# uc3m | Universidad **Carlos III** de Madrid

University Degree in Finance and Accounting
2021-2022

*Bachelor Thesis*

# "Portfolio managers' skills or randomness during bull and bear markets"

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Getafe, July 2022

# Introduction

- Are professional investors really skilled?

- Can they be outperformed by investing randomly?

- Main objective: differentiate between the results of a professional fund manager and the ones from a random investor and compare their performances during several market regimes

# Methodology

A survivorship bias-free stock dataset is constructed to simulate random portfolios.
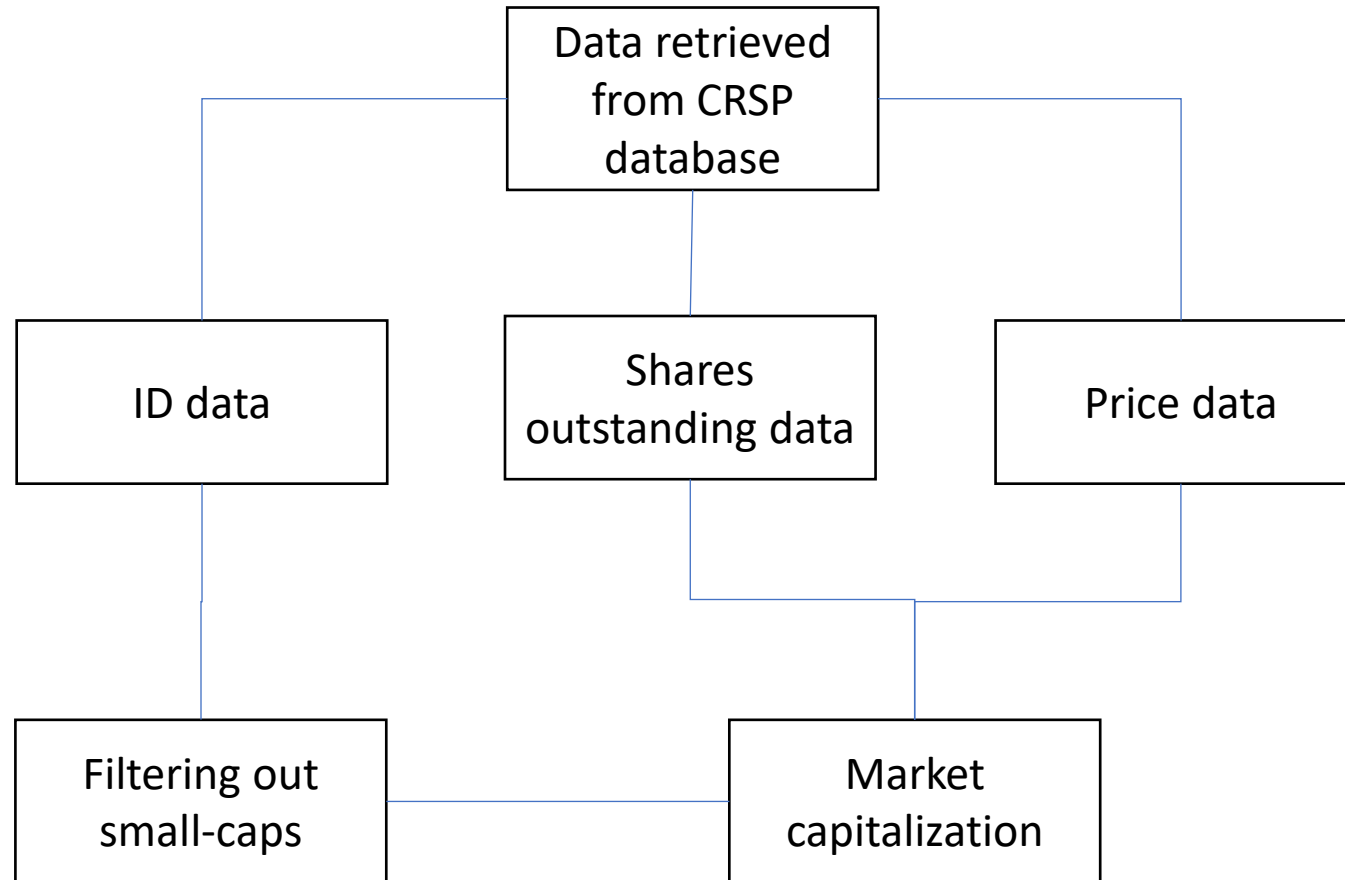
# Portfolio simulations

Using a custom software, random portfolios are iteratively generated.

- **Rebalance frequency** – Monthly

- **Stock-picking method** – Random

- **Number of holdings** – 20

- **Security weighting** – Equally weighted

- **Time period** – March 1996 - December 2021

- **Number of simulations** - 10.000



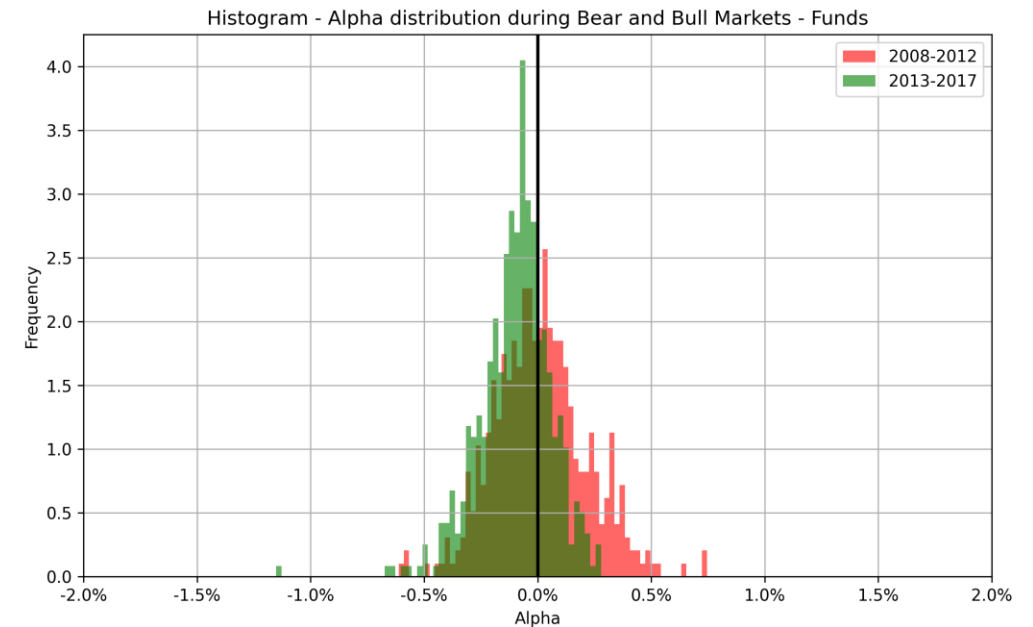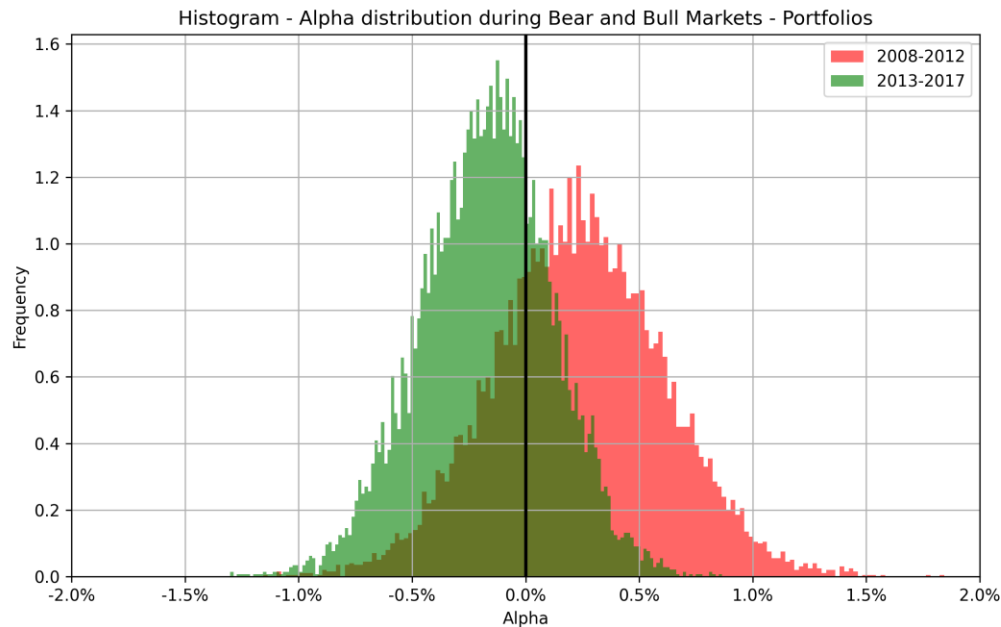Portfolios total return - End Feb 1996 = 100
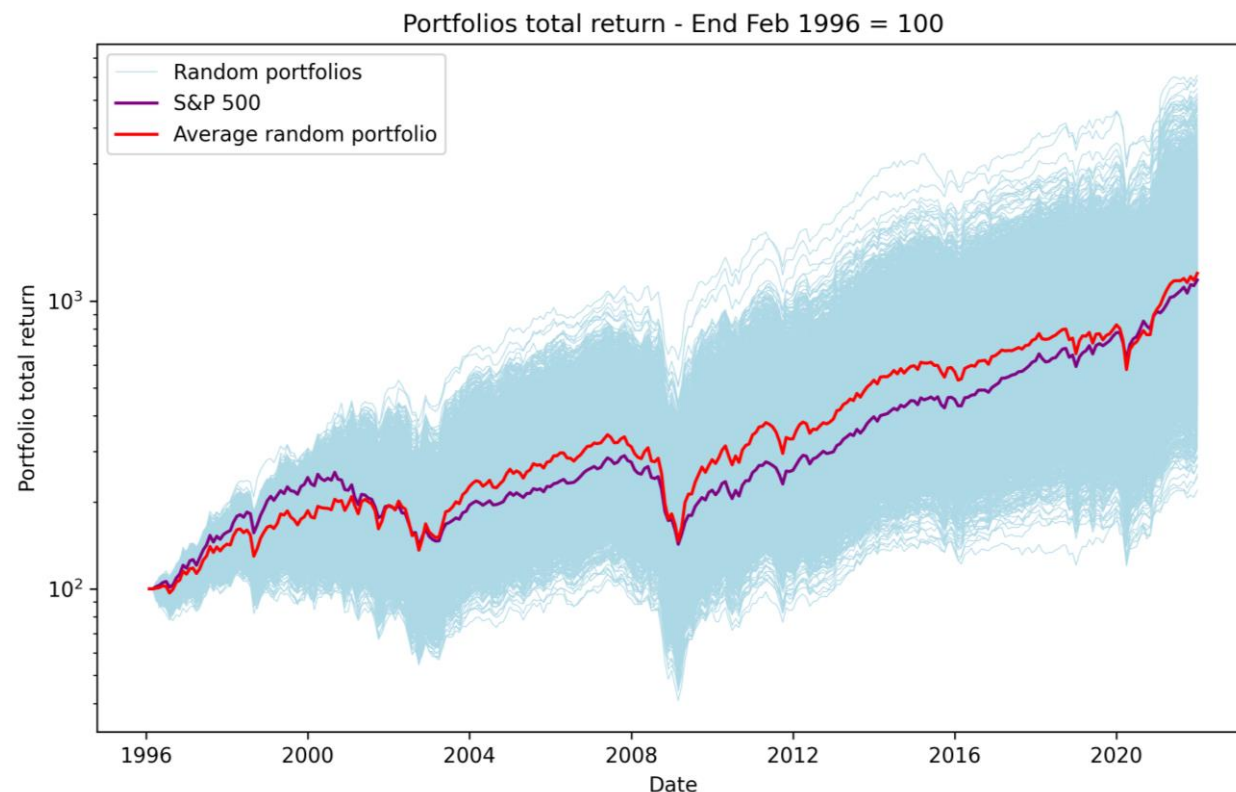
# Volatility regimes

To establish fair comparisons, data is split according to market regimes based on volatility.
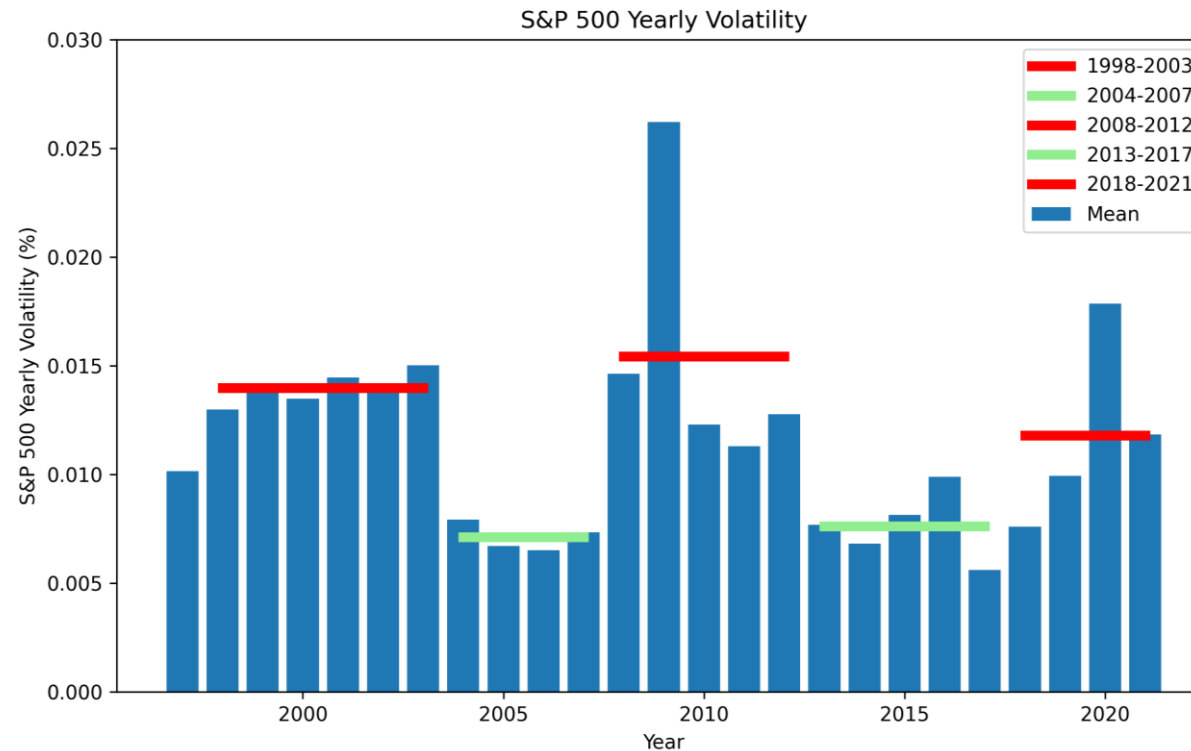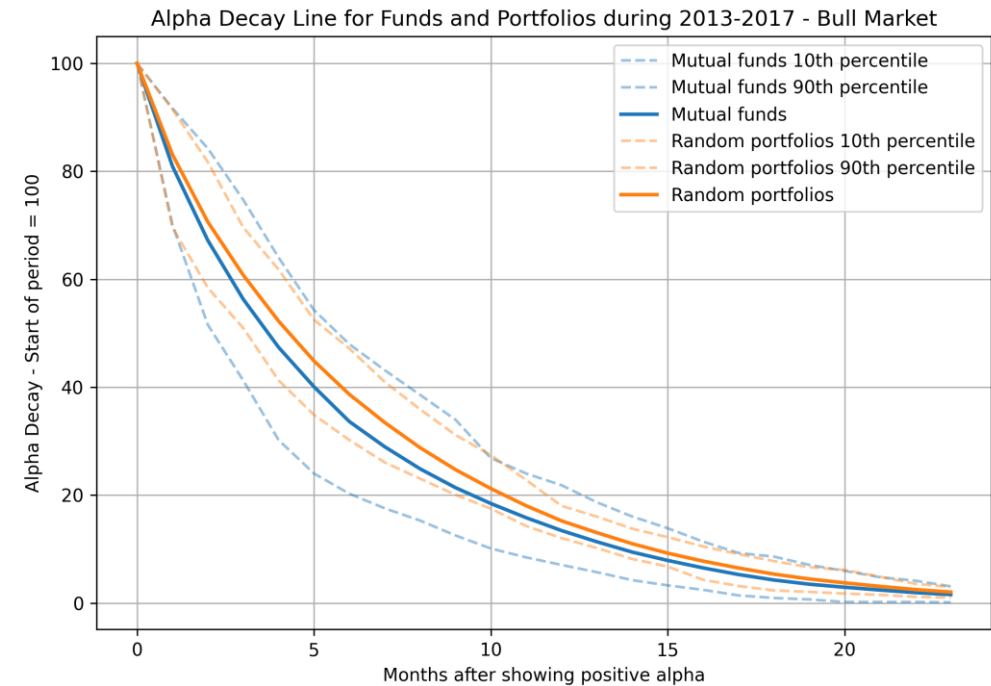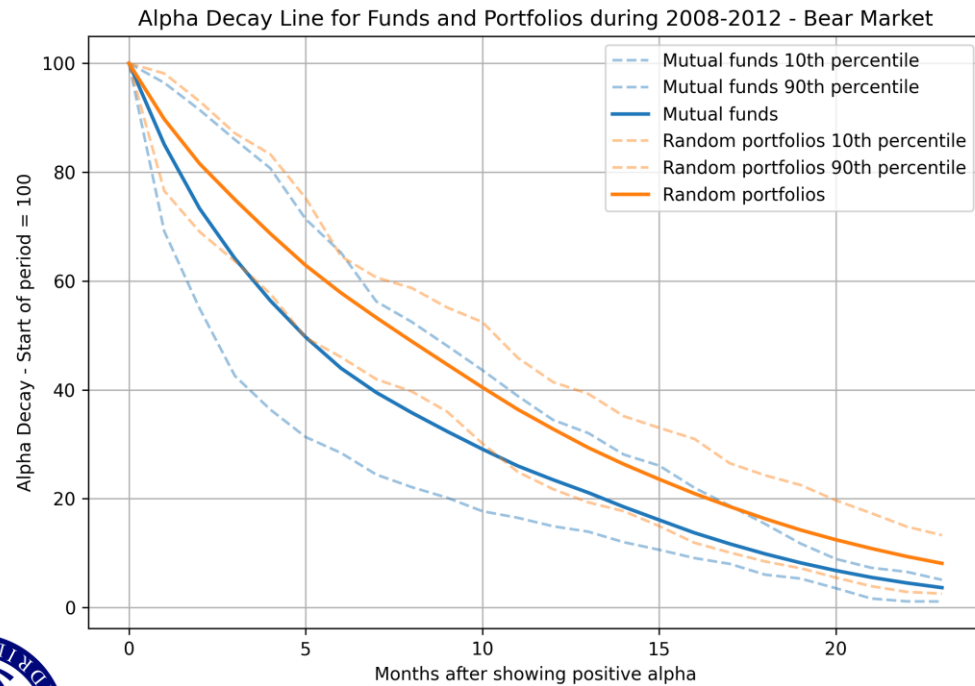
# Alpha measurement

Alpha is computed under Fama-French five-factor model, for random portfolios and mutual funds during a bear and a bull market.
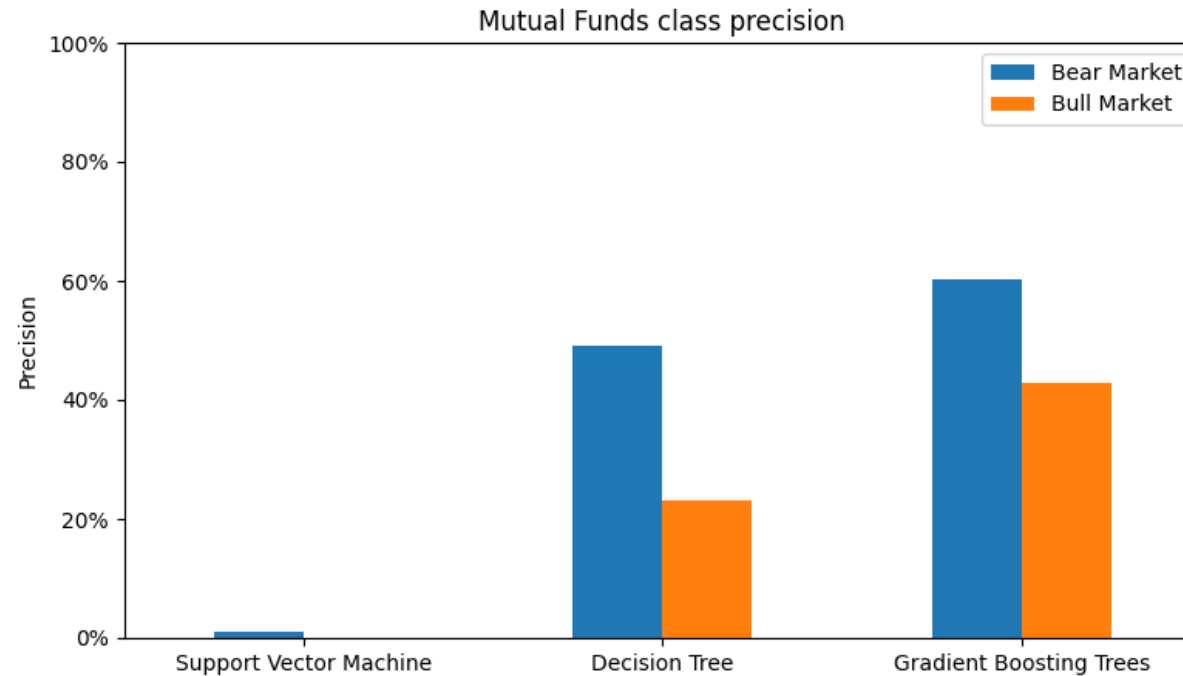
# Alpha Decay Line

To measure alpha persistence, the "Alpha Decay Line" is introduced, where the proportion of portfolios and funds that continue to show alpha is computed.

# Machine learning models

Several machine learning algorithms are used to distinguish between mutual funds and random portfolios.

# Conclusions

- Results show underperformance of mutual funds managers compared to non-informed random investors, especially during bull markets.

- Future work is desirable, with a more complete mutual fund database and a new market regime (inflationary bear market) in the data, as well as a look into the human biases that define markets.

- In my opinion, active fund managers do not deserve the admiration they have, as they contribute to lower returns for their investors, who should increase the push towards index funds.