Title: Cleaning up with some stuff [featuring Historical Correlation Swaps]
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Created 2022-10-19 10:42:04 UTC
Permalink: /r/TheGloryHodl/comments/y7zar6/cleaning_up_with_some_stuff_featuring_historical/
Url: /r/FWFBThinkTank/comments/xufxz9/cleaning_up_with_some_stuff_featuring_historical/

Linked Post Content:
Hello!

I am here to purge some incorrect stuff from your collective minds. I'm going to begin with my [last post](https://www.reddit.com/r/FWFBThinkTank/comments/xro53k/happy_birthday_the_historical_correlation_swap/), but there are lots of common misconceptions with a few of them on the menu today. Simply because I'm reading so much bullshit on social media everyday, and maybe I can help people learn by explaining some stuff that is often misunderstood.

Historical Correlation Swaps

The post was about some derivative named *Historical Correlation Swap* that pays based on the correlation between the moves of some asset with discretized, historical prices of the same or a different asset. To make it obvious, let's go through the references list.

The paper describing the derivative

[MYass, BOOBS](https://preview.redd.it/akqb2v6ei9r91.png?width=492&format;=png&auto;=webp&s;=8715ac6412cc10c1f388f4751b725c3c63774858)

The link, however, doesn't take us to SSRN.

[Screenshot of the SSRN link target.](https://preview.redd.it/azkpp8kck9r91.png?width=1366&format;=png&auto;=webp&s;=3e56be27b1ec03a18ffcdbf0a95c28a800288245)

The source for the reliability of trading historic correlations

[This reference is real.](https://preview.redd.it/5jw1b3xqx9r91.png?width=506&format;=png&auto;=webp&s;=cf1192cf289d83276770e7ef00566053d73ad746)

While the reference is real this time, its message is that trading based on historical charts is not a thing you should do. In fact, the specific message is that you can find historical charts to support any narrative.

https://preview.redd.it/rom0du0xy9r91.png?width=597&format;=png&auto;=webp&s;=6602379eef50a97bb48d843ee94bdc44ae8481b3

Are TA hedge funds trading historical correlations?

[Another real reference that doesn't support what is implied.](https://preview.redd.it/nxr5zvgbz9r91.png?width=418&format;=png&auto;=webp&s;=d4d5995da058b1bc808c475fc46da4cb87b77167)

The problem is that there are no TA hedge funds, because TA does not work. I've seen many statements such as this from industry professionals, but the one source I used shall suffice.

https://preview.redd.it/zicwk3ck1ar91.jpg?width=1181&format;=pjpg&auto;=webp&s;=f431c45de921c603363aec97990f8332a69b7a6f

Conclusion

Historical Correlation Swaps do not exist. In fact, trading the proposed replicating portfolio would lose you money. I apologize for not making it more obvious. It's a fine line and I probably failed in my attempt to create an educational post wrapped in a shitpost wrapped in a DD.

Ignoring comparisons between different assets in different time periods, let us first explore a few of the many reasons why comparing SPX 2022 with SPX 2008 doesn't really make sense.

1. The macro environment was completely different. There was no pandemic that literally changed the world as it was, and there wasn't inflation that high.
2. The way the Fed does Fed things was completely different. The Fed Funds Rate is not, as it was in the past, controlled directly, but through IOER and the ON RRP. (Yeees.)
3. Market structure changed, a lot. For instance, institutional options trading became popular around 2012, and options control the market. It's important to understand that options do not (necessarily) represent bets on the directionality of the underlying.
4. Different rules and regulations.

Yet, for some reason, I see it postulated often that despite the very different realized trading environment (for instance, volatility is underperforming, hard) this is 2008 all over again. Is it going to crash? I have no idea.

But the actual point is in one of the tweets I referenced, by Andreas Larsen. The chance that you can find a sample in any random signal to fit into a sample of another random signal, if you just get creative enough with parameters like discretization, is very high. It gets even easier if you completely ignore the underlying process and just go by rough, averaged index levels that are similar in very few instances.

In short: Almost always, if someone tries to make a point by overlaying historical charts with current ones, they are misinformed at best and full of shit at worst.

TA;DR: Overlaying historical charts with current ones is bullshit, trading based off that is regarded. And ignore the stuff with the Gold price. It's not predictive of GME.

And don't feel bad if you fell for it. Virtually nobody in FWFB noticed, either.

Other takeaways from the post

I was really proud of my explanation of replicating variance swaps. I'm getting close to a point where I can explain them in a concise way. Not quite there yet, but it's gotten way better.

Correlation/covariance swaps do exist, and trading correlation may involve variance swaps.

Variance and VIX

Is VIX manipulated?

No. It has happened, but generally no. Volatility being up correlates to the underlying being down, and for some reason when that is not the case people start saying that VIX is manipulated. As if correlation suddenly meant causation.

VIX follows supply and demand in an extremely liquid and efficient market.

What is VIX?

VIX is the square root of the value of a 30 day variance swap on the S&P; 500. That means it's computed by taking the weighted sum of SPX 30 DTE option prices (as it's done for variance swaps, puts below spot and calls above spot) and taking the square root of that. There are two important caveats:

1. The theory computes an integral on option prices and therefore assumes that strikes are continuous. Since they are not and are instead spaced between a few cents to several Dollars apart, the area between them is accounted for as well. This is done the same way as integrals are discretely approximated in school (trapezoid rule).
2. While the value of a variance swap theoretically equals implied variance (IV squared) and should be

independent of spot, it is an ATM measure in practice. This is because options with a zero bid are excluded from the computation, which usually applies to strikes that are too far OTM. If this would not be done, MMs could actually manipulate it by simply adjusting options quotes.

This explains why VIX going up correlates with SPX going down: The ivol on low strikes is higher than ivol in high strikes (also called skew), so when low strikes go nonzero bid while high strikes go zero bid, the implied variance goes up.

VIX ***can*** **be manipulated**

It can be manipulated, but only in the very short term. Some larger players are currently facing lawsuits for VIX manipulation by placing large orders that they would cancel immediately. The following is my educated guess how that works.

[Blue: volatility smile; red: implied variance; green: expansion of implied var if zero bid OTM strikes became nonzero bid](https://preview.redd.it/7bi5zlnj7fr91.png?width=639&format;=png&auto;=webp&s;=9437602c0b0c68ab1db8ec5a37e32db5571ec6da)

The most effective way, in my opinion, would be to raise the bid of a far OTM strike, as this would not only include the strike itself, but the entire area in between as well. This is consistent with the alleged trading behavior, as MMs would raise bids to be able to offload some of that risk to willing counterparties.

However, this would only work over very short timeframes, to, for instance, get in or out of trades at better prices.

(Please note that the above graphic is mathematically incorrect as it treats option prices the same as implied volatility.)

Options

Gamma exposure and Opex moves

There is a thesis going around that I tend to call *GEX theory*. It misappropriates the term *gamma exposure* (GEX) to try to explain after opex moves of GME and other stocks.

It goes something like this: Because markets on Opex Fridays are so volatile, dealers fail to properly hedge the change in delta of expiring calls. As these calls go ITM, there is a huge unfilled obligation that dealers then satisfy at T+2 Tuesday. I'm not quite sure if it's part of the original thesis, but some believers are also telling themselves that on Mondays the gamma of already expired options is hedged (because of them going ITM/OTM).

None of this makes any sense. It implies that the most sophisticated trading firms in the world consistently fail to hedge gamma, market wide, deterministically. They then, for some reason, don't get their books in order in AH, like a normal person, but instead opt to carry increased margin and other risks over a fucking *weekend*. We now have to dismiss this believer bullshit for Mondays, because these options are expired and either lost (expired OTM) or already in settlement (expired ITM). This allows us to fail to understand why the market then pretty consistently would go down Mondays. Apparently it then goes up Tuesdays because of forced buy-ins because of ITM calls or something like that. I'm no rules expert and may misunderstand something, but the OCC rules mention a C+20 window to satisfy assignment fails. It also doesn't account for other market participants exploiting this. If you don't believe me, believe this [ex MM trader](https://www.reddit.com/r/options/comments/xbemf7/comment/inz7sz9/?utm_source=share&utm;_medium=web2x&context;=3) saying that typically only delta is hedged in the underlying.

Now on to what I think is happening. There are two very strong market forces (as documented by vol expert Cem Karsan, among many others) in the form of the second order greeks Charm (change in delta due to time decay) and Vanna (change in delta due to change in volatility) that are strongest in the hour after open and in the hour before close (due to time decay and changes in vol over night). They are even stronger on Fridays and Mondays, because instead of one single night there are suddenly three nights and two entire days subject to decay and volatility risk. The increased hedging flows cause liquidity issues, and

liquidity issues are correlated with markets going down.

What frustrates me the most is that GEX theory comes pretty close to what's also happening: Expired options are gone from dealer books and also increase hedging demand because the books are now vulnerable to several first, second and third order greeks.

Static delta models

There is a method, pioneered in the ape community by yelyah and adapted by u/bobsmith808 and u/Dr_Gingerballs, where some values are computed on the options chain to then influence predictions of the future. I am here to tell you that these values don't mean anything.

Here's how the "models" work: Some greeks are computed for each contract, multiplied by open interest per contract and then summed up. Additionally, a solver searches for spot prices where some of these values become "neutral". In the past, these values were charted along with the stock price. Then, there was a meaning attached to them on a per-stock basis. Some stocks would trade over the "delta neutral price" (DN) and touching it would mean they would bounce, some stocks would trade below and would bounce similarly, while others would smash right through. From a single instance of GME bouncing of the "vega neutral price" (VN) it was inferred that it served as a floor (the next time it smashed through only to rocket a few days later).

There are several things wrong with this.

1. The most important issue is that this completely dismisses dealer positioning. If I write a contract it will influence dealer hedging in the opposite direction than if I buy it.
Example: An institution trades a call spread with a long leg of 0.45 delta and a short leg of 0.4 delta, 100 contracts each. This results in a net delta of 0.05 per spread, or 500 shares that have to be delta hedged. The "model" doesn't take that into account and assumes a delta impact of 0.85, or 8500 shares. Obviously this affects all other greeks in a similar manner.
2. Instead, static assumptions are made. For greeks where puts and calls have different signs (i.e. delta), long only is assumed. For greeks where puts and calls have the same sign (i.e. gamma, vega), opposite positioning is assumed. Using different portfolios per value computed is the second issue.
3. Assigning meaning from charts is prone to observational biases. Additionally, it assumes that spanning many months neither the fundamental situation nor the strategies being played on the stocks change.

Luckily the second issue is automatically solved by solving the first one. The problem is that it is not trivial and requires lots of expensive data feeds.

Markets

The JPM trade

I have written about [this event](https://www.reddit.com/r/FWFBThinkTank/comments/ver7ov/why_the_sp_500_bounced_off_3630_and_defying/) before, but since there still exists some confusion both inside FWFB and outside of it, I'm going to reiterate the most important points.

[Virgin vs. Chad](https://preview.redd.it/tcvselvk8hr91.png?width=1600&format;=png&auto;=webp&s;=823f7a6e31f6286d55ccb59b9542beb312e7b29c)

The JPM Hedged Equity Fund is rolling a put spread collar on SPX (and SPX only) on the last day of every quarter. This is defined in the prospectus, and thus there is neither moving the date nor otherwise changing positions, except on the roll date. Since it is a publicly known trade, Wall Street will front-run it in the days before the roll date, effectively eliminating market impact during the roll.

The reason why this trade is interesting is not that JPM will manipulate markets to achieve whatever, because they don't. It is a mutual fund, and therefore JPM will collect the same amount of fees regardless of the performance of this collar, eliminating the incentive to attempt anything. The reason why it is interesting is the front-running. It creates an environment where dealers are swimming in liquidity, and as I've implied before this is correlated to markets going up. But even if the market stays flat as it happened

this time, there is still potential for profit by exploiting the properties of options.

Because of recent events: CrEdIt SuIsSe Is BlOwInG uP

Oh My GoD gAiZe, It'S 2008 aLl OvEr AgAiN! Yeah. That's why all channels are on full blast with this. Well, almost all channels.

[The CDS market is pricing in a 5% chance of default in the next 5 years, and the term structure has been steepening, which means exptected short term risk has been going down.](https://preview.redd.it/dw7qdrambkr91.png?width=1363&format;=png&auto;=webp&s;=8228c18bf480e1df5b5ba53c145b904e0614f822)

[1% default risk over the next year and the credit curve is in contango](https://preview.redd.it/c9pil0y6ekr91.png?width=707&format;=png&auto;=webp&s;=6a4c49fb01e04bde4050480cf403334c30b35622)

https://preview.redd.it/7ep33bqockr91.png?width=1065&format;=png&auto;=webp&s;=f8fe80485360fb478bf72bff825550a6cc77fe0b

It's interesting that this is happening one week after CS stock experienced a major selloff. If there wasn't the risk that retail panic can cause a bank run, I'd buy some. Now waiting for regards to buy puts with two times overpriced implied volatility to buy moar GME (to then blame it on options and not themselves when they get burned).

References

None, except for the CS stuff, this time. This is some of the stuff that I have learned in the past year and I simply don't remember what all the sources are.

* https://twitter.com/bennpeifert/status/1576646568534372352 (first tweet in the screenshot was deleted, not sure why)
* https://twitter.com/dampedspring/status/1576564503596085248
* https://twitter.com/nope_its_lily/status/1576797329838874630

TA;DR?

The post is split into several sections covering different topics that are not super long individually. The first one has one, though.

I'd close this with the suggestion for some kind of AMA where you can ask my opinion on market related narratives (in the spirit of this post), but I'd probably forget, just like I constantly forget or shy away from replying to DMs. Also, no predictions because if I had an idea where things were going, they would still do the opposite as soon as I post about it.

Disclaimer

I'm a retail investor with no background, degree nor certification in any field related to finance or economics. My only superpower is that I seem to learn this stuff faster than most people.