

Should we give up our day-job? Probability -v- luck.

Last November, we spent a lovely day in the country attending the Dunkeld Cup race meeting at Dunkeld, Victoria, Australia. The location is very picturesque and we had a thoroughly enjoyable day. To add to the pleasures of wining and dining, we developed a 'foolproof method' that picked 5 winners and a place getter out of 7 races with 8 bets placed (we backed 2 horses in the 'Cup'). ***Should we give up our day job to exploit this newly discovered skill?***



The Dunkeld Racecourse with Mt. Abrupt and the Grampian Mountains behind

The horses chosen were not random picks; the form guide rated horses based on form from 100 to 0, this was the basis for the selection method he adopted. Using a portfolio management approach, the first decision was to recognize the difference between a rating of 97 or 98 and a rating of 100 was too small to matter, every assessment process has a range of error and a difference of 2% to 3% is likely to be well within this range. This approach reduced the panel of potential 'winners' to three or four horses in each race.

The second step in the selection process was to look at the current situation; the form guide is printed well before the race day and it had recently rained. The 'soft' track would benefit horses carrying a lighter weight so out of the prospective panel we placed our bets of the horse with the lowest weight.

Voila! Six winners in seven races – we have a winning formula that will allow us to retire from managing projects and make our fortunes as professional punters..... **Or do we??** How much of the day was down to effective process and how much was pure dumb luck??? This is a risk management question.

What is the probability of repeating a 6 out of 7 winning streak in the future? Based on probability, the answer (sadly) is very low as the following analysis shows.....

Step One - Consider the Probability: The first consideration is how likely was it that someone would pick 6 out of 7 winners on the day? There were several thousand people at the race meeting. It is highly probable simply based on random chance that someone would have a 'winning streak' and back 6 winners using their 'infallible system'. In *'The Drunkards Walk: How Randomness Rules Our Lives'*¹, Leonard Mlodinow tells the story of Bill Miller, who managed a trust fund that beat the Standard & Poor's 500 index for 15 consecutive years. This can be calculated as a 372,529-to-1 outcome making Miller a financial genius, or maybe it was just the result of random chance....

If you consider 6000 plus fund managers and the 40 plus years of the market, while the chances of a particular person achieving the result are 372,529-to-1, the probability of someone achieving the result sometime during the period is closer to 3 out of 4 (nothing is ever certain). Miller's skill increased the probability of him achieving the result but effect of random chance was the major contributor.

Another example quoted in the book concerns Leonard Koppet, who claimed to have invented a system that predicted the performance of the Dow Jones Industrial Average correctly for 11 years prior to 1990, and for the next 8 years through to 1998. A 'winning streak' of 18 out of 19 years! His prediction was limited to the 'Dow' rising or falling in a particular year. The problem is his method which was kept secret at the time was based on the outcome of a baseball game!

Taking randomness into consideration, there is a high probability that someone will have a similar winning streak in 2020, but a several-thousand-to-one chance against us achieving a repeat outcome, the probability us achieving a similar outcomes two years in a row is almost zero.

A central theme in *'The Drunkards Walk'* is that there is a strong tendency for 'winners' to ascribe the results of random chance (luck) to their skill, pragmatic managers look deeper, so.....

Step Two: Assess All Available Data (Not Just the Highlights): We placed eight bets 5 came in first, one 3rd the other two were placed 6th and 7th respectively. All we can say for sure is the methodology is likely to select horses that will finish between 7th and 1st but with only one winner and 2 place getters returning a winning, horses finishing 4th, 5th 6th and 7th mean a lost bet. The median position is 3.5 which means a lost bet.... The Mean is 2.6 so we may still be slightly in front but place bets do not pay much.

Add in the range options and the situation deteriorates further, no horse can do better than 1st but there are many more places between 7th and last. As Sam L. Savage succinctly describes in *'The Flaw of Averages'*, in this circumstance, an *average* future results will be worse than the *average* of the measured results². Factor this in and repeating the margin of success in our small sample becomes very doubtful.

¹ See: <https://www.amazon.com.au/Drunkards-Walk-Randomness-Rules-Lives/dp/0307275175>

² The **flaw of averages** states that on *average*, plans based on *average assumptions* are wrong: <http://flawofaverages.com/>



Conclusion: So, what are the lessons from this day in the country. My take is good processes help build success but you should not confuse luck with skill. Persistence will generate more opportunities for you to be lucky, and skill or capability will shift the odds in your favour (*I am a great believer in Luck. The harder I work, the more of it I seem to have.* Coleman Cox) but randomness rules! When Napoleon Bonaparte was criticized for winning battles simply because of luck, he famously retorted: “*I’d rather have lucky generals than good ones.*” **I think we were just lucky!**

We may well return to the Dunkeld Cup in 2020 – it’s a great day out and more data is needed to round out this research; but in the meantime, applying simple probability analysis to our winning methodology suggests we need to keep our day jobs.

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