

Benjamin Graham once said that, "The investor's chief problem-- even his worst enemy-- is likely to be himself." I'm going to talk today about some things investors do that make them their own worst enemies. But first, I want to tell you why I think finance is harder than accounting. To be an accountant, you have to be able to add and subtract. But to deal with finance, you really have to understand probability.

Human beings have a good intuitive grasp of quantities. We're pretty good at adding and subtracting. But we don't have a good intuitive grasp of probability. Let me give you a couple examples. 2 plus 2. Everyone knows what 2 plus 2 is, right? You know, even little kids know what 2 plus 2 is. There are some exceptions. If you were to ask an accountant, what's 2 plus 2? He might reply, what do you need it to be? But most of us agree-- 2 plus 2 is 4, OK? Let me give you a simple probability problem. What if I were to flip two coins? What's the probability that both coins would come up heads? Most of you probably know the answer-- 1 out of 4, or 25%.

All right. Now I'm going to make both the addition and the probability problems a little bit harder. Let's start with addition. 2 plus 2 plus 2 plus 2. Anyone get it? I doubt that there's anyone out there who even had to count-- 1, 2, 3, 4, 5, 6, 7, 8 apples. You look at them. You say, eight apples. Easy enough. Now I'm going to make the probability problem a little harder. What if instead of flipping two coins, I were to flip four coins? And my question is, what's the probability that any three coins come up heads, and the other coin comes up tails? And I don't care about the order. How many of you are sure you know the answer to that question? As it turns out, the probability of three out of the four coins coming up heads and the other one, tails, is also 25%, or 1 in 4. But most people don't know is that I gave a talk at Google the day before Google went public. There were about, oh, 200 software engineers in the audience. And I asked this question. Maybe 20 of them knew the answer. When I asked them, why is it that you know answer? A couple of them said, well, we took a course on combinations and permutations. And we learned how to figure things like that out. And then I looked around the room at the other 180 people, and I said, what about you guys? And someone said, well, yeah, we took that course, too. But it was a long time ago. We don't do this very often. Without formal training and regular practice, most people can't solve such probability problems. Now, you might think, OK, people can't solve it formally, but they probably come close. Maybe, but I don't think so.

You know, when my daughter Isabel was in middle school, she did a middle school project where she went down to the local Peet's Coffee shop on a Sunday morning and asked people passing by simple three coin problems. Their answers were all over the place. There was no convergence on the right answer. And I think it's just because we really don't have a good intuitive grasp of probabilities. And so we use mental shortcuts, sometimes known as heuristics, to solve probability problems. And sometimes these heuristics work pretty well. And sometimes they lead us astray. For example, I'd like you to think of a company that went public since the year 2000 that has been very successful. Well, probably

many of you thought of this company partially because you see its name every day and partially because I just mentioned it. All right. Hold on to that for a moment. And now I want you to think of a company that went public since the year 2000 that is now bankrupt. Is that an easier or a harder task? For most people, it's harder. And that's not because more companies are as successful as Google than go bankrupt, quite the contrary. It's because the very successful companies-- they're still there. We think of them. We see their names. We use their products. The companies that have gone bankrupt-- they're largely forgotten.

While some companies blow up in a spectacular fashion like Enron or WorldCom, most fail quietly and fade off into the sunset and are not thought of very often. So how would this matter for an individual investor? Suppose an investor is thinking of buying a high-tech stock that's having its IPO. And the investor is asking himself, well, I wonder how likely it is this company will be successful. So he thinks back, and he says, oh, Google's been really successful. And Apple's a very successful tech company. And well, if I'd been around back in the day, I wish I'd bought some Microsoft. And then he says to himself, well, how often do these companies fail? And he scratches his head and says, I don't know. I guess pets.com isn't around anymore. So it's easier for this investor to think of successful companies than unsuccessful companies. And if he uses this heuristic, sometimes called the availability heuristic, to estimate probabilities, he's going to overestimate the likelihood that this high-tech IPO is going to be successful. So I'm going to discuss today my research on the biases and the behavior of individual investors, why we should care about their behavior, and what can investors do. Let's start with overconfidence and trading.