

Sustainable Investing With A Focus On ESG Metrics And Annual Returns

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What is ESG and why
do we care about it?



Environmental, Social and Governance (ESG)

- ESG is a criteria representing certain standards investors consider when investing in financial assets such as Mutual Funds, ETFs etc.
- It can be broken down into **three core components**:
 - *Environmental*: A focus on a company's or fund's awareness in relation to nature and the climate
 - *Social*: A focus on a company's relation with it's employees, customers, vendors, suppliers and demographics
 - *Governance*: A focus on how the company is run with an emphasis on leadership, audits, shareholder rights, and wages
- Several financial institutions are now offering financial products such as mutual funds which comply with ESG criteria
- In addition to climate, moral and social implications, investors are also concerned about possible financial risks posed by companies not adhering to ESG standards

Problem

- What are the optimal responsible investment pick?
- What are the key features that determine whether a fund is sustainable or not?
- What is the relation between sustainability and annual returns?

Solution

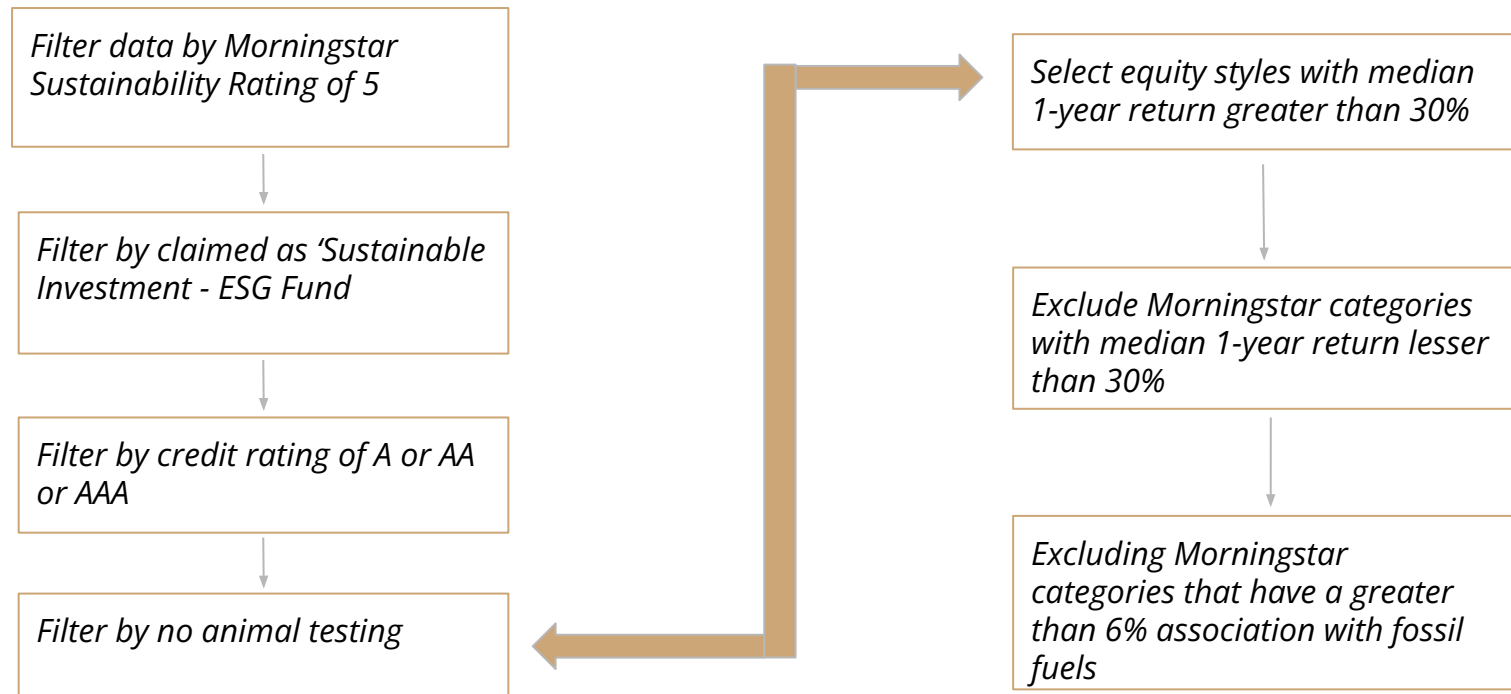
- Analyze data for over 6000 funds from Morningstar
- Explore features in the dataset and visualize key relationships
- Determine the most sustainable funds based on:
 - ESG criteria
 - Highest 1-year rate of return

Data Description

- Data acquired from the [RMDS](#) website, consisting of **6003 instances** of funds gathered by [Morningstar](#) with **30 features**
- Morningstar is a financial services firm which provides an array of investment research and management solutions



Sustainable Fund Selection Pipeline



How to run the code?



Required Files

- **Code:** [saychelsea11/RMDS_Sustainable_Investing_Data_Challenge \(github.com\)](https://github.com/saychelsea11/RMDS_Sustainable_Investing_Data_Challenge)

- *RMDS_Sustainable_Investing_App.py*: Main Python file
 - Set the **path** variable to the location of the input data
 - Code snapshot shown below
- *Supporting_functions.py*: Dependency containing helper functions

```
25 path = r"C:\Users\sdas\RMDS_Data_Challenge\competition_data\funds.csv"
26 df = pd.read_csv(path)
```

- **Data:** *funds.csv*
- **Execution:**
 - When the above Python file is run, the Dash server deploying the dashboard will become active
 - Copy/paste or click on the port address where Dash is running. In the snapshot below, the port is **127.0.0.1:8050**.

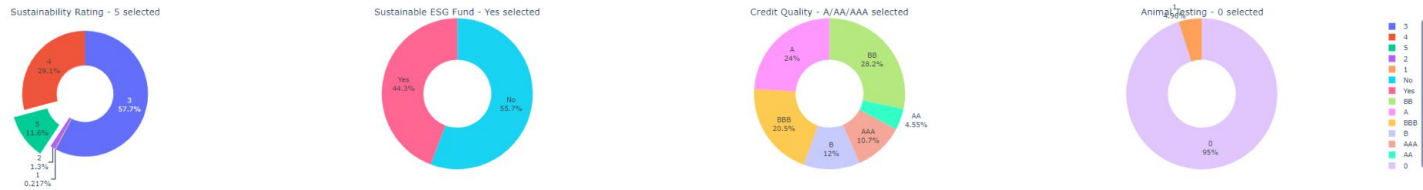
```
Dash is running on http://127.0.0.1:8050/
* Serving Flask app 'RMDS_Sustainable_Investing_App' (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
```

Output Files

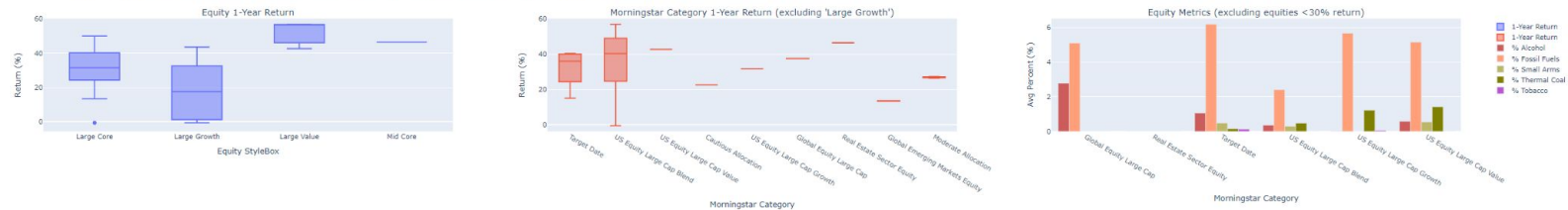
- **Data:** *Sustainable_Funds.csv*
 - Contains a list of the funds that were narrowed down based on ESG criteria and 1-year return performance

Dashboard Snapshot

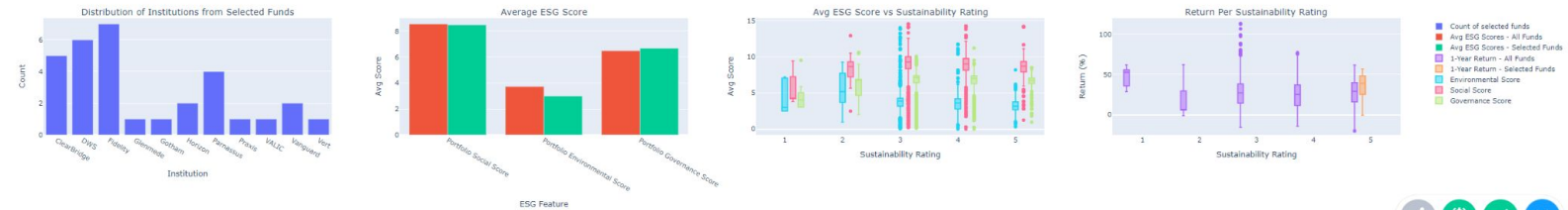
ESG Fund Selection Pipeline and Analysis



Filtering Funds Based On 1-Year Returns And Environmental Factors



Analyzing ESG Metrics And Returns For Selected Funds



Key Findings

- Equity styles and Morningstar categories
 - Most of the funds that meet ESG criteria and have A credit ratings are large cap equities.
 - The most frequent Morningstar category out of the selected funds is the ***US Equity Large Cap Blend***
 - Target Date funds had a **6.183%** association with fossil fuels
 - Global Equity Large Cap funds have the greatest association with alcohol with an average value of **2.78%**
 - Out of the selected optimal funds, ***Fidelity*** is the most prevalent financial institution
- ESG and Sustainability Rating relation
 - The average Social and Environmental scores are slightly higher for the original set of funds than the selected ones
 - The average Governance score is higher for the selected funds
 - On average, the Environmental score for rating 5 is lower than rating 1. Average Governance score for rating 5 is higher than that of 1.
- 1-Year return
 - Median return for selected funds is higher than median return for original set of funds