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Michael J. Mauboussin

mmauboussin@lmcm.com

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Long-Term Investing: How I Learned to Stop Worrying and Ignore Volatility

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Good morning. It's a real pleasure for me to join you today, as these roundtable sessions always prompt me to organize my thoughts on an important and topical theme. This morning's topic—dealing with long-term investing and volatility—is obviously crucial given what we are going through, yet contains complex and multi-faceted issues. I hope my comments serve to provoke thought and offer a springboard for further discussion.

I will break my comments into three parts:

- First, I'd like to define what I think risk means. The central point is that *how* you define risk has a lot to do with your time horizon.
- Second, I'll discuss how you can avoid catastrophe. Common to all great long-term investment track records is the managers *survived* in all kinds of environments.
- Finally, I touch on some behavioral issues—or why dealing with the long-term in the face of volatility is emotionally, physically, and psychologically hard. I'll wrap up with some suggestions on *what you can do* if you accept my perspectives.

I.

Let me start at the top and discuss what risk means. If you look it up in the dictionary, the classic definition is, "the possibility of suffering harm or loss." So if you carry that definition to financial markets, risk in a literal sense is about losing capital. So the question becomes—how do I measure risk? And to me, the key to that answer is your time horizon.

Specifically, I believe that volatility is actually a very reasonable way to measure risk for short-term investors. If you have to pay a bill in the next few months, you'd be right to focus on the volatility of your investment. Try taking away volatility measures from, say, an options trader and see what happens. It'd be nearly impossible to trade without some sense of volatility.

In contrast, though, I would say risk for a long-term investor is permanent loss of capital, and probably the most tried and true way to think about that is Ben Graham's concept of margin of safety.[1] You have a margin of safety when you buy an asset at a price substantially less than its value. In this case, you can effectively ignore short-term movement provided you feel comfortable that value is much higher than price and you have allowed for sufficient error in your value calculation.

As an aside, this distinction between the short term and long term has helped me reconcile seemingly contradictory views in the market. For example, Warren Buffett often disparages standard finance theory, and argues ideas like volatility are bunk. [2] Well, that's true if you have a long time horizon. Prominent traders, in contrast, scoff at notions of price and value, considering them irrelevant to their day-to-day activities. This, too, is true. The key to understanding the application of risk is its temporal dimension.

Next, let me add that not all investors can be long-term oriented. You can imagine a case of starting to save for college education shortly after a child is born. At that point, you are a long-term investor. But as the first tuition bill looms, you flip from being long term to short term. Our life cycles assure that most of us will be both long-term and short-term investors at some point in our lives. Indeed, let me make the statement stronger—markets *aren't* efficient if one group dominates. [3] That is probably the case today.

So what can we say about the current environment given this perspective?

1. First, from a volatility perspective, what we are living through today is *not unprecedented*. Markets had a similar period of protracted volatility in the 1930s. So it hasn't happened in our investing lifetimes, but it certainly has happened before. [4]
2. Second, volatility is clustered. In contrast to what the random walk says, volatility comes in bunches—low volatility and high volatility periods trade off. [5] What we can say with relative confidence today is that volatility will be lower at some point in the future.
3. Finally, using a long-term historical capital market line, today's volatility (as measured by the Chicago Board Options Exchange Volatility Index, a proxy for one-year Standard & Poor's 500 Index volatility) is consistent with equity returns in the 20-30 percent range. This observation squares with what we are seeing in high-grade, high-yield, and convertible fixed income markets. In the short term, perceived risk and reward is very high.

II.

Now I'll turn to my second topic: how do you—especially as a long-term investor—avoid catastrophe? Let me start this discussion with a little quiz:

Let's say I gave you a $100 bankroll and let you call 40 rounds of coin tosses where for every dollar you wager, heads paid $2 and tails cost you $1. So you clearly have a positive expectation bet, but also a chance to lose it all. What percent of your bankroll would you bet on each round in order to maximize your probability of having the most money at the end of the 40 rounds?

I'll give you the answer in just a moment, but let me use that little quiz as a point to jump into the very serious topics of money management and asset price distributions.

It turns out that you can't answer the question I posed with classic mean/variance analysis, because mean/variance analysis applies to *single-period* bets. To figure out the answer you have to recognize that you are *parlaying* your bets and then calculate how to maximize the geometric mean. This is known in money management circles as the Kelly Criterion. [6]

So let me go back to my coin tossing example, and simply offer some intuition. Of course, if you bet too little each round you will leave a lot of money on the table. However, if you bet too much, you risk ruin—losing all of your money. This is called overbetting, and overbetting is a major problem in many parts of the investment world. In fact, overbetting has killed a lot of supposed long-term investors—most famously Long-Term Capital Management. Overbettors are assured ruin—it's just a question of when.

Oh, the right answer to the quiz is you should bet 25 percent of your bankroll each round to maximize expected value over the 40 rounds.

So why do investors overbet? I believe there are three reasons. First, is the *problem of induction*—often associated with the Scottish philosopher David Hume. The basic issue is people generalize about a system based on a number of observations, and often go on to assume the future will be like the past. A great example in the investment business is past risk and returns—people apply statistical measures and assume they know what the system looks like and that the future will be like the past.

Karl Popper argued the way to combat the problem of induction is to focus on falsification. While seeing thousands of white swans does not prove all swans are white, seeing one black swan proves that "all swans are white" is false. So the term, black swan, which now seems inexorably linked to extreme events, is meant to symbolize the way to deal with the problem of induction. [7]

So the bottom line is when things have gone well, people expect things to continue to go well. This leads to overbetting—that is, too much, and unwarranted, confidence in knowledge of the system.

The second factor behind overbetting is *leverage*. Almost every train wreck you see with a financial institution has something to do with leverage. Leverage in the investment business tends to rise due to two interrelated factors. First, when volatility is low and competition reduces returns, investors feel comfortable using leverage to boost performance. In his recent book on hedge funds, Andy Lo has a great illustration, showing how a specific quant strategy generated lower returns over time but that the funds employing it increased their leverage over time to boost results. So the outcome was the same over time, while the contribution shifted away from return on assets to leverage. [8] A related factor is when things are going well and volatility is low, leverage is cheap and accessible. So your bank or prime broker is ready to lend when you shouldn't be borrowing, and raises haircuts when you should be borrowing.

The final factor behind overbetting is *incentives*. The financial services industry is competitive—and if the fund, or bank, down the street is making a lot more money than you are, you have a lot of incentive to imitate their behavior. In fact, if you don't imitate the behaviors of others you will likely lose assets and people. That said, the financial institutions that have done well over very long time periods tend to be fiscally conservative and do an effective job of managing the incentive problem.

Let me wrap up this discussion of catastrophes with what I'd call the paradox of risk. That is, what appears by consensus to be the least risky asset based on past performance is often a very risky asset prospectively, and inversely what appears very risky based on past performance may have little risk. The examples that fit this today would be Treasury securities on the one hand, and certain mortgage-backed securities on the other.

So how do you avoid catastrophe? Worry about the problem of induction, worry about leverage, and worry about incentives. And when the signals from the market seem to violate what history teaches us, be prepared to trade short-term reward for long-term viability.

III.

The final part of my comments has to do with behavioral or psychological issues and these weigh heavily on our ability to maintain an appropriate focus.

One of my favorite researchers in this area is Stanford neurobiologist Robert Sapolsky. Sapolsky is one of the world's experts in stress and spends the school year in his lab and the summers in Kenya studying baboon troops. [9] He decided to study baboons because they are of course similar to humans physiologically and also allocate their time in a similar fashion: they spend a couple hours a day feeding themselves and the rest of the day tormenting one another. Sapolsky shoots tranquilizer darts into the baboons and gets a read on stress by measuring their cortisol levels—something that's really hard to do with most organizations!

So where does stress come from? Not surprisingly, humans don't deal a lot with physical stressors like predators. Our stressors tend to be psychological. In fact, stress usually kicks in when three conditions arise:

1. You feel a lack of predictability and control
2. You lose outlets to let off steam
3. You perceive things are getting worse

A pretty neat summary of the current investing and economic environment, wouldn't you agree? How do people react when they are stressed? For a host of good evolutionary reasons I won't get in to, one big takeaway is people tend to pull in their time horizons. While they recognize they *should* be thinking long term, their stress encourages them to focus on the here and now. Not surprisingly, then, right when people should be thinking long term their inclination is to act in the short term.

This leads to a related idea, which behavioral economists call myopic loss aversion. [10] Myopic, of course, means a lack of foresight. Loss aversion is the well-documented idea that we suffer losses 2 to 2.5 times as much as we enjoy similar gains. And the loss aversion ratio likely rises after you have suffered recent losses. So here's what happens when you put it all together:

- The environment causes stress
- You shorten your time horizon
- You then revisit your portfolio more frequently
- You see more losses
- Loss aversion kicks in and you suffer a lot
- You up the *risk premium* you demand for new investments, pushing down asset prices

Research suggests a normal investor time horizon is about one year, and you can be sure it is a lot shorter today. The main implication from myopic loss aversion is that *long-term investors are willing to pay more for a risky asset than short-term investors*.

This leads to my last observation. Finance models often assume normal price change distributions and a random walk. For example, if these assumptions hold you can invoke the square root rule—volatility rises as a function of the square root of time. So for example, if one-year volatility is 20 percent, two-year volatility isn't 40 percent, but rather 20 percent * the square root of two, or 28 percent.

What empirical finance shows is that investors assume more risk than is implied by the normal distributions in the short term (four years or less) and less risk than the model implies over the long term (four or more years). [11] Empirical finance confirms what most people know, that long-term investors take less risk than short-term investors. I would add as a caveat, that this is true only if the past is prologue. But given this phenomenon is largely behaviorally based, I suspect it will be around for some time to come.

OK. If you have bought in to my comments on risk, catastrophe, and psychology, what should you do?

1. Decide if you can be or should be a long-term investor. There's nothing sacred about it—you just have to make sure you properly align your thinking, policies, and processes around your time horizon.
2. Don't overbet. Constantly consider the problem of induction and the deleterious effects of leverage and incentives.
3. Work to reduce stress and maintain perspective. Some documented ways to lower stress include:
    a. Exercise
    b. Maintain and cultivate social connections (family & friends)
    c. Get sleep and maintain a healthy diet
4. Don't dwell on short-term portfolio moves. Sidestep loss aversion if possible.
5. Remember the story from Abraham Lincoln. He recounted that an Eastern monarch once charged his wise men to invent him a sentence that would be true in all situations. They came back with the words: "And this, too, shall pass away." As Lincoln said, this phrase "chastens in the hour of pride, and consoles in the depths of affliction." This too shall pass and long-term investors stand well to gain. [12]

Thank you very much.

The Greenwich Roundtable is a non-profit research and educational organization for investors who allocate capital to alternative investments.

Endnotes

[1] Benjamin Graham, *The Intelligent Investor, 4th ed.* (New York: Harper & Row, 1973), 277-287.
[2] For example, see Warren Buffett and Charlie Munger, "The Chief Lessons of Our Success? That a Few Big Ideas Really Work," *Outstanding Investor Digest*, August 8, 1997, 19.
[3] Shinichi Hirota and Shyam Sunder. "Price Bubbles sans Dividend Anchors: Evidence from Laboratory Stock Markets," *Journal of Economic Dynamics and Control*, Vol. 31, No. 6, June 2007, 1875-1909.
[4] Michael J. Mauboussin, "Where From Here?" *Mauboussin on Strategy*, October 29, 2008.
[5] Benoit Mandelbrot and Richard L. Hudson, *The (Mis) Behavior of Markets: A Fractal View of Risk, Ruin and Reward* (New York: Basic Books, 2004), 248.
[6] Michael J. Mauboussin, "Size Matters: The Kelly Criterion and the Importance of Money Management," *Mauboussin on Strategy*, February 1, 2006.
[7] For a good discussion, see Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable* (New York: Random House, 2007), 40-41.
[8] Andrew W. Lo, *Hedge Funds: An Analytic Perspective* (Princeton, NJ: Princeton University Press, 2008), 255-302.
[9] Robert M. Sapolsky, *Why Zebras Don't Get Ulcers: Un Updated Guide to Stress, Stress-Related Disease, and Coping* (New York: W.H. Freeman and Company, 1994).
[10] Shlomo Benartzi and Richard H. Thaler, "Myopic Loss Aversion and the Equity Premium Puzzle," *The Quarterly Journal of Economics*, February 1995, 73-92.
[11] Jeremy J. Siegel, *Stocks for the Long Run: The Definitive Guide to Financial Market Returns & Long-Term Investment Strategies*, 4th ed. (New York: McGraw Hill, 2008), 28-29; Edgar E. Peters, *Fractal Market Analysis: Applying Chaos Theory to Investment & Economics* (New York: John Wiley & Sons, 1994), 28-30.
[12] Abraham Lincoln, "Address before the Wisconsin State Agricultural Society," Milwaukee, Wisconsin, September 30, 1859.