Question 1: Systematic AI Fund

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Introduction

I begin by addressing the missing values in the ASISA data. I make use of the 'q1_impute_missing_values' from the practicals to address the missing values using the 'Drawn_Distribution_Collective' method as some Funds have no data at all and therefore values are imputed from the distribution of all ASISA Funds data. This has the benefit of imputing values that will conform to performance that is tied to the state of the economy.

I then calculate monthly average returns for ASISA Funds so to make them comparable with the other returns data.

I combine the data with 'left_join', make it tidy and use 'slice' to remove NAs, therefore each data set has the same start date for the analysis.

Rolling 3 Year Annualized Returns

I then make use of a function I created for homework to calculate the 3 year annualized rolling returns for the ASISA average actively managed fund, the SWIX Index (J433) and the systematic AI fund.

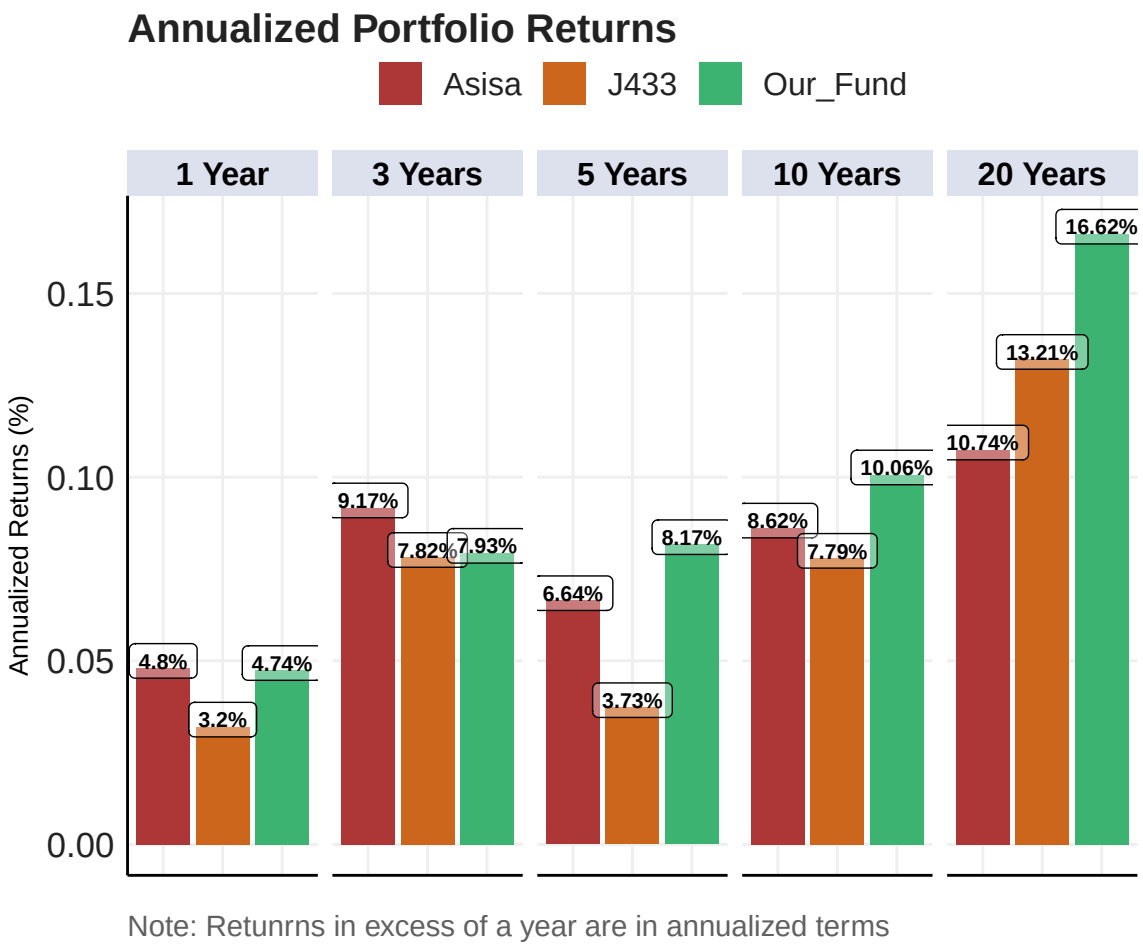
From the graph below, the average actively managed fund has been outperformed by the SWIX index and by the AI fund. And while this rolling returns is useful for evaluating and comparing the performance of different indices, it can be a misleading figure as early outperformance can greatly skew later performance.

SWIX Index (J433), ASISA Active Manager Funds, AI Funds (Our_Fund)

Annualized Returns

I then use some of some code from class and append the code to display the annualized returns for each portfolio at different year intervals.

As can be seen from the graph below historically the SWIX and AI fund have performed better than the average active manager over the long term. However, over the last 3 years fund active fund managers have outperformed the more passive funds.

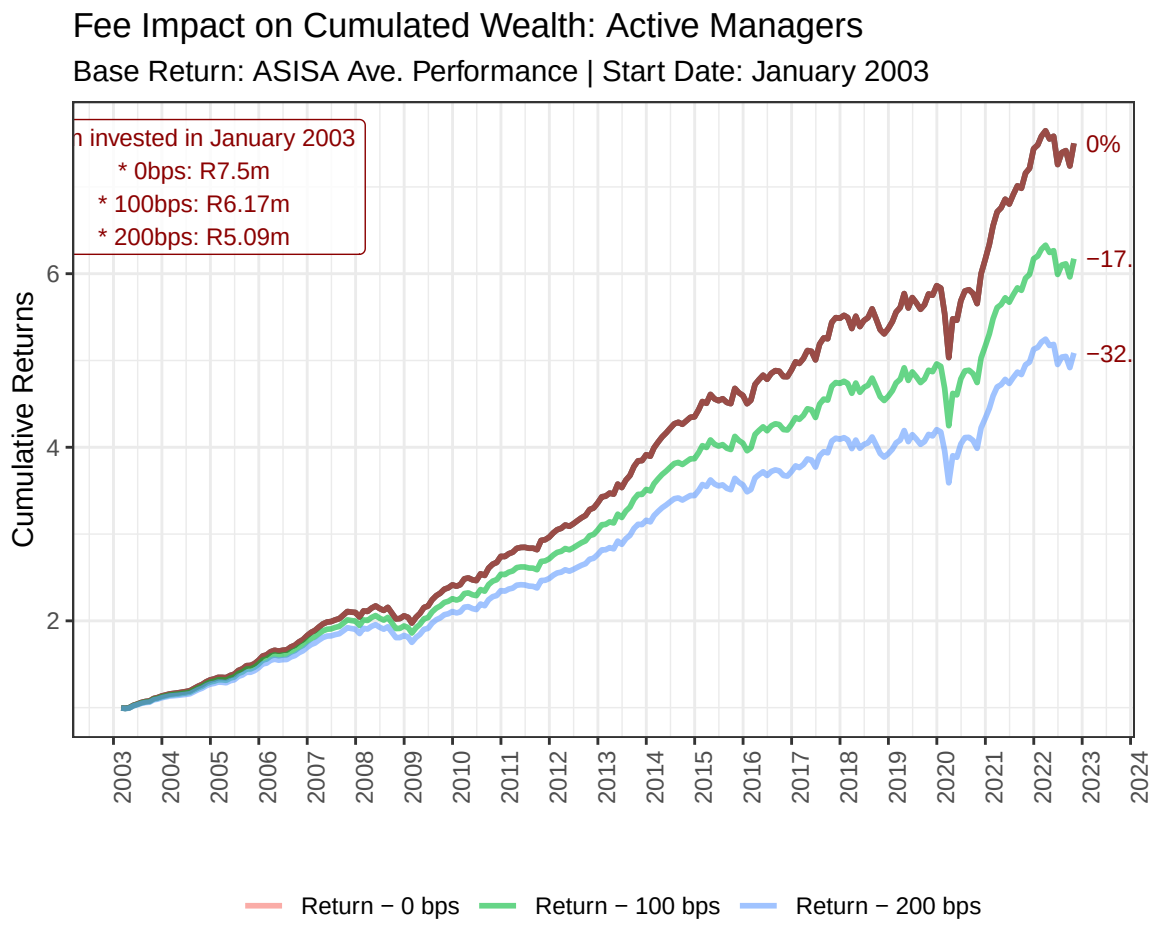


Note: Retunrns in excess of a year are in annualized terms

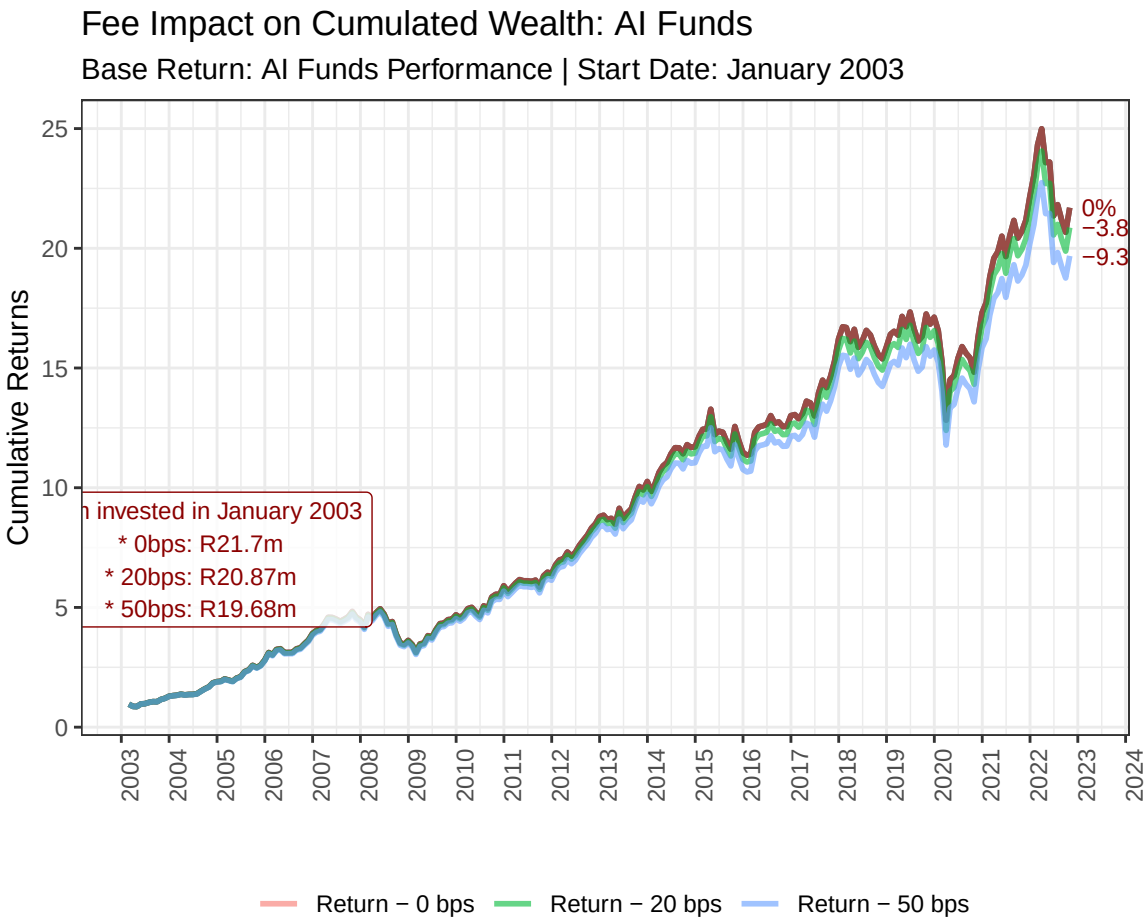
Performance of Funds Less Fees

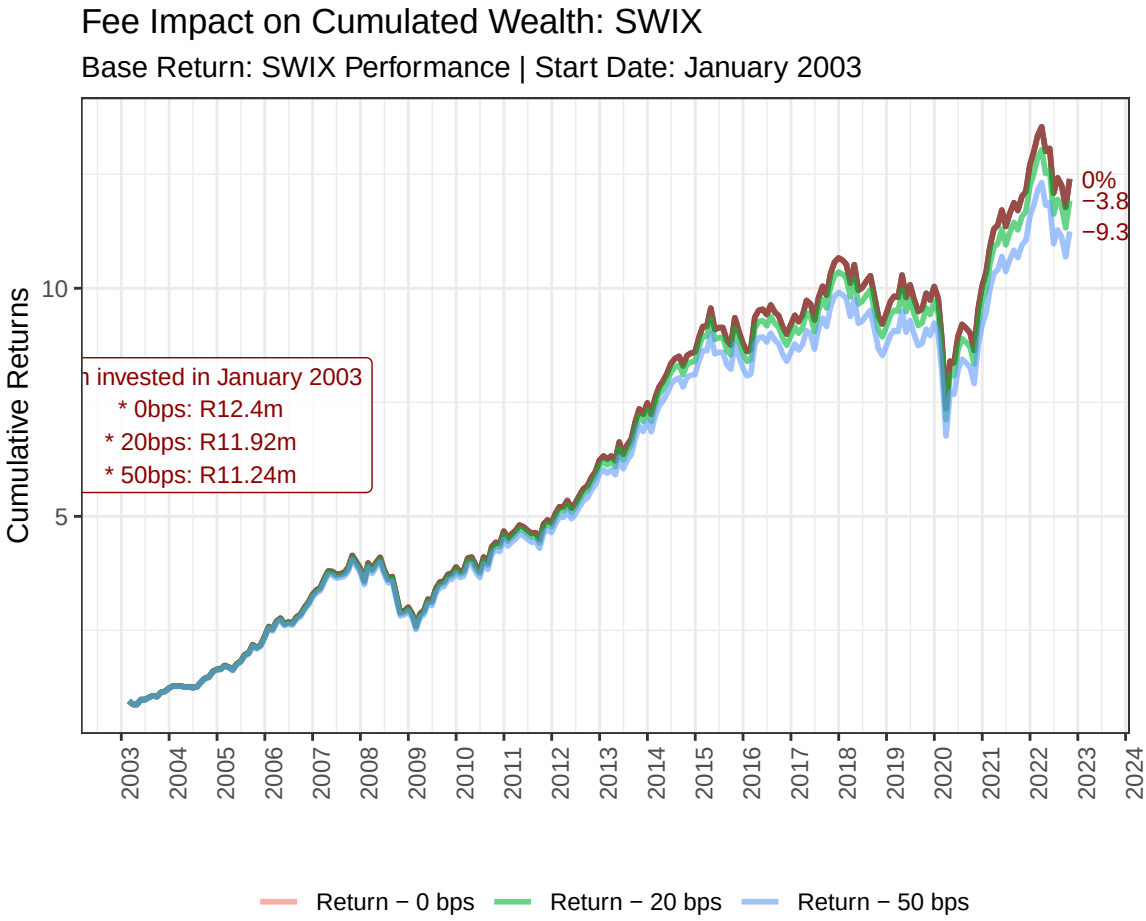
I then make use of some code from the practical to demonstrate what happens to cumulative returns over for different scales of management fees that are applicable to the particular investment portfolio. I add a baseline of cumulative returns without fees charged (0%).

The graphs below show how cumulative returns are effected over time by fees. Actively managed fees are the highest and decrease returns by at least 17,7% since January 2003. Passively managed funds such as SWIX and AI fund decrease substantially less over the same period when compared to active managers. Passively managed investments decreased by at least 3.8% since January 2003. It can be the case that active managers outperform passive managers, however, when adjusted for fees the average active manager underperforms comapred to passive bench like the SWIX.



Performance of the AI Funds Less Fees


Fee Impact on Cumulated Wealth: AI Funds
Base Return: AI Funds Performance | Start Date: January 2003
Cumulative Returns
25
20
15
10
5
0
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
n invested in January 2003
* 0bps: R21.7m
* 20bps: R20.87m
* 50bps: R19.68m
0%
−3.8
−9.3
Return − 0 bps
Return − 20 bps
Return − 50 bps


Fee Impact on Cumulated Wealth: SWIX
Base Return: SWIX Performance | Start Date: January 2003
Cumulative Returns
10
5
n invested in January 2003
* 0bps: R12.4m
* 20bps: R11.92m
* 50bps: R11.24m
0%
−3.8
−9.3
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Return − 0 bps
Return − 20 bps
Return − 50 bps