RiXtrema

Stress Testing As a Distinction Between Clairvoyants and Risk Managers

Bill Graham, the father of value investing and the co-author of the infamous book Security Analysis, said: "The essence of investment is management of risk, not management of returns". This was postulated in the middle of the last century, and today risk management is no longer an exclusive province of quants. It is used by financial advisors, since advisors are de-facto risk managers who balance their clients' investment goals against the investment constraints, searching for and implementing the suitable portfolio solutions.

But why has risk management failed so dramatically in 1998, 2000, 2007, 2008 and again in 2010 with the European debt crisis? We will argue that too much focus has been placed on backward-looking risk measures and not enough on scenario analysis.

Risk Management is not Clairvoyance and Market Timing

But what is risk management anyway? While almost everyone uses the words 'risk management', the implied meaning seems to differ from person to person and from advisor to advisor. Let's start by discussing what risk management is not. Risk management is not about:

- being a clairvoyant
- forecasting specific future events
- timing those events i.e. 'the big short'

Risk management is about finding the suitable risk/return profile for the holder of the portfolio. When your client has a suitable portfolio, he or she will not sell when the losses hit, because the possibility of those losses was discussed right from the beginning of your relationship. The biggest problem for most investors is that they get in near the top and get out near the bottom. 'Suitability' ensures that this vicious circle is disrupted. If your clients don't get out at the bottom, then they won't have to jump back in at the top. But the only way that could happen if their risk/return tradeoff was chosen by considering a variety of scenarios: good, bad and ugly. Showing low risk simply because the realized volatility is low and VIX is heading toward single digits cannot really be called risk management. That is called rear view mirror driving.

What Is Stress Testing

Portfolio Stress Testing is a useful method for determining how a portfolio will fare during periods of financial crises. The financial crises scenarios are modeled and may include historical events (e.g. 2008-like scenario) and events that we have not observed yet (e.g. Greece exiting Euro zone).

Advantages of Stress Testing vs. Traditional Risk Measures

1. **Traditional measures are backward-looking, and Stress Testing is not**

Why do we need Stress Testing when we already have risk measures like Sharpe ratio, Beta, Value-at-Risk, Tracking Error, and Expected Shortfall? The problem with these measures is that they are completely backward-looking. A tracking error or a Sharpe ratio today has no clue that interest rates can actually rise by more than trivial amounts, since nothing of that kind was observed in the data sample used to calculate those metrics.

Moreover, if you ask one of these measures about the possibility of a simultaneous rise in interest rates and a drop in equities, it will likely tell you that the probability of such a one-two punch is zero. When those measures will gain that knowledge, it will be too late to be useful, since the events will have already happened. Backward-looking risk measures still view long-dated Treasuries and any instruments with a great deal of interest rate risk as virtually riskless, due to the low volatility and safe haven appeal that we have observed over the recent decades. This will lead you to underestimate probabilities of events that are quite plausible in the next few years, such as inflation or stagflation.

2. **Stress Testing is effective in prospecting by connecting to clients' dreams and fears**

There are clear benefits of using Stress Testing in work with your prospects. Since investors get a lot of information from the press covering various world events, many prospects have fears of what would happen to their wealth if any of the frightening events materialized. And it frequently happens that when a fear is not measured it can grow disproportionately big in the prospect's mind. And Stress Testing allows the advisors to put a price tag on the fear, i.e. to quantify it. Quantification of the potential damage of disastrous scenarios is the first step in evaluating various portfolio options. For example, based on our close work with many advisory firms, a few months ago a very "popular" fear was that of the Greece exiting the Euro zone, later the ISIL taking over Iraq was on investors' minds.

3. **Usage of Stress Testing by advisors is in line with the rest of the financial industry**

Have you noticed how Fed stopped talking about Value-at-Risk for banks? It practically disappeared from popular discourse starting in 2009. The Fed and the ECB now routinely talk about stress testing of banks. Of course, stress testing can also be misused and gamed by the banks, but at least they realized that estimating risk simply based on what happened over the past couple of years is a rather flawed strategy. Based on the fact that the usage of Stress Testing is quickly increasing among financial institutions and is demanded by the Fed, we expect its usage to grow very fast in the financial advisory services.

Shortcomings of Stress Testing

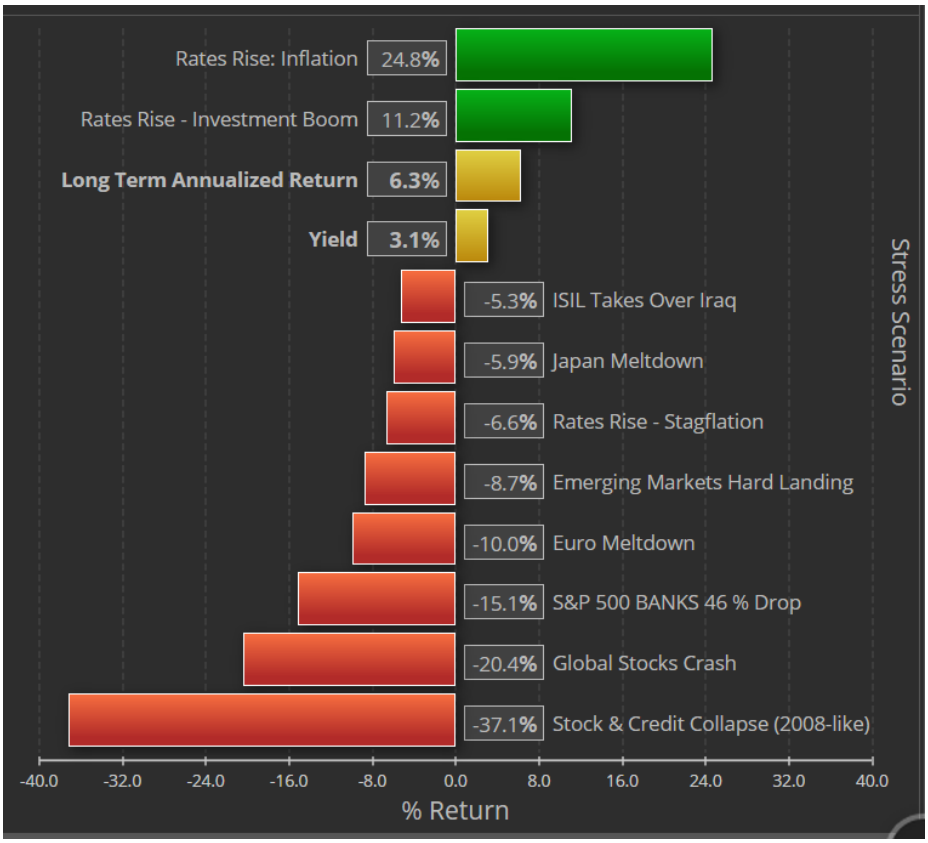
Every tool has limitations and has to be used properly. A Maserati is not a bad SUV, it simply isn't meant to go off-roading. Similarly, most of the arguments against stress testing are really arguments against a misplaced utilization of that tool, not against the tool itself.

But didn't Nassim Taleb teach us that crises are 'Black Swans', events that cannot be modeled or anticipated by definition? That there is an infinite number of possible crises out there and

our finite minds cannot possible make sense of all of them and prepare. Of course, if you subscribe to this theory then the only logical action you can take to be successful is to buy lottery tickets and wait until your ship comes in. Dr. Taleb calls it exposing yourself to positive right tail events. Or you can become a best-selling author, but the chances there are sadly even smaller than winning a lottery. In reality, financial crises are quite similar. They can easily be categorized into crash impacts, just like car crash impacts such as frontal, rear, side, rollover etc. There are certain types of fundamental building blocks of the financial system that can be used for this purpose: equity prices, interest rates, spreads, commodity prices, other real assets etc. Take those and break them up by region and you can have a list of possible events that will cover just about everything, except natural disasters (which along with sudden geopolitical hostilities are the true black swans). The Lehman Collapse of 2008 and the LTCM crises of 1998 had great many similarities in the mechanism of the market dislocation. Southern Europe sovereign debt problems of 2010 are not dissimilar from the past sovereign debt problems regularly observed in the financial history (check out This Time is Different by Reinhart and Rogoff).

Here is a picture of a sample stress test.

Exhibit 1 – Sample Stress Test



Though a stress test summary for your client's portfolio can look different, the key is that it should include a variety of plausible events that can be explained to the client in plain

English. Remember, our main goal is to create a suitable portfolio. To do that we need to get buy-in to reduce the chances of the client selling at the bottom and (as a consequence) getting back in at the top. The stress test report should also include events with some upside as well as some indication of the long term performance and current yield of the portfolio.