Over the summer I spent three months as an intern in the research team at Moody’s Analytics (MA), working in the Edinburgh office. This is a subsidiary of the larger Moody’s Corporation. MA provides its clients with quantitative tools to help manage their own financial risk.

At the time I was roughly three years into my PhD. I was at first unsure as to how meaningful my contribution would be - my PhD is in pen-and-paper statistical physics which, while useful, is distant from the world of financial modelling. However, I was surprised at how much was transferrable.

In my project I was looking at the interest rates that banks use when lending to one another, and how volatile they are perceived to be given other observables. My task was to develop a model that made future projections of these volatilities, with uncertainty bounds. The model was fit from a large historical data set.

Many common assets such as stocks and bonds can be modelled as Brownian motion with some sort of twist. Other ‘real life’ features could then be added - perhaps there is an upcoming election that will shock the system one way or another - but as a first step the dynamics of a Brownian motion can be used alone, to a surprising level of utility. My model successfully captured the behaviour and many of the intricacies (statistical moments) of the historical data when projecting forward, using a combination of several Brownian motions.

I take away from MA a much-improved repertoire of numerical and statistical techniques (significantly improving my confidence using MATLAB in particular), along with a much better understanding of economics simply from being immersed in the field for three months. Finally, it was interesting to find that many parts of my PhD were transferrable to this seemingly unrelated field, in a meaningful way.

I return to the final year of my PhD refreshed, and am grateful to MA for providing the opportunity of this placement.