BRIDGEWAY

THE TRADING REVIEW OF 2020 THAT YOU'VE HEARD ABOUT **AND THE ONE YOU HAVEN'T**

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I promised myself I would not use the word "unprecedented" when talking about financial market conditions in 2020. In fact, I googled it to try and find alternatives. There are over 30 synonyms for unprecedented. Unfortunately, unprecedented sums up financial market conditions in 2020 accurately. Here is a quick recap of the market this year (all references are to the S&P 500):

- The S&P 500 hit a record high on 2/19/2020, and it took only six trading days to decline 10%, the fastest 10% decline from the all-time high on record
- On Monday, March 9th, S&P Futures triggered a 7% down single session circuit breaker that hasn't been triggered since 1997
- A Bear market that lasted 4 weeks and had a peak to trough decline of -33.8%
- The S&P ended up 18.4% on the year
- There was record-setting trading volume in equity, options, and futures

The media have well covered the list above, so now I'd like to mention a couple of things you probably haven't heard about that I think should have gotten a lot more attention.

2020- The Year that Gamma became mainstream. Gamma?? What the heck is Gamma, and why is everyone on Twitter talking about it? I'll summarize, Gamma is the rate of change of an options delta. Another way of thinking about it is how fast does an options price change in relation to the move of the underlying security, both up and down. Option market makers must delta hedge their options positions to remain risk-neutral. If they are long Gamma, they typically must buy the underlying asset as it goes down, and sell it as it goes up, which tends to limit volatility as there is two-sided order flow. If, however, they are short Gamma, they typically must sell more of the underlying asset as it goes down and buy more of it as it rises. This can lead to exacerbated price moves on both the upside and downside, resulting in a feedback loop of sorts. This Gamma flow has become much more mainstream since 2020 as it is one of the larger nonfundamental sources of trading flow in the market.

As a former derivatives trader, it warms my heart to hear "Gamma" and its potential flow-driven impact on financial markets becoming more mainstream. The most simplistic way to think about understanding its implications is this: Gamma creates a feedback loop where market participants are forced to buy or sell more of an asset the more it moves in price to maintain a risk-neutral position. If you combine this with high-speed algorithmic trading in financial assets where liquidity is rapidly declining, you can easily see how the magnitude and velocity of the market moves in 2020 are easier to understand.

2020- The year that liquidity vanished! "Wait…. What?" "Didn't you just say above that equity and option trading volumes were at record highs?" Why, yes, I did, but volume does not mean a market is liquid. Liquidity is typically how much of something you can trade at a certain price point before the market participants require the price point to change to transact more. Liquidity and volatility are linked, creating another one of those feedback loops. When volatility increases, liquidity tends to decline. If I could point to the most compelling/concerning statistic I saw all year it would be this one

sentence from a March 12th, 2020 report from Goldman Sachs concerning liquidity in the S&P 500 E-mini futures:

As volatility has spiked, though, electronic futures liquidity has fallen to the point where there has been a median of just ten contracts, representing $1.5mm notional, on the bid and ask of E-mini futures screens over the past week (compared with a median of 120 contracts, representing $18mm notional, in 2019). (Rocky Fishman J. M., 2020)

The S&P 500 product complex, consisting of SPX Index Options, SPY, SPY Options, and E-mini S&P 500 futures and options, is the most widely traded deepest market in the world. The E-mini futures drive the trading in this entire complex and represent over $100 Billion of daily notional value. Now that I've set the scene, let's incorporate the quote above. The most widely traded, deepest market in the world became INCREDIBLY illiquid, with just $1.5 million of notional value offered at its regular trading increment. I don't know how many ways I can say this to emphasize it enough, a trader with as little as $150,000 could have moved "the market" a tick, or possibly more when we were at the depths of the March 2020 sell-off. A simple 50 lot to buy or sell could have moved through 5 price points or 1.25 points in the S&P. The trouble is it doesn't work quite so simply. When markets are this illiquid, high-speed traders will pull their quote and revise it in order to transact at a better price as soon as the first execution at the bid or offer takes place. High-speed trading, combined with Gamma-induced feedback loops, in markets with rapidly deteriorating liquidity and large market-on-close (MOC) imbalances in the next 15 minutes. What more could a trader ask for?

I just completed my 22nd year as a trader; I've seen a few things……as the saying goes. As a former floor trader, I learned what forced selling felt like, when a clearing firm liquidates accounts, prices be damned, they just need out. It feels different, it sounds different, it looks different, but this…. this was like nothing I've seen in my career. The ferociousness, the velocity, even in a world where the screen has replaced trading floors, you could feel it through the screen; it was amazing. I know that at a quant firm, I'm not supposed to describe things by what it feels like; I think the liquidity data cited above backs up what I thought it felt like. Besides, I've never heard anyone describe that feeling they get in their belly right when their rollercoaster car tips over the edge of that big downhill slope strictly by the angles and rate of acceleration, so I'm rolling with it!

Summary

So, what the heck does all of this have to do with Bridgeway and its trading, you may be asking? Well, a lot, actually. It's not just Bridgeway either; every investor from retail to institutional should fully understand the cost of their investments. It's easy to look at explicit costs; they are stated with a great deal of visibility. Trading costs are implicit and not included in any expense ratio, so it's wise to pay attention. Our role is to interact as intelligently as possible with the circumstances we must trade in to execute our strategies as designed. Our sole goal is to limit explicit (commissions, fees) and implicit (market impact/unfilled orders). What this means at Bridgeway is a process based on logic, evidence, and data. We all know the importance of research/design and portfolio management, but many ignore

the fact that trading is the third, final, and crucial leg of the investment process where value can be destroyed..

References

Rocky Fishman, J. M. (2020). *Index Volatility: Wider Equity Future Markets Latest Sign of Weakened Liquidity*. NYC: Goldman Sachs.

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Past performance is not indicative of future results.

Investing involves risk, including possible loss of principal. In addition, market turbulence and reduced liquidity in the markets may negatively affect many issuers, which could adversely affect the mutual funds. Value stocks as a group may be out of favor at times and underperform the overall equity market for long periods while the market concentrates on other types of stocks, such as “growth” stocks.

Diversification neither assures a profit nor guarantees against loss in a declining market.

The S&P 500 Index is a broad-based, unmanaged measurement of changes in stock market conditions based on the average of 500 widely held common stocks. S&P 500 Index Options are option contracts in which the underlying value is based on the level of the S&P 500 Index. SPY options are American-style options and can be exercised anytime between the time of purchase and the expiration date. The S&P 500 E-mini is a futures contract representing 1/5 the value of a standard S&P 500 futures contract. It is not possible to invest directly in an index.