

Question 1

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1. Artificial Intelligence or Active Management?

For this question, I decided to focus on only dates after the global financial crisis. Firstly, the funds had different starting days and I wanted only funds that had existed for the entire time that the AI Fund had existed, so as to be able to meaningfully compare returns. I also thought that in a question about volatility and returns, it would be more fair to only look at the performance of different funds after the GFC. I also did not select all funds in the data set. For actively managed funds, I selected the best and worst performing funds over the time period (measured by average returns). I did the same methodology for Indices.

Below you find the distribution of returns for three funds. The S1007 is the best performing actively managed fund in this regard, whereas the V412 is the worst. It is pivotal to mention that these returns are fees adjusted for the actively managed funds (estimated as 2.5% annualized). From this plot, we can see that the AI Fund outperforms the worst performing actively managed fund, while having a similar return distribution to the S1007. The S1007 does have a fatter tail on the high end, but it also faces more losses. The AI Fund also is more likely to yield mid-high level returns than either fund, it only lacks in extreme (high risk) regions.

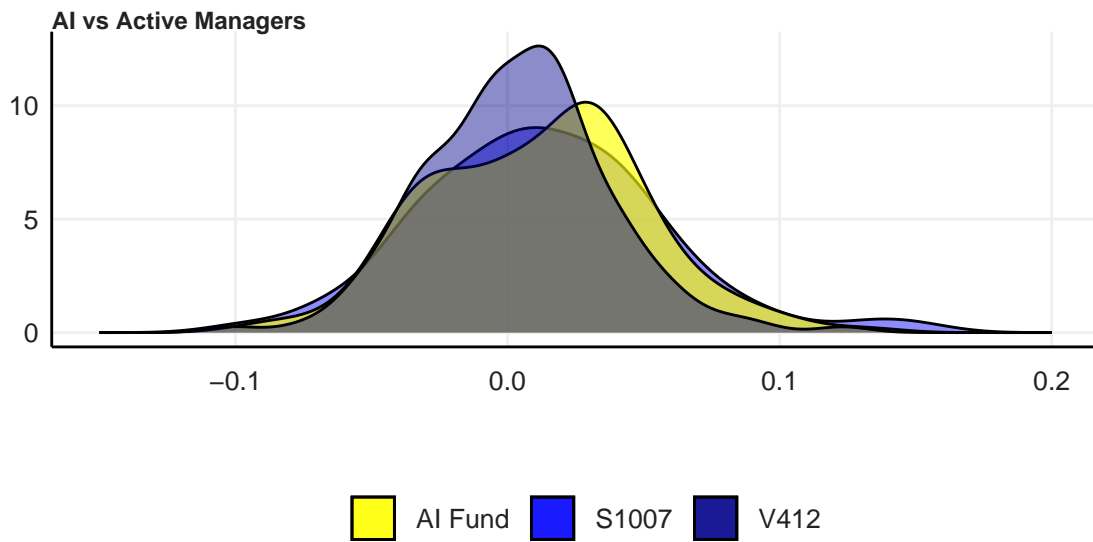


Figure 1.1

The AI Fund could not outperform Indices. It has a similar return distribution to the “worst” index fund. It performs visibly worse than the best Index fund, even though these have been capped (1% annualized).

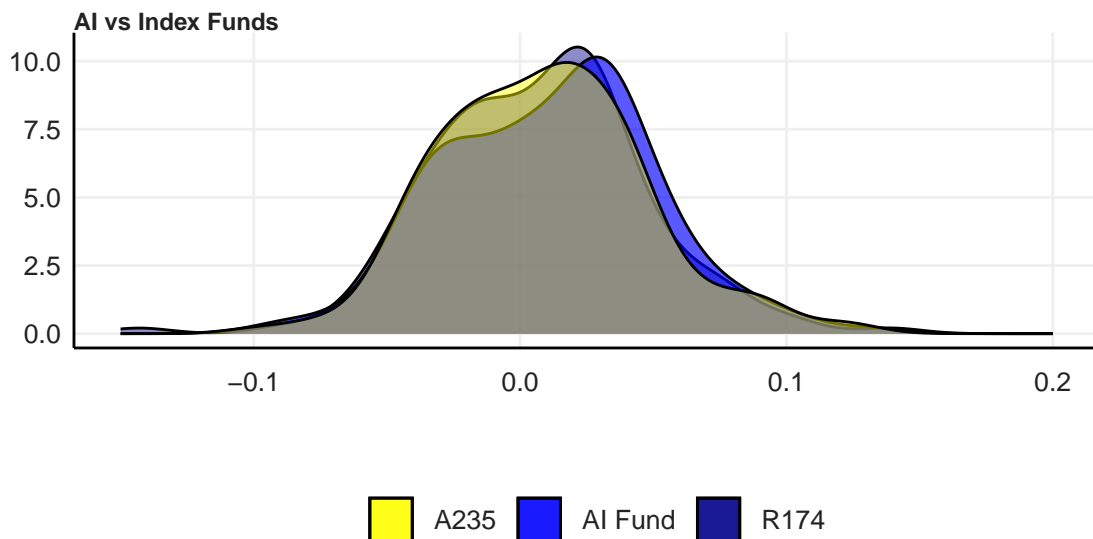


Figure 1.2

The AI Fund also has an incredibly similar returns distribution to the Capped SWIX, which is the benchmark return series for this study. It does have fatter tails, or rather, more extreme values, but

this is paid off by the potential for slightly higher returns than the benchmark.

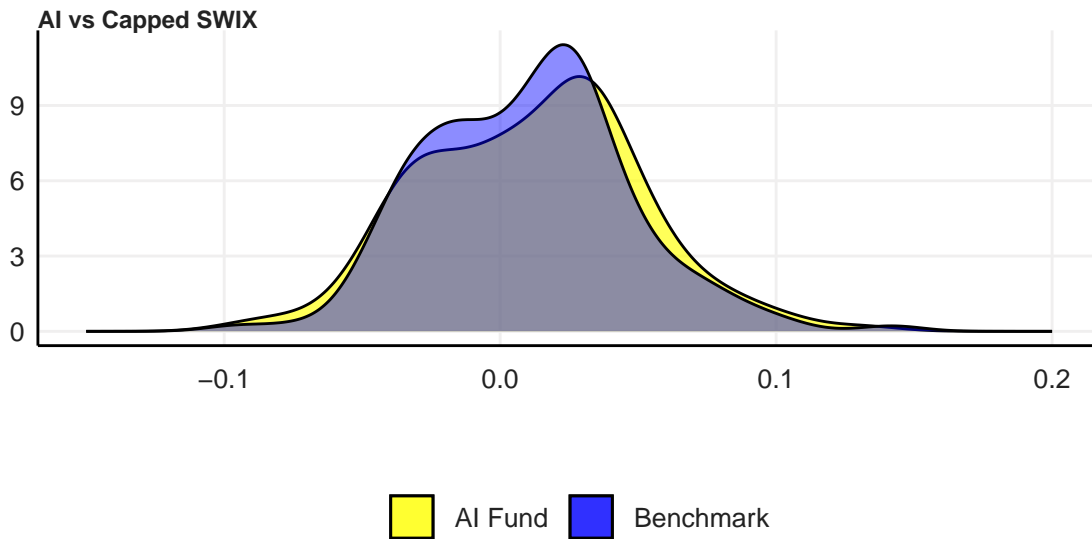


Figure 1.3

Out of the selected funds (the benchmark, the best and worst Index, and best and worst Actively managed fund), the AI Fund performs the second best. This cumulative return plot did not account for fees, however. The AI Fund consistently outperforms the benchmark rate. Notice that active management might seem attractive due to the presence of the best performing fund as one that is active, but the worst performing fund is also one which is active. I argue that the AI Fund offers a far better risk adjusted return.

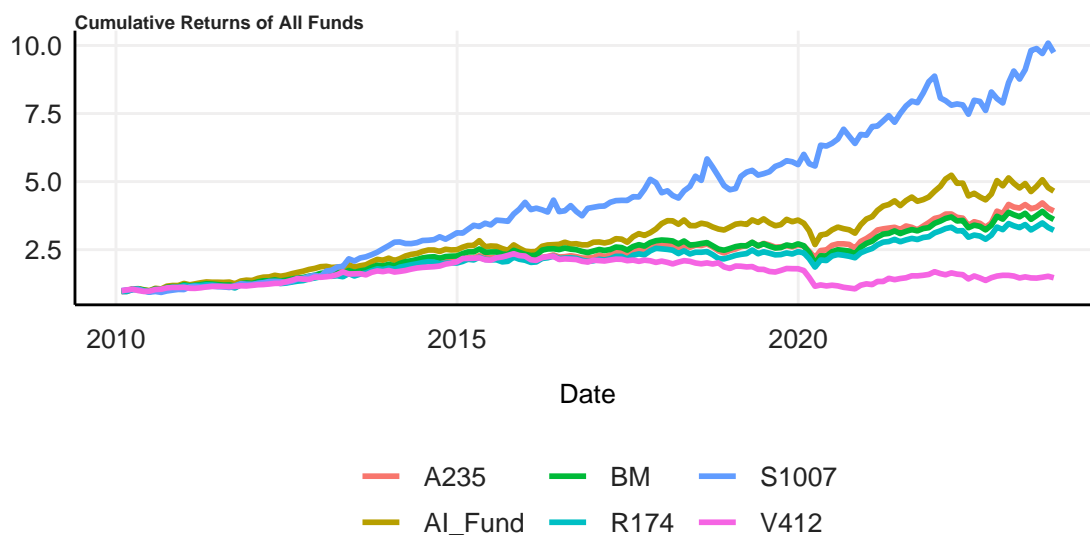


Figure 1.4

In terms of rolling average returns (3 year), one could still argue that the AI Fund is the second best performing, with large periods of time outperforming the benchmark rate, and either outperforming, or performing similarly, to other funds. Once again, active management has the best (and worst) return, which is a large risk to take.

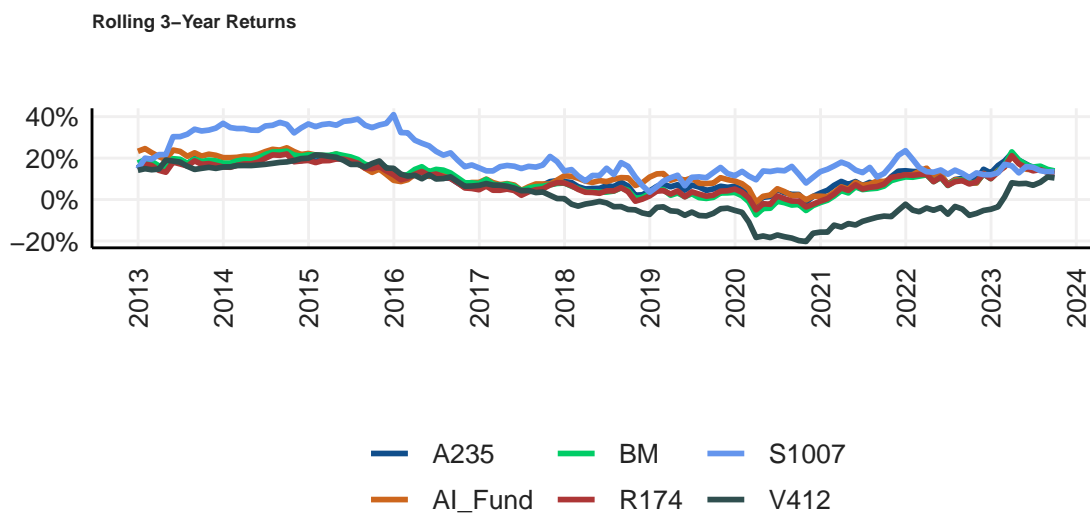


Figure 1.5

If you look at the rolling standard deviation (3 year), the point about risk is exhibited excellently. Since

2020, both the best and worst actively managed fund have had higher levels of volatility than the AI Fund. The AI fund has passed the COVID volatility hurdle with incredibly consistency, maintaining a lower volatility than even the benchmark at times.

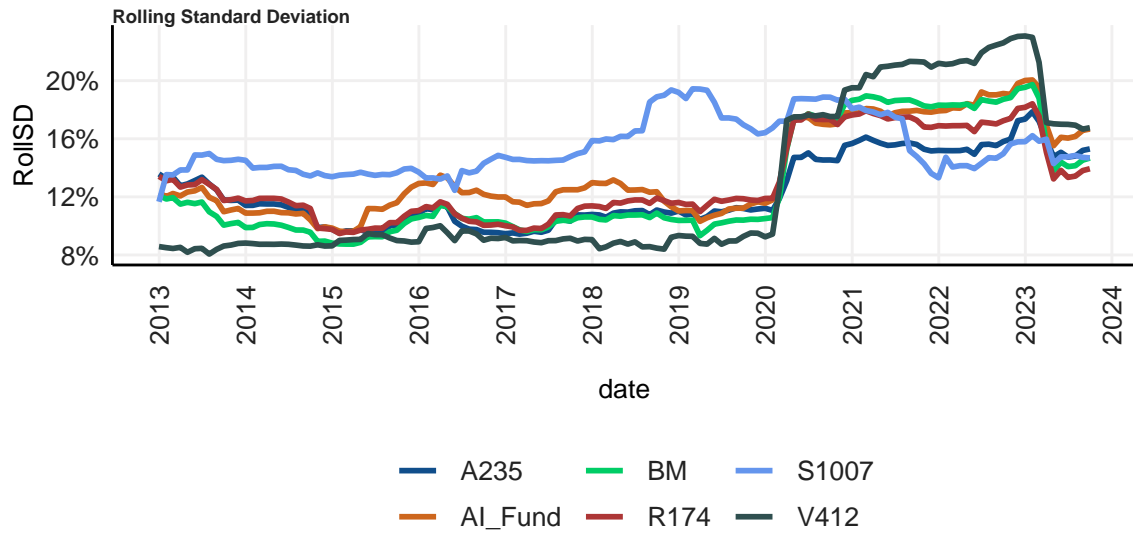


Figure 1.6