Learning to think probabilistically is the key to finding success in investing

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SPECIAL TO THE GLOBE AND MAIL
PUBLISHED AUGUST 29, 2023

In discussions about artificial intelligence, we often hear the question: Why do neural networks, designed to think like us, generate incorrect information? We don't know – in part because we don't know much about how the human mind works.

Perhaps the greatest expert on human cognition is Daniel Kahneman, a psychologist who won the Nobel prize in Economics in 2002. In his book, *Thinking Fast and Slow*, he points out that, in some areas of life, our minds tend to lead us in the wrong direction.

To illustrate, consider Frank, who lives in Toronto. He wears glasses and loves reading. Is it more likely he is a librarian or a salesman? Most people answer librarian. However, there are more than 100 salesmen in Toronto for every male librarian, so the correct answer is salesman. Once the reasoning behind this outside view is explained, most people understand why salesman is the correct answer. However, I suspect they are somewhat uncomfortable with this approach.

That's because we are all hardwired to prefer stories to numbers. For most of human existence, stories bound us together. These stories inevitably included a cause and effect, making the world appear ordered and predictable. Randomness was an unknown concept; thinking in terms of large numbers and probabilities was not required. Our minds have not yet evolved in that direction.

Mr. Kahneman points out that thinking probabilistically requires slowing down and thinking hard about the question. We make thousands of decisions every day, and this is completely unnecessary for almost all of them. However, in a few areas of modern life, it is a crucial skill – and that includes investing.

Successful stock-market investing results from buying companies for less than their true value. Because that true value is a function of the company's future profits, your job as an investor is to forecast those profits as best you can.

What every Canadian investor needs to know today

Most investors will base their forecast on some combination of their knowledge of the company and their past experience. In effect, they look at what they perceive as the company's key features and produce a narrative about its likely future, an approach psychologists call the inside view. Some people are better at this than others, but we all suffer from over-confidence in our ability to predict the future. For the vast majority of people, this intuitive, subjective approach is unlikely to result in superior results.

Mr. Kahneman states that there are three types of information relevant to a prediction: the outside view, based on evidence of similar situations; the inside view, based on the specifics of the case; and the relative weights you should assign to each.

One way to determine the appropriate weighting of the outside and inside views is to know where the activity lies on the luck-skill continuum.

For activities where skill dominates (such as a chess game or running race), the outside view has little or no bearing. By contrast, when randomness (luck) dominates (such as playing a few hands of gin rummy) the probability of the outcome will be based primarily on the outside view.

Where an activity falls on this continuum can be measured by studying the consistency of results over time. If skill dominates, results will be mostly (or entirely) the same. If randomness plays the dominate role, results will be all over the place.

As discussed in a previous ROB article, Michael Mauboussin, author of *The Success Equation*, has examined the results of more than 1,400 mutual funds, comparing their results, relative to the average, between two successive three-year periods. (Three years is the most common period of time over which to evaluate an investment manager's performance.) In this comprehensive study, he discovered a startlingly low correlation between the performance achieved by each fund in the two periods.

Mr. Mauboussin concludes that success in investing, measured over a three-year period, is an activity that is about 85-per-cent luck (randomness) and only 15-per-cent skill. (In fairness to professional investors, it should be noted that, for longer time periods, skill would have a higher weighting.)

Based on this study, Mr. Mauboussin points out that, when investing, the outside view should be given the greater weight.

How do you do this? Before predicting how a particular business is likely to do, learn how similar companies have performed in the past.

To take a somewhat over-simplified example, if you are looking at a consumer-packaged goods company with annual sales between $1-billion and $5-billion, begin by asking what has been the average five-year annual growth in sales of companies falling in this category. This information is increasingly available. Let's assume it is 6-per-cent per annum. If you had predicted that the company you are looking at will grow at 14-per-cent per annum over the next five years, you should perhaps temper your optimism.

However, if you had first come to that conclusion based on an inside view, you will likely resist this. We all suffer from confirmation bias, which inclines us to ignore contradictory evidence. You may reply indignantly that there is no reason to think that a particular company cannot greatly outperform the long-term average. This is true, just as it is possible Frank is a librarian. But, in both cases, you are simply following a very human inclination to ignore probability.

Successful investing is not about hunches, instincts or intuition. It is about having the discipline to tilt the odds in your favour. One way to do this is to put things in the proper order. Start with the outside view: Step back and see a company first as being a member of a representative group. Then, by all means, consider its particular qualities before deciding to buy, sell or hold.

It's not easy, but those who can do this consistently (perhaps with the assistance of a neural network) will be rewarded.

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