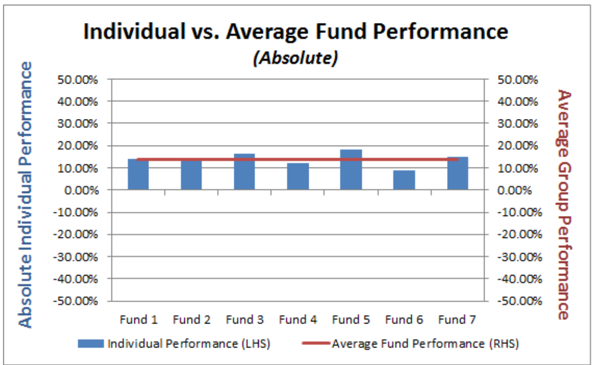
Visualizing the Arithmetic of Active Management

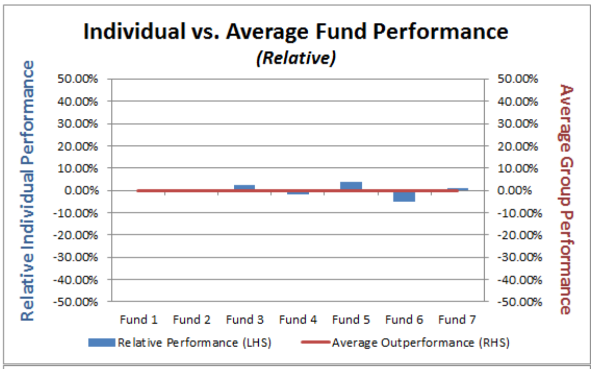
It's been said that a picture can be worth a thousand words. So can an Excel chart.

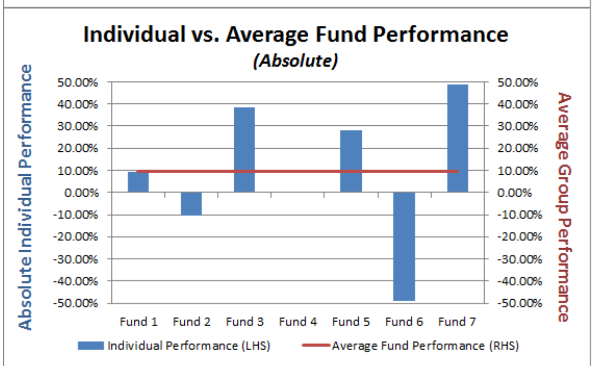
We wanted to graphically depict what Bill Sharpe taught us over 20 years ago in The Arithmetic of Active Management.[1] Here the Nobel Prize winner explained mathematically that the average actively managed dollar will equal the return on the average passively managed dollar *in every single instance*, and – importantly – that **for every relative winner there is a relative loser**.

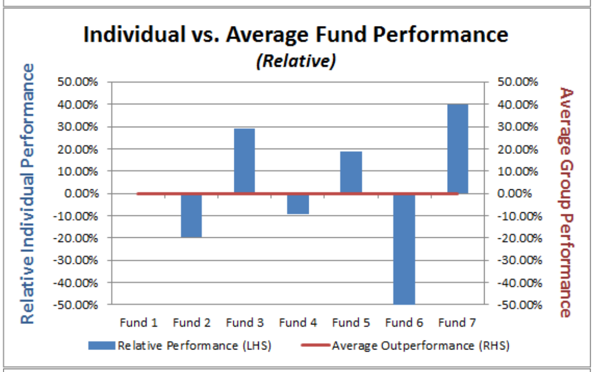
It's actually very easy to build a simple spreadsheet to portray exactly this. Below, we've created a theoretical three stock index, with seven funds having varying exposure to each name in the index. Then we've built a T+1 case with a random number generator giving us share prices for each name in the index, and the resulting absolute and relative outperformance of each individual fund, as well as for the average individual fund.

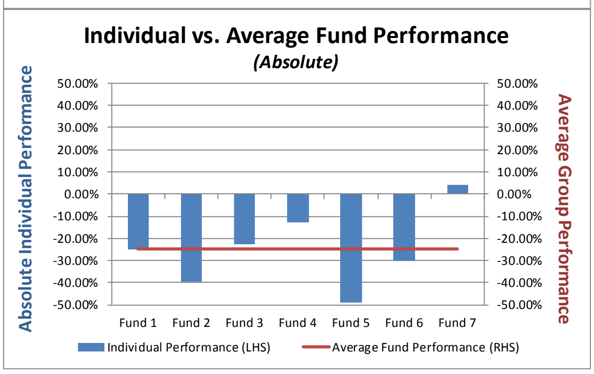
If we turn our calculation off, and press F9, hold it down, we can then visualise a dynamic infographic representing the concept that Bill was expressing all those years ago (I am sure some young buck fluent in Python or R – like @dollarsanddata – can do this much more elegantly). **The bottom line is that the absolute returns are going to be all over the place, but the average relative return, mathematically, is always zero**.

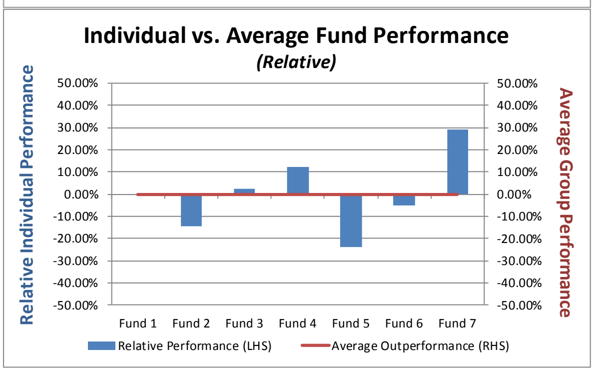












[1] https://web.stanford.edu/~wfsharpe/art/active/active.htm

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