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# Technical Report

## GRMDS Brace For Impact: Creating A Dashboard For Responsible Investing Using Machine Learning

Team CrossEntropy

- Kevin Bennett Haryono
  - Matthew Adrianus Mulyono
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# INTRODUCTION

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# Problem Definition & Datasets

Given sample datasets:

- **funds.csv**
- **prices\_per\_day.csv**

Along with several recommended datasets, create a **dashboard** for responsible investing

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# METHODOLOGY

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# Data Preparation

We focused on the 2 sample datasets: **funds.csv** and **prices\_per\_day.csv**

## **funds.csv**

- Dropping **unneeded** columns
- Removing rows with **missing** values
- Converting **binary string** data types into **numerical binary** data type

## **prices\_per\_day.csv** (long format)

- Create a copy of the data in **wide** format
- Removing rows with **missing** values

Equalizing amount of data for both datasets (**funds.csv** has 6003 entries, while **prices\_per\_day.csv** has 5986 entries categorized by the fund)

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# Exploratory Data Analysis

Explore *relations* between features in **funds.csv**:

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Find stock price *trend* and *seasonality* in **prices\_per\_day.csv**

Generate data visualization *graphs* for the **dashboard**

\*Comprehensive explanation is provided in the .ipynb file submitted along with this report

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# Dashboard Creation

Externally from python notebook

Necessary **tables** made inside the notebook **exported** as .csv file for dashboard creation purposes.

We used [streamlit](#) library to create our dashboard





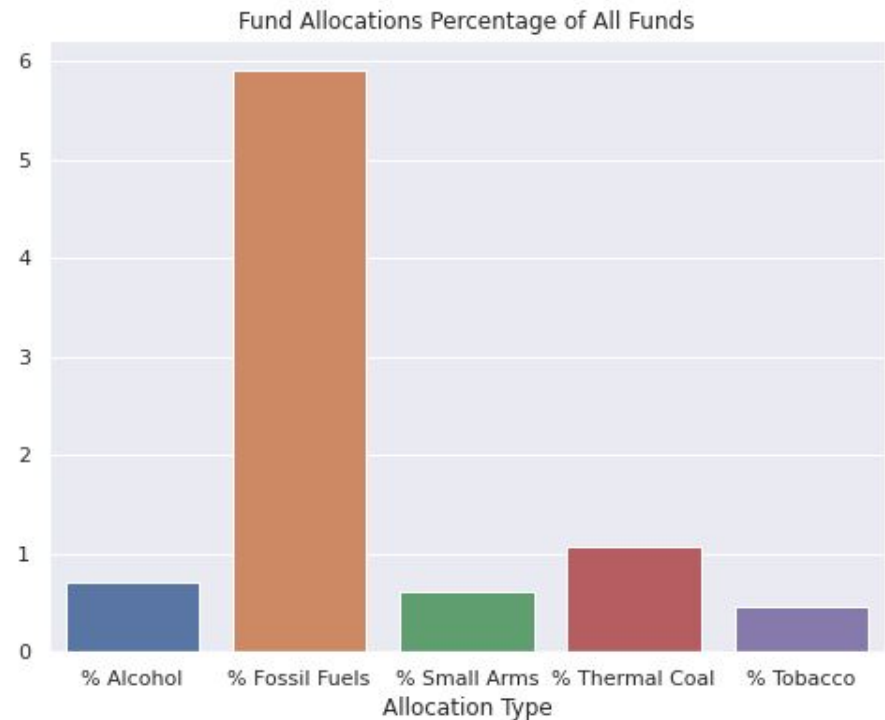
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# ANALYSIS RESULTS

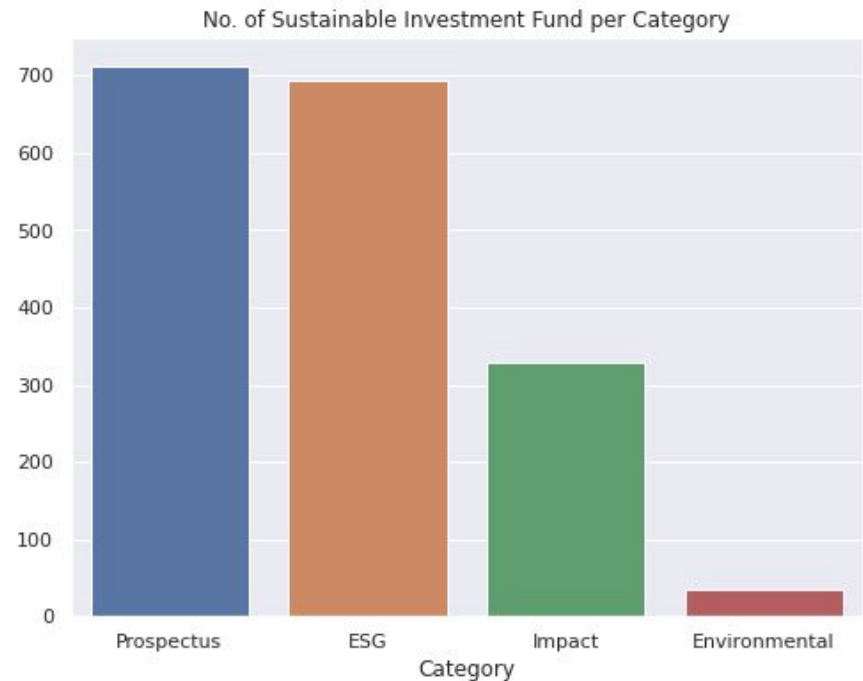
<https://colab.research.google.com/drive/1aXCot364M1cg35FDiPHyHezahhUEXWw-?usp=sharing>

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# All Funds' Allocation Percentage



# No. of Sustainable Investment Fund per Category

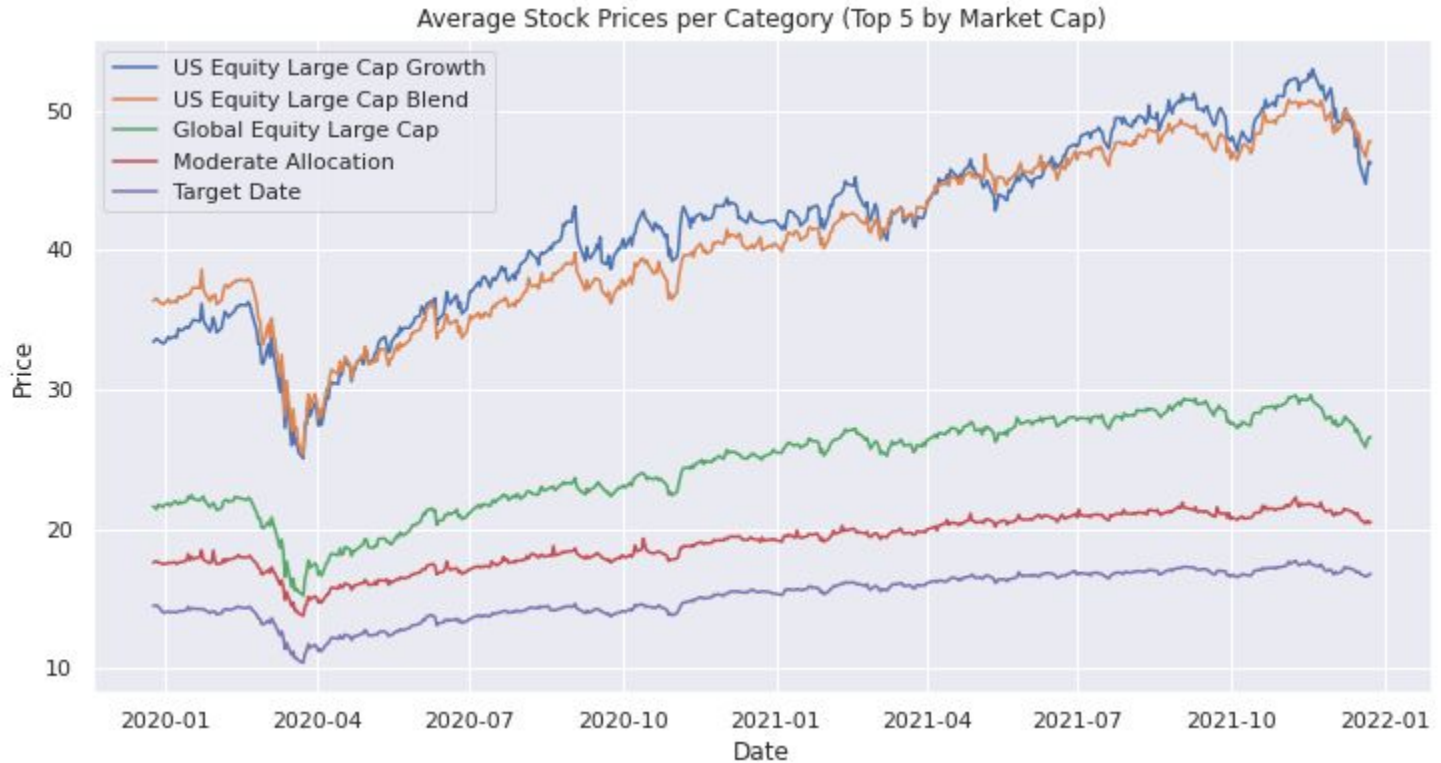


# Returns per Average Credit Quality

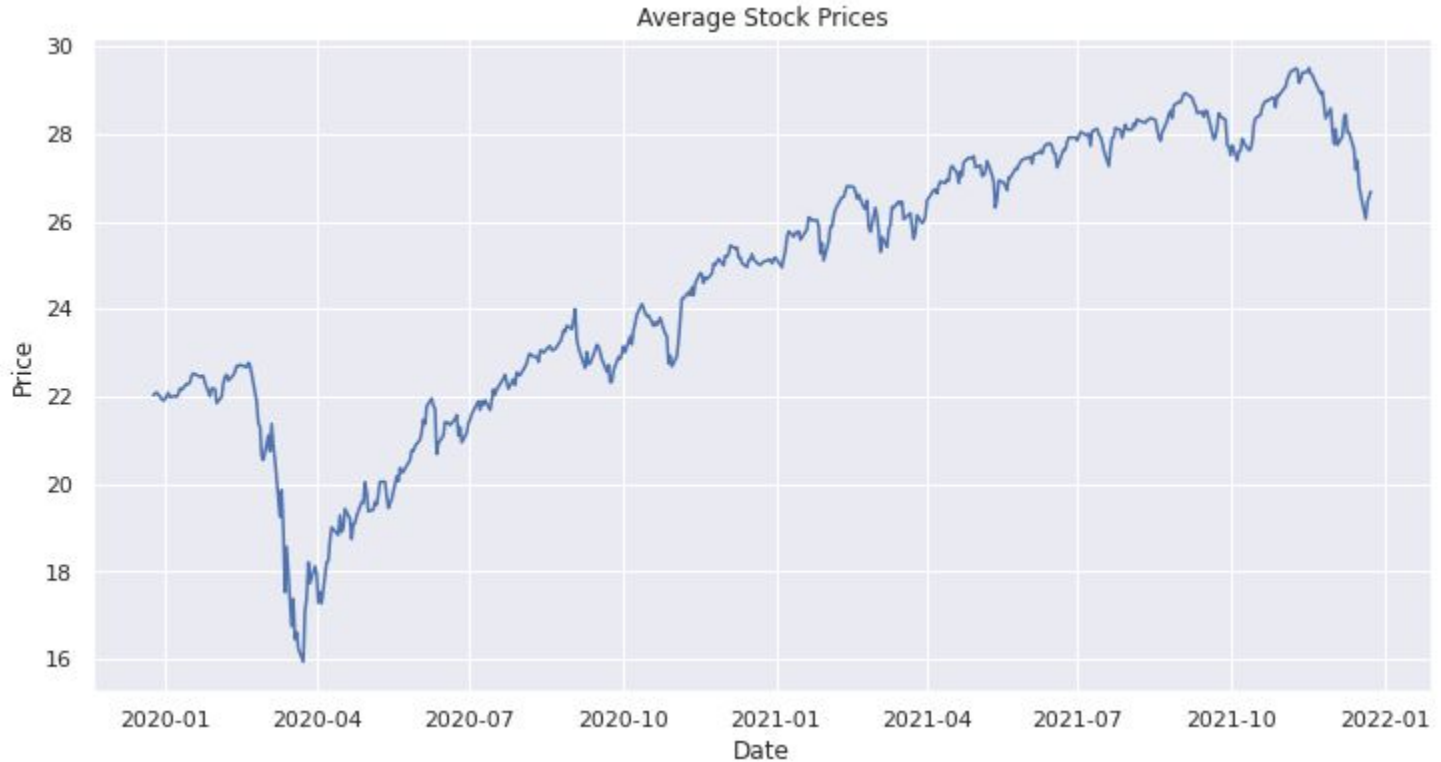
Returns by Average Credit Quality



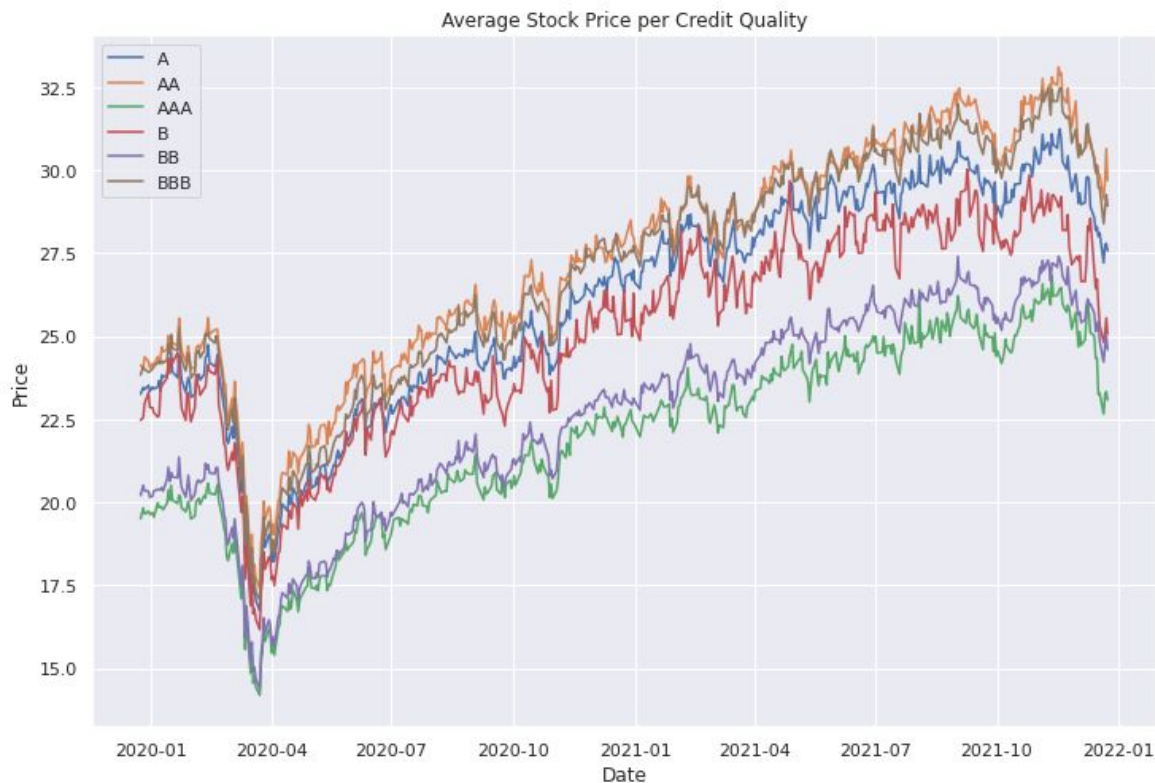
# Top 5 Average Stock Prices per Category



# Average Stock Prices Over 2 Years



# Average Stock Prices per Credit Quality



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# DASHBOARD

<https://share.streamlit.io/matthew1906/grmds-crossentropy/main/dashboard.py>

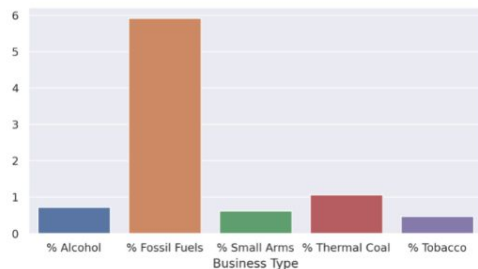
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# Average Stock Prices per Credit Quality

Summary ▼

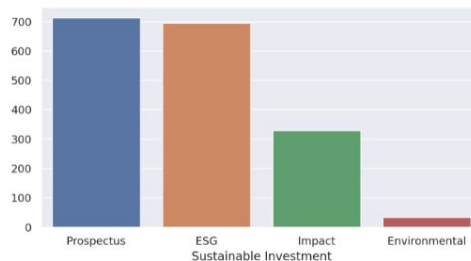
## Fund Usage

This graph shows the average percentage of fund allocations based on it's business type



## Sustainable Investment

This graph shows the average allocation of funds for each type of sustainable investments



## Average Credit Quality

The average return based on credit quality

Select Credit Card Quality!



# Average Stock Prices per Credit Quality

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Fund Selection

Morningstar Category

Global Equity Large Cap

Fund Name

AB Sustainable Intl Thematic C

Fund Report

## Fund Summary

Sustainability Rating	Sustainability Score	Yield	Average Credit Quality	
3.0	20.67	0.0 %	BBB	
Fund Size		Average Market Cap		
\$941.47M		\$32187.09M		
Percentage Returns				
YTD	1Y	3Y	5Y	10Y
↑ 8.22 %	↑ 24.74 %	↑ 19.32 %	↑ 12.27 %	↑ 7.5 %

## Stock Price Trend