

## What if stocks are not for the long run?

A professor of finance at the University of Chicago finds equities riskier than we think

By **Evan Cooper**  
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Lubos Pastor may upend the world of equity investing. In his recent academic paper "**Are stocks really less volatile in the long run?**" the professor at the college's Booth School of Business argues that stocks are riskier than generally perceived.

Written with Robert F. Stambaugh, a professor of finance at the Wharton School of the University of Pennsylvania in Philadelphia, the paper contends that academics have been looking at stock performance retroactively. This is a distorted lens, the two believe. Mr. Lubos explains his views below.

**Q. For years, advisers and investors have believed that the risk inherent in equity investing can be mitigated by holding shares for many years. In short, as Jeremy Siegel notes, stocks are for the long run. You're saying that's not necessarily the case. Why?**

**A:** Because the results of my recent study with Rob Stambaugh show that long-horizon stock investors actually face more volatility than short-horizon investors, contrary to conventional wisdom.

**Q. Why do your results differ from the conventional wisdom?**



Lubos Pastor

**A.** Because our results are based on a different measure of volatility. We are not interested in the backward-looking historical volatility but in the volatility that matters to forward-looking investors. Historical volatility is somewhat relevant to investors, but it does not fully capture all the uncertainties that investors face. Investors care not only about historical estimates but also about the uncertainty associated with those estimates. That uncertainty, which is sometimes called "estimation risk," is included in the forward-looking measures of volatility that we compute. We find that estimation risk rises rapidly with the investment horizon, pushing up long-run volatility.

**Q. What does estimation risk mean for returns?**

**A.** Estimation risk refers to uncertainty about historical estimates. For example, the historical-average stock market return may have been, say, 10% per year, but there is no guarantee that the average return in the future will also be 10%. In fact, it will almost surely be different. Historical estimates of volatility are computed from fluctuations around the historical average, but the

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volatility that matters to forward-looking investors is computed relative to an unknown future average. Uncertainty about this future average compounds over time, so its effect on volatility increases with the investment horizon. We just don't know much about average returns over long periods over time. It is this uncertainty that makes stocks more volatile in the long run than in the short run.

**Q. You write in your study that long-term volatility of stocks consists of five components. What are they?**

**A.** The first component of long-run variance captures the variance obtained if stocks followed a random walk. This boring component does not change with the investment horizon — variance per year is the same regardless of how many years you invest over. The second component is associated with “mean reversion” in stock returns, which, loosely speaking, reflects the fact that bull markets tend to be followed by bear markets and vice versa. Mean reversion makes stocks less volatile in the long run, and it is mean reversion that the conventional wisdom is based on.

However, there are also three additional components of variance, all of which pull in the opposite direction. All three components reflect various types of uncertainty faced by an investor. For example, an investor does not know what the average stock market return is going to be in the future. The investor doesn't even know what the equity premium is today and what the other parameters of the return process are. All of these quantities must be estimated, leaving the investor with substantial estimation risk, which we discussed earlier. All three components of uncertainty get bigger as the investment horizon lengthens, and their combined effect outweighs that of mean reversion. As a result, forward-looking investors perceive stocks to be more volatile in the long run.

**Q. Isn't there a kind of irony in your findings in that for at least two or three decades after the Depression, stocks were considered risky by almost everyone? Yet the actual strong returns of the 1940s, 1950s and 1960s set the stage for a mindset change in which equities were seen as being a sure thing over the long run despite intermittent downturns. Is it possible that now with most people still believing in stocks for the long run — despite the current downturn — actual returns will be lower? In other words, when everyone loves stocks, the returns aren't very good, but when stocks are seen as losers, they actually gain?**

**A.** I agree. The risk-return tradeoff is one of the basic principles of finance. When investors perceive stocks as safe, stocks are priced high and their average future returns are low. When investors perceive stocks as risky, stocks are priced low and their average future returns are high. In March, many retail investors threw in the towel when the stock market reached new lows, and they missed out on a 30% subsequent rally. If you aim to maximize expected return, you should be contrarian, buying when everyone else is scared and selling when everyone else is complacent.

**Q. We know what happened over the last year, which has been devastating for those investors in retirement or near retirement. But younger investors, those under 40, believe that they can make up the loss over the decades remaining until they retire. Is that a false belief?**

**A.** Yes and no. Investors who believe that their depressed stock investments are guaranteed to rise at historical rates in the long run may well be mistaken. But youngsters do have an advantage over older investors in that they have more time to adjust their consumption patterns over their lifetimes.

**Q. Other than curbing consumption, is there anything else younger investors — or any investors for that matter — can do to increase savings?**

**A.** Spending less is the only guaranteed way to increase your savings. If investors wish to achieve a higher return on their savings, they can take on more risk. Riskier investments yield higher returns, on average, as

compensation for the extra risk. Investors should consider their individual circumstances before deciding how much risk they want to take.

**Q. If someone were to act on your findings and reduce his or her equity exposure in favor of bonds, how could he or she hedge the risk of inflation eating into the nominal value of the returns?**

**A.** They could buy Treasury inflation protected bonds, or TIPS. But we have not analyzed the long-horizon volatility of bonds, so I do not wish to give any investment advice on stock-bond allocations.

**Q. Academics like to criticize each other's work. What's been the criticism of your findings?**

**A.** Having presented this work to academics at a dozen universities, I'm happy to say that our volatility results have not suffered any serious injuries so far. Some academics criticized us for focusing solely on long-horizon volatility, without exploring the portfolio implications of our findings. In response, we have added such an exploration recently. We focus on target date retirement funds, which automatically reduce their investors' equity allocation as the investors grow older. These funds have become enormously popular recently. We find that estimation risk can make target date funds undesirable to investors.

**Q. Have you received inquiries or comments from the financial planning community?**

**A.** Yes, my co-author and I have received several invitations to speak at practitioner conferences. For example, I recently agreed to present this work to the Chicago chapter of the Chartered Financial Analyst Institute in September.

**Q. Have you changed your own investing patterns as a result of your work?**

**A.** Yes, I have slightly reduced my long-horizon stock allocation. But I remain heavily invested in stocks, due to my own personal circumstances. As a tenured professor, I have a relatively safe labor income, so my human capital is similar to an investment in inflation protected government bonds. Having such a large bond-like investment, I need risky stock-like exposure in my financial capital. I think that all of us should consider the risk profile of our human capital when deciding how to invest our financial capital.

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