

“Doubt as a Discount”

June 10th, 2018

To Focused Compounding members:

Let's play a game. I ask you a series of questions. You give me a series of answers. I then test the answers you give to prove them false using as unfavorable a definition of false as I feel like. You have \$1,000 in your pocket. You can't leave the room. You can't use your phone. And you can't take off your shoes. I offer you even money odds on each of the following questions ***asked in succession***: 1) What is your gender? 2) How old are you? 3) Who is your biological father? 4) What is your shoe size? 5) How tall are you? 6) How much do you weigh? 7) How many times will you go to the gym this week?

To complete this game, you need to give me seven pairs of answers. One, what percent of the money in your pocket are you betting? And two, what's your answer. This game can end with you having anywhere from \$0 to \$128,000. Now: get out an index card. And write down your 7 answer pairs. Don't read on till you've done that. Okay. Let's assume you did bet all \$1,000 that your gender is male. Should you have bet 100%? To answer this question, we need to know what the chances are that you would think you're male and yet I could prove that answer false under the strictest test. If we assume the only way you could win this bet is if you said male and your chromosomes are “XY” and only “XY” then we can create a range of chances that someone might say they are male and yet fail this test. By my estimates, more than 98% of males would have no doubts they were male and be right even if subjected to the “XY” only test, perhaps up to 2% (an over estimate) of males would have doubts and could lose this bet under the strict “XY” only test, and about 0.2% might not have any doubts and yet could lose this bet. How should you have bet?

One way for figuring out how much to wager on each of a series of bets is the Kelly Criterion. I haven't met any investors who say they use the “full Kelly”. However, I have met investors who say they use “a third Kelly”. Say the Kelly Criterion tells you to bet 96% on the answer “Male”. Someone using a third Kelly would bet 32%. The third Kelly leads to a bad bet here. Why? The Kelly Criterion sets the limit of how much you should bet given the chances and odds you've plugged into the formula. In the case of the gender question: a full Kelly doesn't ask if you understood what I meant by male. Meanwhile, a third Kelly applies a 67% doubt to your own thinking about ***every*** problem you encounter. Betting 32% on the answer “Male” is like saying you're 98% sure you're male as you understood the question but there's a 67% chance you didn't understand the question. This is the same as betting like you're 66% sure you're male and 100% sure you understood the question. Here, a third Kelly absurdly overestimates the furthest fringe estimate of a reasonable level of self-doubt. Factoring in a doubt discount (assuming there's a chance the world works differently than you think) is a sound step to take in every investment decision. For example, you may not have considered any chromosome combos but “XX” and “XY”. Among the other questions... You may not have considered that your height changes throughout the day. You may not have considered that although you look like the man you think is your father – your dad has brothers. Once reminded of these facts, you should adjust your bet size down – but only within reason. Notice that all 7 questions are things you should know. Several are objectively verifiable facts. And yet none of your answers will be 100% free from doubt. Therefore, none of your bets can be either.

