Title: A Thought Experiment on Variance Swaps and Idiosyncracies
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https://www.reddit.com/r/DDintoGME/comments/q5inm5/a_thought_experiment_on_variance_swaps_and/

If you don't know what variance swaps are, you can read up on them by reading my [*cheatsheet*](https://www.reddit.com/r/DDintoGME/comments/q3axsc/variance_swaps_cheatsheet/)*. In that post I forgot to mention that another piece of evidence for SHFs also being short volatily/variance (on GME) was made available in a* [*Northfield document*](https://www.northinfo.com/documents/993.pdf)*. I also forgot to mention that, as is my understanding, for VS generally only the stock's daily close is what counts; intraday volatility can thus be ignored. Editing the post is not possible at the moment because Reddit doesn't open the Fancy Pants editor (meaning I fear it would screw with my images).*

I also promised that actual DD is being written by someone else, and apparently they are still on it. Also, many thanks for your comments and awards on my last post.

Important: This is not DD. I have no proof at this time to support my central hypothesis and I'm mostly not providing proof for the observations I claim to have made. I'm simply doing an argument from a Mathematician's perspective showing what someone being short variance would likely have to do to not go tits up.

Introduction

This year, we were able to observe many strange things happening in the stock market. Including, but not limited to:

* GME spiking in January. It is interesting to note that it held its ground until next day's close even after SHFs were supposedly in control. The few retards back at apes' birthplace that (were actually rich enough and) bought Calls to immediately exercise certainly didn't make a difference.
* GME doing March 10, and still closing slightly up.
* Some stocks did go up with GME, some did go down. (I know that's not a very idiosyncratic statement.)
* u/banahands linked [an article](https://thelastbearstanding.substack.com/p/the-volatility-squeeze) talking about a "Volatility Squeeze" that apparently peaked on February 5.
* Pink sheets and zombies mooning around February 8--10. It should be noted that around that time a window for certain derivatives rollovers opened.
* Pinks following weird volatility patterns, roughly cyclically repeating.
* Smallcaps in general climbing to extreme heights in the first quarter, only to then experience a months-long steady selloff.
* Stocks like PLAN almost perfectly inversing GME for extended periods of time.
* Other stocks like EXPR, KOSS or Shitty Floors (I'd name the symbol, but I resent what it represents) correlating to GME for extended periods of time.
* Some stocks did nothing in January, but at some point started correlating, inversing, preceeding or following GME.
* SHLDQ and BLIAQ doing idiosyncratic things despite being bankrupt for years.
* Many Short Squeezes and Pump & Dumps.

Several posters before me, notably u/BurnieSlander, tried to categorize stocks into baskets, notably those that are commonly known as "GME basket" (i.e. EXPR, KOSS, Shitty Floors) and "SNDL basket" (Pinks). **It is central to my hypothesis that you imagine that both of these baskets, as well as many other stocks, are part of one and the same.**

Of course, there almost certainly are many different basket swaps and indexes institutions are playing games with or even other market forces (like SLD) at play, so many observations may be coincidental.

This post ignores the "finance" side of things, like balance sheets or capital requirements, because I'm too smooth for that shit. The only such thing (that is sometimes ignored in speculative arguments involving

GME) I'm not going to ignore is: Every trade not happening on public markets needs a willing counterparty that thinks it can win or requires the product for some other reason.

The Hypothesis

Normally you'd call this section "Background" and explain some stuff. However, me explaining the background spoilers the entire thing, so I'm collapsing into one section. **The examples in this section also demonstrate what I said in my last post about single-name variance versus index variance.**

For a moment, we are going to assume that someone is short the variance of the two hypothetical stocks GME and SNDL in one basket. In the following tables I'm going to show how different price movements impact the single-name variance vs. the basket variance. In all examples, both stocks end up with the same price level that they started with. The examples are simplified to the point that they are wrong from a mathematical standpoint, but that doesn't change the argument (it's just to make it as simple as possible for the smooth brains without alienating the wrinkled ones).

GME being GME, SNDL staying flat:

	GME price	GME variance	SNDL price	SNDL variance	Basket price	Basket variance
Day 1	\+10	\+100	\+0	\+0	\+10	\+100
Day 2	\-10	\+100	\+0	\+0	\-10	\+100
Day 3	\+0	\+0	\+0	\+0	\+0	\+0
Day 4	\+0	\+0	\+0	\+0	\+0	\+0
Day 5	\+0	\+0	\+0	\+0	\+0	\+0
Total	**+0**	**+200**	**+0**	**+0**	**+0**	**+200**

GME experiencing a slow selloff, SNDL staying flat:

	GME price	GME variance	SNDL price	SNDL variance	Basket price	Basket variance
Day 1	\+10	\+100	\+0	\+0	\+10	\+100
Day 2	\-4	\+16	\+0	\+0	\-4	\+16
Day 3	\-2	\+4	\+0	\+0	\-2	\+4
Day 4	\-2	\+4	\+0	\+0	\-2	\+4
Day 5	\-2	\+4	\+0	\+0	\-2	\+4
Total	**+0**	**+128**	**+0**	**+0**	**+0**	**+128**

Because of volatility having a quadratic impact on variance, many small changes are less impactful than few large ones.

GME being GME, SNDL spiking one day later:

	GME price	GME variance	SNDL price	SNDL variance	Basket price	Basket variance
Day 1	\+10	\+100	\+0	\+0	\+10	\+100
Day 2	\-10	\+100	\+5	\+25	\-5	\+25
Day 3	\+0	\+0	\-5	\+25	\-5	\+25
Day 4	\+0	\+0	\+0	\+0	\+0	\+0
Day 5	\+0	\+0	\+0	\+0	\+0	\+0
Total	**+0**	**+200**	**+0**	**+50**	**+0**	**+150**

We can observe that despite SNDL spiking now as well, total basket variance is going down (relative to the first example). This is because the SNDL upwards spike is offsetting GME's downwards spike.

GME being GME, SNDL dampening even better:

	GME price	GME variance	SNDL price	SNDL variance	Basket price	Basket variance

Day 1	\+10	\+100	\+0	\+0	\+10	\+100
Day 2	\-10	\+100	\+6	\+36	\-4	\+16
Day 3	\+0	\+0	\-2	\+4	\-2	\+4
Day 4	\+0	\+0	\-2	\+4	\-2	\+4
Day 5	\+0	\+0	\-2	\+4	\-2	\+4
Total	**+0**	**+200**	**+0**	**+48**	**+0**	**+128**

Because small changes in price have a smaller footprint on variance, we can observe that a slow selloff in an idiosyncratic stock or offsetting movements by its constituents both have a similar effect in reducing basket variance.

It is important here to note that both stocks are hypothetical. The real movements of the actual stocks are too far apart to have this effect. It implies however that with GME's crash other stocks should have spiked---which they apparently did, naming said volatility squeeze. Since that argument is based on VIX, we are talking about the S&P; 500 (or parts of it) to offset GME's movements. Because these cannot remain inflated forever, other stocks would have to take over in dampening overall basket movements. Small caps (and hence Pinks) are ideal, because they are less liquid and there's less interest in them. Pinks and especially zombies are dangerous to touch, so other players have an incentive to stay out.

Combining the things I've hinted at, I am hypothesizing a very broad basket variance swap, potentially packaging thousands of stocks and other instruments from all over the place. A broad basket like this can easily dampen the effects of some idiosyncratic members through countermovements by their constituents. This doesn't violate the principle of an available counterparty, because a very broad basket would show extremely low volatility, making the VS a suitable hedging vehicle against extreme financial markets turbulence like a stock market crash.

Idiosyncracies not (yet) covered

Our central hypothesis does not necessarily cover stocks that correlate with GME. VS are often paired with CDS, so maybe the hedging of swaptions can explain some of it (especially relating to zombies). Many of these companies have/had outstanding convertible notes, so maybe there's derivatives written on those causing this stuff. By the way, u/basting_rootwalla found that from the companies that the media before the pandemic pushed as being threatened by bankruptcy the most, they either had gone bankrupt or are now pulling a GME.

However, we so far ignored one important aspect: **It is difficult to get out of a (short) VS.** Assume now a retard with more money than brains (paraphrasing Cohodes' commentary on Melvin---if you haven't, go watch Lucy Komisar's interview, it's pretty cool) that thought it free money to jump on the bankruptcy plays of bigger, more powerful and smarter players and maybe also started selling variance swaps against companies with a touted high chance of bankruptcy. Because, referring to my cheatsheet, a company that you're short volatility/variance on going bankrupt is good for you. So more free money, because this can't go tits up (YMMV).

Back to the fact that you can buy-to-close publicly traded instruments like shares and options, but not VS. Why? Well, for starters, because it's not publicly traded (so no exploiting MMs) and you'd need an even bigger retard to take on that position. Your counterparty might not be willing to let you off the hook just yet or you simply don't have the money, **because that one idiosyncratic spike shot the contract value to deep space**. But more importantly, **you also can't buy a long contract to close this position due to the convexity of the payoff curve** (meaning that the new contract is sitting on the launchpad while the other is moving past Andromeda at high speeds).

I don't know at this time if arbitrage or hedging of such variance spreads (of contracts with different payoff curves) can *cause* correlated movements. **The fact of the matter is that variance spreads in general are related to correlation plays.** By the way, Melvin got his bailout three days before the Toy from Bulgaria screwed over his "customers", just incase you're now on the lookout for evidence for the theses mentioned in this section. *(All of this also meaning it's possible he didn't perjure himself when saying he got out. One can speculate that he closed his short shares by giving the bailout right back to Kenny, exercising options and unloading the bag on Citadel Securities, but losing more money later through his short VS positions.)*

However, Melvin's 13F indicates that they seem to have found other hedges than the replicating portfolio (see cheatsheet), assuming they were in fact short variance.

Conclusion

We have seen that baskets/indexes can dampen single-name variance by offsetting movements. I hypothesize that this could be used to deliberately offset the effects of GME on VS. This hypothesis can explain, for instance, why GME stayed elevated despite SHFs supposedly being in control, the violent and cyclical movements of other stocks at offsetting times, long and steady selloffs in many different stocks. It doesn't have to, though, and for most of these phenomena many reasons can be found.

I did not explore aspects like capital requirements or the diffculty or viability of pulling this off. I can not explain correlated stocks with this hypothesis. Maybe other products like CDS play a role, or variance spreads are the culprit.

However, this thought experiment illustrates not only how much we are short on research, but also how far we have come as a community in uncovering what is happening to our favourite stonk (and the market as a whole).

Thanks for reading, especially if you made it through the entire thing.