versus Debt Duration, the market-implied spreads are dramatically wider for longer-term debt (2-4 years) than near-term debt (0-2 years). While our model-implied spreads tend to disagree (given the heightened alpha factor for longer-term debt), option-adjusted spreads imply a strong near-term financial position, but more risk further out due to debt structure and sectoral trends.

That said, AMC debtholders were not alone in minting impressive returns. Thanks to the rapid appreciation in equity price, Gamestop raised enough capital to call back all existing debt early. For the senior debt issued in 2016 and maturing in 2023, we can note that, while at the widest the spread between the EDF9's implied fair value and the market option-adjusted spread is much narrower than AMC's extreme case (likely due to difference in duration), we can still observe a strong differential. When the squeeze began, the credit markets were slow to react for Gamestop's outstanding bonds, while our modeled fair value spread rapidly adjusted. This proved prescient, given Gamestop's decision to voluntarily redeem the existing debt by end of April 2021 at par.



For both Gamestop and AMC, the manna of retail affection has profoundly changed at the very least their near-term fates. While Gamestop emerged a clear winner financially, paying off all its long-term debt, both companies emerged stronger, with favorable changes to rating, creditworthiness, and debt term structure. Importantly, the initial credit market impact lagged; a savvy speculator, viewing the equity market squeeze, may have reaped substantial rewards through purchasing both companies' bonds.

The advent of retail power focused on short squeeze favorites has targeted a sector of companies known to historically have weak financials and low creditworthiness. Prior research has indicated that credit downgrades are often preceded by abnormal short selling, and, with recent exceptions, heavily shorted stocks traditionally provided significantly negative future returns. However, as debt rises and a firm's likelihood of survival diminishes, the optionality of returns **also** increases. Much like a significant out-of-the-money vanilla call option, the premium spent to take a long position can be minimal but can provide an incredibly large upside.

Assuming this market and retail participation continues, we may need to rethink traditional views on corporate credit risk. As we can observe through the dramatic reversals afforded to both Gamestop Corporation and AMC Entertainment Holdings, increased shareholder loyalty and activity can provide companies a lifeline of much needed cash injection, bolstering their financial position and increasing their actual fair value. In Gamestop's case, the extra money raised additionally gives it leeway to rethink business strategy and adapt to the online commerce era. Despite the common view that the factors driving the AMC and Gamestop squeezes remain transient, we can clearly observe both from credit and equity signals the creditworthiness and implied longevity of both firms has increased substantially.

Retail favoritism also tends to coincide with companies in weaker financial positions (smaller companies, often close to bankruptcy or default). This creates both a riskier proposition for short sellers and potential opportunities for risk-tolerant investors. In the absence of regulatory or socioeconomic changes, we should anticipate more companies and investors will view social media and “meme” phenomena as a factor for credit risk modeling going forward.