**310 Project Meetings**

**Group #: 7B**

**Names: Simon, Max, Pinkie**

**Data**

What is the name of the raw data (Excel Files):

* The raw data is in the folder titled “raw\_data”
* The final data is “ESG”

Proper citation for data:

Bloomberg L.P. (2017) *ESG and Financial Data for S&P 500. 11/6/2014-11/6/2022.*Retrieved November 6, 2022 from Bloomberg terminal.

How was the data collected (any reason the data may be biased?)

The financial data is collected from company filings with the SEC. The companies do have incentive to inflate their worth, but auditors complete a thorough review of everything they submit. ESG data comes from reports that the companies produce. Those are not as thoroughly audited, and there is a reasonable chance of exaggeration

Data Description

* Number of rows (number of observations is each row does not represent an observation)
  + 3320
* Number of columns / number of explanatory and response variables you will look at
  + 5 dependent variables
  + 6 independent variables
* Data Cleaning Steps (based on summary data)
  + Created a year column
  + Merged tables from 2014 to 2022
  + Dropped if name or ESG indicator was missing
  + We plan to explore dealing with outlier companies (i.e. those that lost 90%+ of their market cap in 1 year)

**Give the link for your presentation**:

* What is your research question?

Our research project seeks to understand the relationship between the quality of Governance and Valuation. We will begin by testing to see if there is a strong correlation between the Bloomberg proprietary governance scores and market cap growth. Then, we plan to explore whether we can prove a causal link despite numerous confounding variables and other statistical problems such as endogeneity

* What have others said about this/Why is it interesting? Give one or two citations as appropriate.

<https://www.stern.nyu.edu/sites/default/files/assets/documents/NYU-RAM_ESG-Paper_2021%20Rev_0.pdf>

NYU Stern completed a meta study on the research into ESG and company performance. These studies identified that ESG investment seems to improve performance through better risk management and greater economic moats. We hope to first prove that this correlation true, and identify if it is a causation, with the goal of identifying the actual effects.

<https://jpm.pm-research.com/content/iijpormgmt/45/5/69.full.pdf>

This study explores the theoretical mechanism in which ESG can cause increases in various dependent variables. Then, they identify how these effects manifest empirically. This is interesting for the major investment funds of the world that exercise inordinate amounts of power. If it is profitable for these companies to invest in ESG, then it is better for the world.

* Include step-by-step proposed analysis details so that a stranger could take your description and carry out the same study precisely as you plan to.

1. We complete a regression of the log of Market Cap Cumulative Annual Growth Rate on our 4 independent variables, with company and year fixed effects.
2. We observe diagnostic plots, including the normal probability plot, the residual vs fitted value plot, and the residuals vs the Environmental, Social, and Governance variables, in order to verify that assumptions are not violated.
   1. Transform variables (using log, square, or other interaction terms as appropriate)
3. We complete an extra sum of squares test on environmental, social, and governance scores to prove significance.
4. Repeat the above steps on the other independent variables

**Key variables** you will use (list a minimum of 7) and put the response variable(s) first.

Are there any confounding variables (within your data or missing variables)

|  |  |  |
| --- | --- | --- |
| Variable Name | Variable Description | Range of the variable (list categories or give an interval range such as [0, 2000) |
| Name | Company name | categorical |
| Year | year | categorical |
| Governance Score | Bloomberg proprietary statistic on the quality of Governance in a firm | 0 - 10 |
| Market Cap growth | The value of all shares multiplied by share price | -99.96-29,046.8307 |
| Price Earnings Ratio Growth | Growth of the Price to Earnings ratio | -99-12,883 |
| Sharpe Ratio | The risk adjusted value | -6.466 – 441.016 |
| Best Target | Suggested fair market value by analysts | 4.832 – 5962.500 |
| Total Assets | The total assets of a firm | 0 – 3.774\*10^12 |
| Free Cash Flow | Net Operating Profit after taxes minus investment | -7.662\*10^10 – 1.114\*10^11 |
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