There’s all this academic research out there that attempts to explain why stocks do well or poorly by focusing on investment factors, such as momentum or low price/earnings ratios. In all, 316 different factors were identified in the papers I studied, including things like the amount of media attention a company gets or how much it spends on advertising. My research found that of all the published papers in finance, over half are likely false. The problem is the researchers were applying the tools of statistics as if there was only one test going on when there are multiple variables. Some factors are going to look statistically significant just by chance.

Can you help us understand?

There’s a cartoon that explains this well. Let’s say somebody has a hypothesis that jelly beans cause acne. So researchers conduct a controlled experiment where some people get jelly beans and some don’t. It turns out that there’s no significant difference.

Then somebody says, “Well, maybe we’re looking at this incorrectly. We should look at this by the color of the jelly bean.” So then 20 new experiments are undertaken. Again, some people get jelly beans and others don’t.
The jelly beans are just red.

A separate experiment uses just yellow beans. Then all purple. Each time there’s no effect. On the 20th try, which happens to test green jelly beans, they find there’s a difference that is statistically significant by the usual rules. And then in the newspaper the next day, there’s this headline: Green jelly beans cause acne.

What should the standard be?
- Usually you’re looking for 95% confidence, which means there’s a 5% chance the result was a fluke. But that’s true only if you’re conducting a single test. As soon as you go to multiple tests, it’s like the jelly bean problem. You do 20 experiments and you’re likely to get a hit by chance.

To be fair, you’ve made this mistake yourself.
- Some of the papers we analyzed are ours. This actually gives me a bit of a pass when I’m talking to my colleagues and saying, “Half of what you guys published is false.” And they kind of push back: “How could you say that?” And I say, “Well, it also holds for me, okay?”

What does this mean for the average investor?
- For individual investors the best thing to do is to just go with an index fund. Don’t believe these claims of using this or that “factor” to beat the market. Invest in the broad market, and go with the lowest possible fee.

But so-called smart beta index funds claim to capitalize on these “factors.”
- Imagine there are 316 of these “smart” beta index funds, each chasing one of the factors that I detail. It is likely that more than 50% of them are destined to disappear. Suppose there’s an ETF investing only in stocks beginning with the letter “H.” The managers claim historical outperformance for H stocks based on simulations going back to 1926. They claim their results are “significant.” They’re likely using the wrong statistical method to declare their strategy “true.” They might have tried 26 letters and “H” worked by chance.

The insight is the same for 316 factors. If you try enough strategies, some will work by luck. In many cases it’s not about being “smart.”

Speaking of smart, rebalancing has been recommended as a prudent approach. You’ve done research on this topic, right?
- Rebalancing is like mom-and-apple-pie sort of finance, in that we just assume it’s a good idea. We don’t think through what it involves. In my research I detail the risk that is induced by a rebalancing strategy.

Don’t you rebalance to reduce risk?
- Let’s say you’ve got a portfolio of 60% stocks and 40% bonds. Now, imagine stocks drop and you’re in a prolonged bear market. If you’re rebalancing, you have to buy equities to get that proportion back up to 60%. So as stocks are falling, you’re buying more and more. Your portfolio is going to have a bigger drawdown than another portfolio where you didn’t rebalance.

It works in bull markets too. If stocks are rising, you’re buying bonds. So equities are going up and up and you’re rebalancing, you’re dumping stocks. The market goes up. You dump more. All of a sudden your portfolio has done worse than if you had just let it run.

So how should investors think about rebalancing then?
- It is not smart to rebalance the last day of the week or the last day of the quarter by rote. It means you’re ignoring all of the information in the market. There’s lots of information out there, so use that information. Use your judgment.

If you don’t have time to figure this out, isn’t it better rebalancing worth the risk—to keep from being overly exposed to stocks before a bear market?
- If you have a very long time horizon, you may be able to bear the extra risk by rote rebalancing. You will still have bigger drawdowns in the value of your retirement portfolio, but you don’t need the money in the short term and you can ride out the risk. My point is all investors need to understand that rote rebalancing is an active investment decision that increases risk.

You’ve also done research on Bitcoin. The smart money is pretty sure it’s a worthless currency. What don’t people get?
- Almost everything. For instance, part of the misunderstanding is the focus on the price of the Bitcoin. You see that it was at $1,400, then it dropped to $620. People say, “Well, the bubble has burst,” and stuff like that. They are looking at just one aspect of Bitcoin. These critics don’t start by asking themselves, “What problem does Bitcoin solve?”

What problem does it solve?
- I am tired of constantly getting phone calls from my credit card companies, having to go online to fix the 20 things I’ve got auto-debits for, and dealing with charges that are not mine on my card. These are problems that many people encounter.

But Bitcoin is safer?
- Bitcoin is much safer. When you go to buy something, the retailer actually is able to check a common ledger of all transactions to make sure you actually have the money to spend. The public ledger, which is essentially the tapestry of transactions, should help with this. Bitcoin price fluctuations are a factor of it being so young.

The best way to judge Bitcoin is not to look at the price progression, but to look at the vast amount of money that’s being invested by venture capitalists into Bitcoin-related companies. That’s what I look at.