Question 1: Systematic AI Fund

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1. Question 1

This question investigates returns from an AI Fund, a market benchmark (CAPPED SWIX) and active managers. It aims to shed light on the differences and similarity in return structures through various visualisation techniques. I find that the benchmark often outperforms both the AI Fund and the active managers.

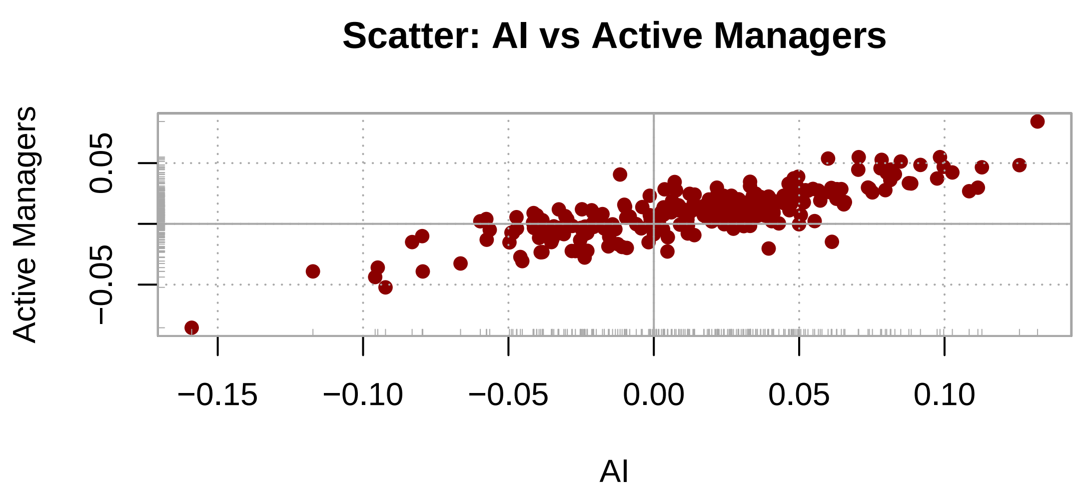

Figure 1.1: AI vs Active Manager Returns

The figure above shows a scatter between the returns of active managers and the AI fund. A clear positive correlation is visible.

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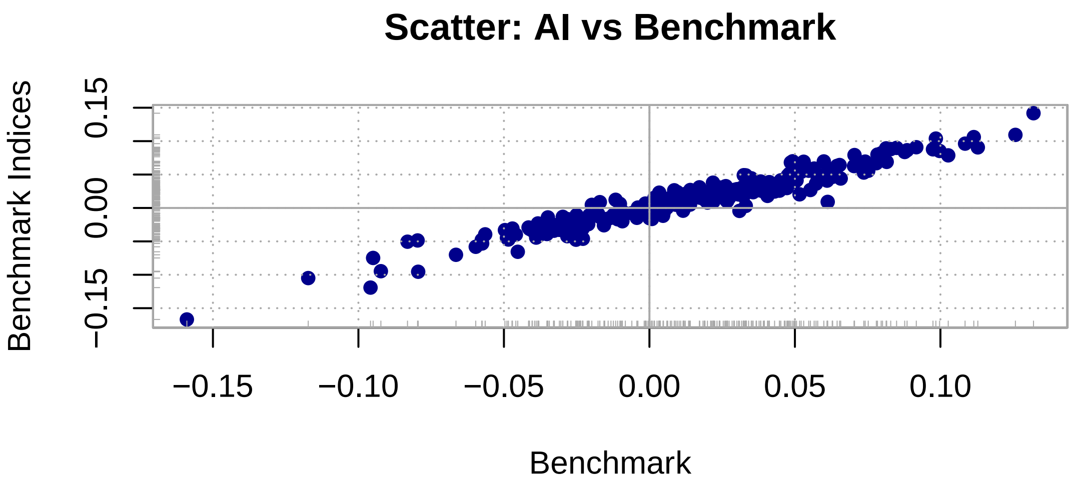

Figure 1.2: Ai vs Benchmark Returns

The figure above now shows a scatter between the returns of the benchmark and the AI fund. An even stronger positive correlation is now visible. This means that for, in both cases, it is rare for the AI fund to show a negative return when the other funds show a positive return and vice-versa.

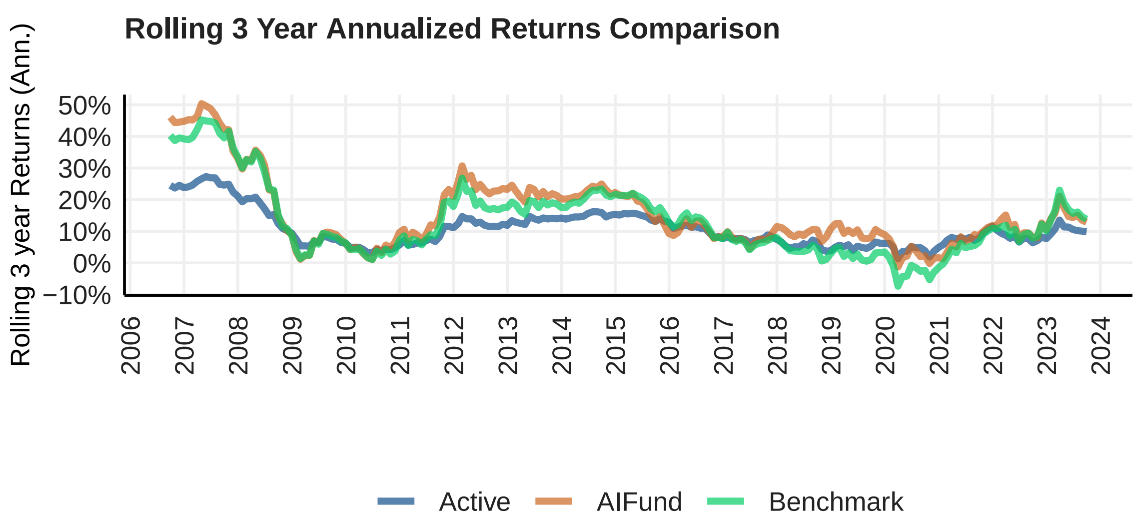

Figure 1.3: Rolling 3 Year Annualized Returns Comparison

The rolling 3 year annualised returns of all three funds are shown above. All three funds tend to follow each other and show significant downturns during the GFC and Covid-19. Comparatively, the active managers perform the worst, as for large periods of time there rolling returns are substantially lower than the other two funds. The AI fund seems capable of outperforming the benchmark, but never for long periods of time.

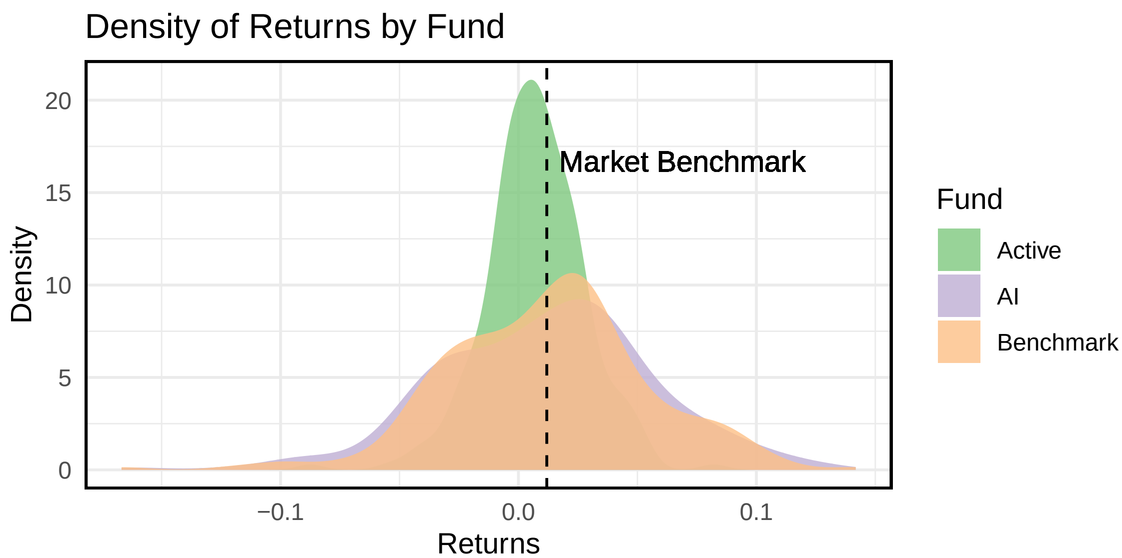

Figure 1.4: Density of Returns by Funds

The density functions of returns, grouped by fund, show a clear result. Active managers tend to perform below the market benchmark. The marker benchmark here was defined as the average return of the benchmark. The market benchmark and the AI fund perform very similar. The key difference here lies in the flatter distribution of the AI fund, meaning it is less consistent that the market benchmark.

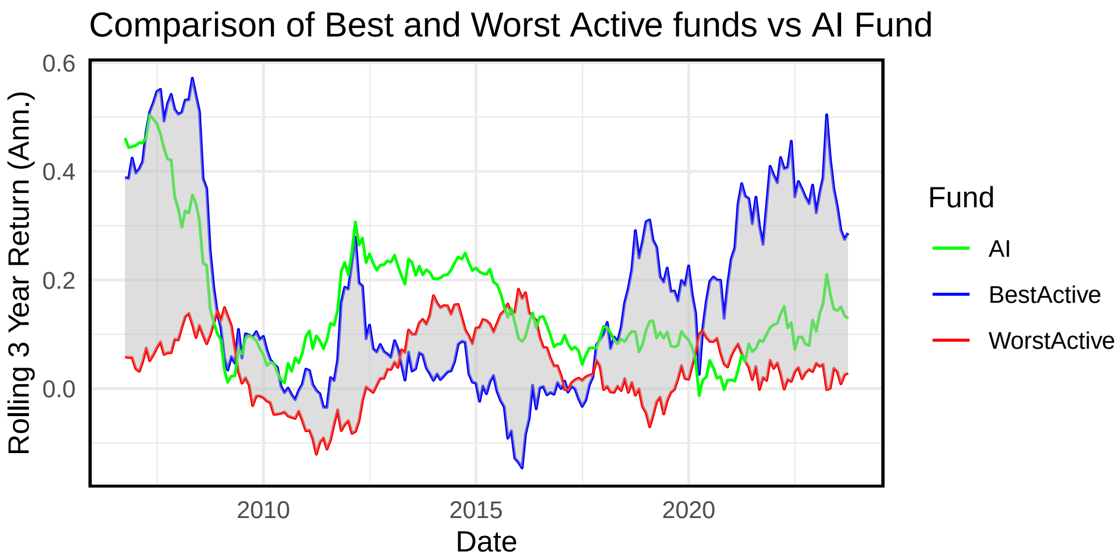

Figure 1.5: Comparison of Best and Worst Active funds vs AI Fund

The figure reveals an interesting story. It appears that the AI fund often lies between the rolling returns of these two funds. Interestingly, for a period in the middle of our sample, the worst performing fund, actually outperformed the best performing fund. This potentially speaks to the shortcomings of average returns as a metric of success. In this period, the AI fund also outperformed both of these fund. The AI fund performs lower than the worst fund at times, but this usually does not last long.