Question 4

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1. Past and Future Performance

My first goal was to show whether past performance is a good indicator of future performance. I wanted to show this in an intuitive way. I think plotting the distribution of past winners' returns against the distribution of those same past winners' subsequent years' returns is a good idea, because likely you will see a sort of reversion to the mean. I only used actively managed funds that showed valid returns over the entire time period selected. I believe that a three year average of returns, and selecting those winners that performed in the top quantile of these returns (top 20% of 3 year average returns) ans then seeing how these same funds performed in the three years after their winning periods, was a good methodology.

For this, I required a function that could be applied to all dates in the data set, after 2006 (the first period that three year average returns would become available). I created WinnersComparison(), a function that takes as its input a data set, a start date, middle date, and end date. Between start and middle, the three year average returns are calculated, and during middle and end, the subsequent three year returns of the same funds is calculated. This can then be mapped onto all dates in the provided data set by lapply(). I only piped into this function actively managed funds, because Indices track, and as such it is not necessarily as "lauded" if they over-perform, as this is not their goal. I also created LosersComparison(), which simply creates the same data set as the winners function, except it selects and applies this for those performers who had 3 year average returns in the bottom 20% at any arbitrary date.

In figure 4.1 we see that winners do indeed visibly outperform their other years (which, due to the functions mentioned, is true across all dates). This means that on average, it is not true that winners with good returns distributions for three years on average tend to follow this up with another three year average of good returns. They revert to the mean, and we can conclude that above average three year performance is not a good indicator of the following three years also being good. This can also

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imply that if someone were to change their strategy, and put their money with such a "winner", they will more than likely experience a relative loss considering that the "winner" will probably just revert to the mean.

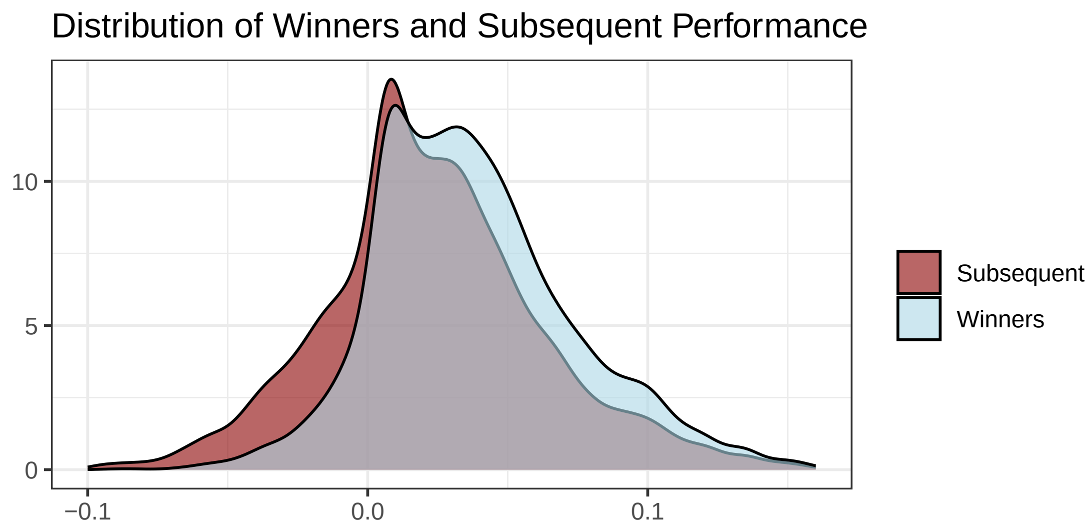

Figure 1.1

Figure 4.2 shows similar information, except that, across all dates and funds, losers also tend to revert back to the mean. This means that if someone performs in the bottom 20% for a three year average, they likely will simply revert to the mean and perform better in the subsequent three years. What should be learned from this is that the past performance is generally, in either direction, not a good indicator of future success or failure. The investment strategy should not merely depend on whether someone has succeeded or failed in the past. So the question becomes now, do investors know this? Do funds flow more to funds that have done well, and flow away from those that have done badly?

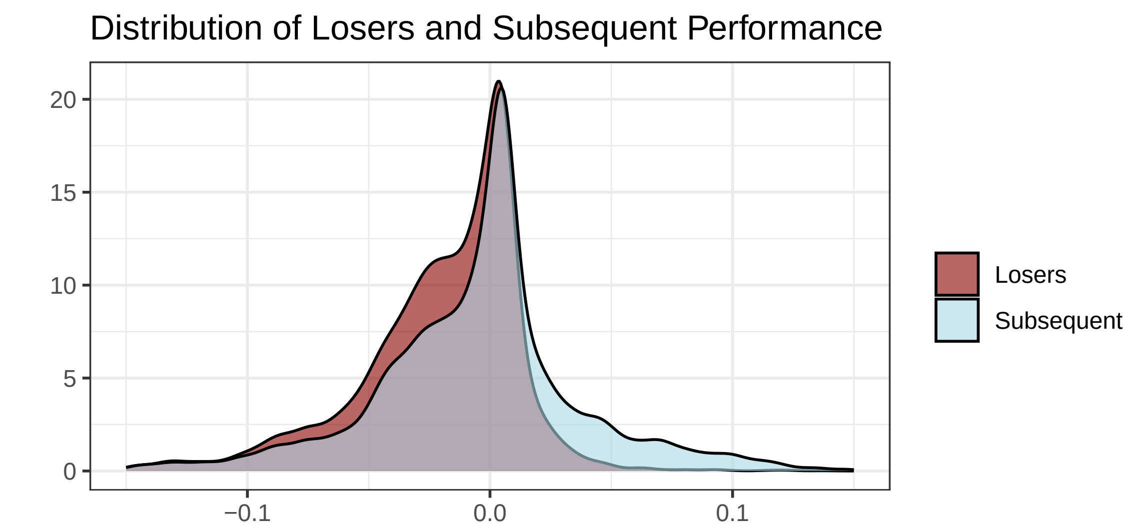

Figure 1.2

Figure 4.3 shows a mixed opinion on this front. There is indeed a small correlation between past average returns (over 3 years) and receiving flows today. I fitted a line of best fit across the data, which can be viewed. Similarly, I created four quadrants on the plane. Essentially, this can be split into where returns are above (below) the median, and where flows are above (below) zero. Each quadrant sees between 20-30% of the data, which implies that though there might be a correlation, it is weak - as it should be.

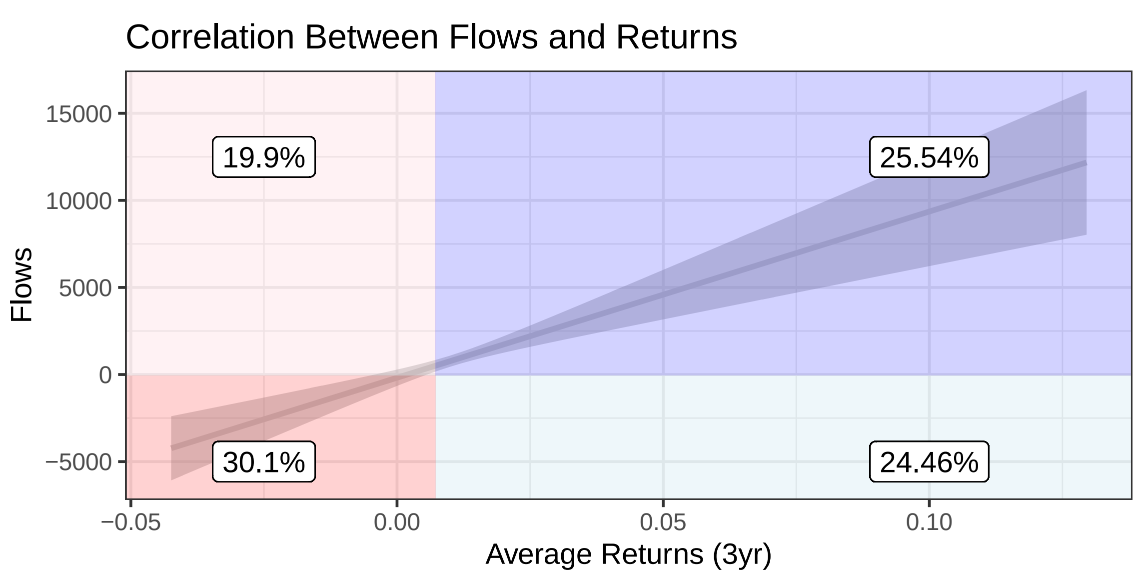

Figure 1.3