A Bayesian on Uber Suggests Less than 40% Chance of Failure

What are the odds Uber is alive in 10 years' time? Just 1%, according to Hamish Douglass of Magellan.

My guess is he was making a point using hyperbole – 1% is a very low number. But it is an interesting question. And one that we can learn a lot from trying to answer.

On a recent holiday I finally got around to reading *Superforecasting: The Art and Science of Prediction*. It's the best book I have read in a very long time (thanks Chris), and it clarified something I have been thinking about for many years.

Bayes Theorem, a slightly obscure corner of the world of probability theory, gets a chapter in the book. We have written a few Bayes Theorem blogs but I've never really been able to succinctly summarise why it is so important. Sure, the results can be counter-intuitive. But why does everyone seem to think it so important that it gets its own chapter in a book (Nate Silver's excellent *Signal and the Noise* was half Bayes Theorem)? Superforecasters answered that question for me.

My summary is this: the importance of base line probabilities is often overlooked by investors. Our brain wants to jump straight to a conclusion based on the most recent information we have, and that can be a big mistake.

Here's a reminder of the text book example. Assume one in 10,000 people in the population has a rare disease. A test is available from the local chemist that is 95% accurate. You take the test and test positive.

Time to freak out, right?

Still low chance

No, it's not. Yes the test is fairly accurate. But the starting probability is so low that even those who test positive are still unlikely to have the disease. Imagine 10,000 people take the test. Only one of them actually has the disease (95% likely, but not certain, to be accurately diagnosed). Of the remaining 9,999, 5% of them are going to get an *incorrect positive* result. That is approximately 500 people testing positive for every one who actually has the disease (the exact probability has changed to 0.19% for those who want to look up the formula and use a calculator).

We don't need to worry about the maths to use the principle effectively. Most real world probabilities are not exact numbers. The key here is to make sure you think about base line probabilities before you jump to conclusions.

So is Uber going to be bust in 10 years' time? Ignore the temptation to think about driverless cars and how much of a twit CEO Travis Kalanick is. Let's try and think about base line probabilities first.

Start with what percentage of companies go bust. A quick Google search tells me roughly half of all new businesses in the US fail in the first five years and one third survive 10 years or more. That means just 33% of the survivors fail between years five and 10. Uber is 8 years old so, assuming the failure rate continues to decline, I would estimate that roughly 25% of businesses that make it to 8 fail within the next decade. Now we have a useful starting point from which to incorporate Uber-specific information.

Leave Uber for last

The company apparently generated US$6.5bn in gross revenue last year on more than US$20bn of bookings (Uber keeps roughly 30% with the rest going to the driver). That's a big business, which dramatically increases the chances of survival. I would probably adjust the 25% down to 10% thanks to Uber's growth and size.

It is losing money, though. Apparently more than $2bn last year. So that increases the chances of failure if shareholders refuse to keep funding it. My personal opinion is that Uber could be extremely profitable tomorrow if they stopped trying to grow, but we'll leave personal opinions out of it for now. Let's say its current losses increase the failure likelihood back to 20%. Driverless cars? That's a risk, but also a potential opportunity. Bump it up to 30%? The Kalanick factor? He is definitely a twit, but how much does that increase the failure rate by? A couple of percent perhaps?

All of this is completely subjective, of course, but it does help make a point. We aren't getting anywhere near 99%. There are many factors to contemplate, but the base rate is uber important.