ADVISOR PERSPECTIVES

How Market Crashes Happen Without More Bad News

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by Larry Swedroe

As chief research officer for Buckingham Wealth Partners, I've been getting a lot of questions about the current market situation. One of the more often asked questions is, "The market is crashing some days even without more bad news; how do you explain that?" Here's the explanation of the process that can lead to crashes like the ones we saw in October 1987, and from late 2007 through March 2009, and again over the past month or so. I'll also explain why this time is somewhat different because there is a new set of actors on the stage, exacerbating the problem.

The process begins when bad news causes the market to fall. Given that most years see corrections (a technical term meaning a drop of at least 10%), investors are used to them. But when losses begin to exceed 10% by a significant amount, many investors reach what I call their "GMO" point. Panic sets in and their stomach screams, "Do not just sit there. Do something. *Get me out!*" That cohort of investors sells, pushing prices lower. That sets off another cohort that reaches their GMO point, and so on.

Contributing to the "wave of selling" are the investors who bought stocks on margin. When stocks drop by a significant percentage, those investors face margin calls and have to put up more collateral, or they are forced to sell. Many do. And that pushes prices lower, and more GMO points are hit, and selling pressure builds, even if there is no more bad news. But we are not close to being done.

When the bull market ends and we have an extended period of falling prices, investors using trend-following systems (such as momentum traders, commodity trading advisors, hedge funds and managed futures funds) not only sell their long positions, but then they switch to being short, creating more downward selling pressure on stocks. And more GMO points are hit, and more margin calls occur.

Then you have funds which manage their portfolios to target a certain level of risk at all times. While traditional portfolios are designed to target an asset allocation and let risk happen, these funds target risk and let the asset allocation react to current market conditions. Target-risk funds and risk-parity strategies calculate their portfolio exposure as a function of target volatility divided by the estimated volatility of the portfolio. During calm markets, investors look for investment opportunities in every corner of the market. There is diversity of opinion, which manifests in low correlations across different regions and asset classes. Diversified portfolios have low volatility. During such periods these funds lever up portfolios to a total exposure that allows them to maintain a higher target volatility in a low-volatility environment.

In contrast, when markets become turbulent, investors become laser focused on just one major source of risk. Correlations collapse across global regions and markets, and portfolios are revealed to be less diversified than previously estimated. Portfolio volatility estimates explode higher. Now funds need to aggressively cut exposure. They must sell into a falling market in order to maintain their target risk.

Let's assume that a fund has $100 million in assets and targets a 10% average volatility, as measured by annual standard deviation. In a bull market, the manager may estimate that their diversified portfolio has a 5% volatility when fully invested since it contains a mix of many diverse markets, including low-risk bonds and rate instruments. To hit their target risk level, the manager will lever exposure by their 10% target divided by the current 5% estimate, or 2x assets. So, the fund will seek $200 million in total portfolio exposure and buy $100 million in assets. Consistent declines in volatility produce a buying cascade.

Now imagine that markets are hit with a shock that raises estimated portfolio volatility to 10%. The manager would seek to lower portfolio exposure to 100% of assets from 200% of assets, so they would sell down 100% of assets. Next imagine that estimated portfolio volatility rises to 20%; the fund manager would seek to lower total exposure to just 50% of assets.

The *Wall Street Journal* recently estimated risk-parity-type funds manage about $175 billion in assets. These funds typically use moderate leverage, but still hold equity exposures of only about 35% of invested capital. That's a small percentage of the daily global equity index futures volume. Thus, it's hard to estimate their impact when viewed in isolation. However, when their selling is added to that of the others in a falling market, they can contribute to a selling cascade. Unfortunately, we are not done yet.

After the 2008-09 global financial crisis, investment firms, led by banks and insurance companies, began to issue structured notes that provided exposure to equity returns, although in a limited way. The pitch went something like this: "You don't want to sit in bonds with yields so low, but you are scared of investing in stocks given what just occurred. We can provide you exposure to stocks but without the big downside risk." A simple example of a structured note would be one that in any year provides the price return on the S&P 500 Index up to a maximum of, say, 10% (note, you don't get the dividend return), but your losses would be capped at, say, 10%. Those are typically awful products that no one should buy (and no sophisticated institutional investors ever do) because there are always cheaper ways to get that same risk exposure. But they are sold in the tens of billions of dollars every year, especially in Europe.

Why does this matter to the market? It doesn't when the market is rising, or falls by only a small amount. But when the market drops such that the seller of the note is now long the market when prices are falling (the seller effectively sold a put), the seller must hedge its position. It will do so typically by selling S&P 500 futures, driving prices lower, and more GMO points are triggered, more margin calls are made, more value-at-risk (VAR) and risk-parity funds must sell, and markets can crash without any bad news.

This process helps explain why markets almost always "overshoot" on the downside. And because the process works the same way in reverse, they tend to overshoot on the upside as well. Here's how that works. A bull market begins, and those who had panicked and sold in the last bear market now experience the fear of missing out (FOMO), and their stomach screams, "*Get me in*!" Their buying pushes prices higher. And the short sellers now must cover their margin calls. Thus, they buy, pushing prices still higher. And the momentum traders pile in, reversing their short positions. And the VAR and risk-parity funds have to buy more stocks to maintain the VAR and risk-parity positions because the VIX has been falling. And the sellers of structured notes have to unwind their short positions because they are no longer exposed to downside risk. And so on. The result is that markets can go up even without more good news. Just recall Alan Greenspan's warning in December 1996 that the markets were irrationally exuberant. He was eventually right, but it took more than three years for it to happen.

That brings us to Samuelson's dictum, which helps explain why markets can overshoot in both directions. Samuelson believed that markets are more micro efficient than macro efficient. That is, the efficient markets hypothesis works much better for individual stocks than it does for the aggregate stock market. One reason is that, if a single stock is mispriced, there is sufficient sophisticated capital to correct the mispricing (subject to limits to arbitrage such as transactions costs). That isn't true when we are considering the entire equity market. Thus, asset classes in general are able to deviate far from fair value for extensive periods of time.

A different type of margin call

We have discussed how margin calls from lenders of margin loans can lead to an acceleration of the trend in prices, both up and down. Those margin calls can lead to selling that is unrelated to the economic news. Unfortunately, for the first time since the Great Depression, we could see the equivalent of a margin call on the real economy, as investors have to liquidate their financial assets to pay for daily expenses for food, shelter, medical copays and so on. The government's massive fiscal response is intended to mitigate/minimize that risk. However, there is definitely the potential for that to happen.

Investors behaving badly

Individual investors have demonstrated the unfortunate tendency to sell well after market declines have already occurred and buy well after rallies have long begun. That is why it is so important to understand that investing is always about uncertainty, and one should never choose an asset allocation that exceeds their risk tolerance (which, by the way, a cash flow approach to investing can lead you to do when interest rates are low, as they are today). Avoiding that mistake provides the greatest chance of letting our heads, not our stomachs, make investment decisions. Stomachs rarely make good decisions.

Words of caution

While watching, listening or reading financial news in uncertain times like these, I offer these words of caution. Whenever you hear a "guru" making a prediction about the market or the economy, the more certain the person is in terms of a forecast, the more you should ignore it. Tune it out. That person doesn't know that they don't know what is going to happen. The smartest people are more uncertain, and speak about a range of possible outcomes. Don't look for certainty, because there isn't any. And also beware of confirmation bias, the all-too-human tendency to believe forecasts that agree with your preconceived ideas (or fears) and ignore forecasts that are at odds with them.

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