

# Socially Responsible Investing (SRI)

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## **Abstract:**

*Trading on the stock market is increasingly commonplace all around the world. Investing and trading on the stock market can help the country's company and economy. Several scholars have proposed a daily and long-term stock market prediction approach. However, other elements such as environmental, social, and governmental issues can cause significant market volatility. Investing in firms and funds that have beneficial social consequences is known as socially responsible investing. In recent years, socially responsible investing has grown in popularity. Investors and clients are demanding more openness about how their money is being invested on a daily basis. Investors should remember that socially responsible investments are still investments, and they should consider the possibility of profit while making decisions. The world of investing may be scary, especially for those who are new to it.*

*This paper identifies and addresses the issue of minimizing investment risk and its security and highlights the potential for greater relevance to corporate social responsibility practices. This paper claims that SRI has grown not only significantly, but has matured. In particular, it is an investment philosophy adopted by large investment institutions. This shift in SRI from margins to mainstream helps investors review a company's SRI rating before investing and derive reasonable profits from it.*

**Keywords:** Socially Responsible, Environmental, Stocks, Social Rating, Price.

## I. INTRODUCTION

Technical analysis, which employs various indicators and patterns, is used to make trading decisions in financial markets. A variety of technical indicators can be used to create profitable trading rules to battle inflation and build wealth while minimizing risk. One must develop a reliable and intelligent method for selecting outstanding investment instruments. Investment professionals frequently evaluate socially responsible investing via the lens of environmental, social, and governance (ESG) considerations. Environmental, social, and governance (ESG) are three significant considerations for some investors to consider. Those investors search out companies with strong management and a focus on sustainability and community improvement. To solve the problem of keeping their investment safe for free, by providing real-time data and an analysis of the company's revenue in previous years and whether the company is currently profitable in the current year, which is directly related to its stock price and whether it will fall or rise in the future, a company's ESG score scale is from 0-40+ i.e if a XYZ company has an ESG score near to zero then it is safer to invest in that company rather than the company whose score is higher. ESG score is determined by how sustainably a company is doing business in other words it has made profit/loss in previous financial years or not.

## II. LITERATURE REVIEW

You may call it ESG, Socially Responsible Investment (SRI), Impact Investing, or Responsible Investment. Examination of many documents, research papers and historical data has shown that corporate growth and stock prices are also dependent on social and government factors. ESG (Environmental, Social and Governance) investment is a form of socially responsible investment that encourages companies to adopt sustainability and more sustainable practices. This investment paradigm aims to allocate shareholders' equity to companies with positive social, environmental and governance policies in their businesses, business models and strategies [1]. There are many financial websites that offer stock market data, business growth data analysis, and many other features. These websites lacked the important function of whether a company has social responsibility. The results show that the difference in returns between socially responsible investment funds and traditional funds in China is small, and that the risks of socially responsible investment funds are significantly lower than those of traditional funds [3]. Investors are worried about the companies they are investing in. Using the MSCI ESG rating as a stock screener is worthwhile and has been shown to improve performance while reducing downside risk [4]. ESG performance enhances the value of both shareholders and businesses. This is in line with stakeholder theory [6]. In particular, two strategies are currently very popular in the responsible investment landscape, namely screening and ESG integration. If asset managers

and investment managers wish to optimize financial performance while investing responsibly, they should care about ESG rating disagreement and its impact on stock returns. Indeed, our results suggest that with positive (negative) screening they should buy (sell) primarily those stocks that, for a given high (low) ESG rating, command the lowest (highest) level of ESG disagreement[5]. The popularity of ESG scores helps you make profitable investments and mitigate risk in your portfolio. However, there are some flaws in ESG assessments and strategies. First, ESG data is inconsistent. This means that unless you use the same dataset, you will get different results if you reproduce the approach proposed by academic research [7]. The SRI website is designed this way. That's the rest of the puzzle for investors.

### III. Methodology

- YFinance api
- Python
- Django
- Bootstrap

#### I. Yfinance:

Yfinance is an open-source library that allows us to access the financial data available on Yahoo Finance i.e., it is a python package that enables us to fetch historical market data from Yahoo Finance API. It becomes possible for all the Python developers to get data with the help of yfinance. We can download historical stock data from yfinance. It offers high granularity of data including highly refined data, all the way down to 5-minute, 3 minute and even 1 minute data. YFinance not only downloads the Stock Price data it also allows us to download all the financial data of a company since its listing in the stock market. This library is well suited for Financial Data Analysis.

Yfinance functions which can be used to retrieve the company's data:

- `msft.history(period="max")` : We are using this function to get historical information about the company.
- `msft.financials`: We are using this function to get the latest financial information.
- `msft.sustainability`: This function provides us with the ESG (economic, social and governance) scores
- `msft.news`: We will leverage this call for next semester

We are not able to get a real time date but limited to the previous business day for stock price. For other forms of data we are pulling, you can get the last 60 days. Some methods are fragile and we noticed this with the `msft.news` call. Yfinance mainly makes API calls to Yahoo Finance to gather its data, but it does occasionally employ HTML scraping and pandas tables scraping to unofficially gather the information off the Yahoo Finance website for some of its methods. As such, the functionality of some of its methods is at the mercy of Yahoo not changing the layout or design of some of their pages. In fact, yfinance is widely known to already have a few issues.

When the home page of the site is loaded, a request is made to populate the home view with the information we pull from the library.

## II. Django:

Django is a high-level Python web framework that enables rapid development of secure and maintainable websites. Since the YFinance library is used in Python, it made the most sense to use a web framework that was also written in Python which allows for easier integration. Our SRI home page shows a list of companies and then a user can click on the company name to see more info. From there, the API is consumed in Django by using Yahoo Finance to get some stock data about the company and display it on the page. We have used the yahoo-finance package multiple times in Python to fetch the necessary data.

Django is a good framework to learn and leverage the model-view-template logic. This makes manipulating data and updating it on a webpage very easy. This web framework will also allow for streamlined scaling and the integration of the database for next semester, phase 2. It is convenient to spin up a DB to read and write from. It's more user- friendly to use Django and a Python library than leveraging Angular or React. The entire project leverages Django, from the front-end elements to the server calls.

- Views - these are used to call the YFinance functions that make the Yahoo Finance calls
- URLs - when new views need to be updated with new data, requests for these new views need to be routed to the right URLs
- Templates - the html, css and js needed to render the new views

## III. Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. While Django

provides the web framework for creating the site, we want it to look very clean and professional. We've leveraged Bootstrap in Django. Since Bootstrap is a front-end framework, it completely consists of CSS & JavaScript files. These files are considered static on the server-side. Bootstrap allowed us to easily add styling to the website and is easy to integrate.

#### IV. SYSTEM ARCHITECTURE

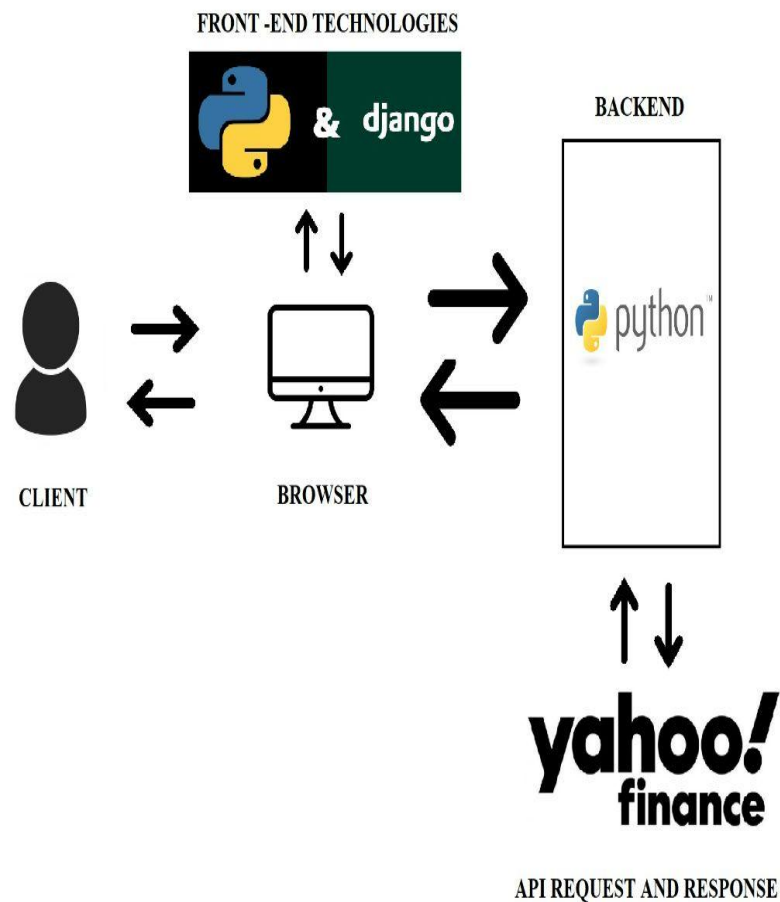


figure 2. system architecture

SRI System architecture here depicts user interaction with the system, and the system's overall working and backend functionality. Our Socially Responsible investing website is available using browsers; the front end of the project was developed using Django and python which allows us to have a user-friendly interface while being able to

deploy backend data seamlessly. YFinance API is used to fetch financial and stock market data, we can access this API using a key which can be obtained from Yfinance official website. Once we obtain the key we can access the data from the backend. YFinance sends a lot of data, but we are performing filtration in the backend and using only ESG data and other critical data, which is vital for it to pull requests.

## **V. RESULTS AND DISCUSSION**

There has been an upturn in the Stock market, billions and Trillions of dollars are invested every year in companies for purchasing stocks. Investors have to go through a lot of historical data analysis before investing in a company. We cannot predict whether an investment made will be safe or not. Socially responsible investing website will provide more insights and provide ratings if a company is investing in the right cause, like environmental protection, social cause and for good governance. After analysing multiple investing platforms, we have found that the price of the stock depends upon its financial data or financial earnings of every quarter in previous and current years. Most of the platforms out there provide financial data about the company but they are missing one important feature that is ESG rating, ESG score has a scale of 0-40+ in which ESG score closer to 0 is a good score then the one that is drifting away from zero. Investors go through each and every factor to minimize their losses and one of them should be the ESG score.

SRI website is designed in such a manner which is the last missing piece of the puzzle for investors. SRI makes your investment safe and it will provide a social rating or social score of a company which will guide the investor whether the company is socially responsible. SRI is an investing strategy that aims to generate both social change and financial returns for an investor and provide data about companies making a positive, sustainable or social impact.

## Corporate Sustainability Score

Find the current stock price & ESG scores a company



AMZN (Amazon)

NYSE - NYSE Delayed Price. Currency in USD

Stock Price

\$2,485.63

### ENVIRONMENT, SOCIAL AND GOVERNANCE (ESG) RISK RATINGS

Total ESG Score	Environmental Score	Social Score	Governance Percentile
20.2	5.95	14.25	0.0

### FINANCIALS

	2021-12-31 00:00:00	2020-12-31 00:00:00	2019-12-31 00:00:00	2018-12-31 00:00:00
Research Development	56052000000.0	42740000000.0	35931000000.0	28837000000.0
Effect Of Accounting Charges	None	None	None	None
Income Before Tax	38155000000.0	24194000000.0	13962000000.0	11270000000.0
Minority Interest	None	None	None	None
Net Income	33364000000.0	21331000000.0	11588000000.0	10073000000.0
Selling General Administrative	116485000000.0	87193000000.0	64313000000.0	52177000000.0
Gross Profit	197478000000.0	152757000000.0	114986000000.0	93731000000.0
Ebit	24879000000.0	22899000000.0	14541000000.0	12421000000.0
Operating Income	24879000000.0	22899000000.0	14541000000.0	12421000000.0
Other Operating Expenses	62000000.0	-75000000.0	201000000.0	296000000.0
Interest Expense	-1809000000.0	-1647000000.0	-1600000000.0	-1417000000.0
Extraordinary Items	None	None	None	None
Non Recurring	None	None	None	None
Other Items	None	None	None	None
Income Tax Expense	4791000000.0	2863000000.0	2374000000.0	1197000000.0
Total Revenue	1468872000000.0	1386864000000.0	1286720000000.0	1237887000000.0

figure 3. SRI Website for Pace University Project

## VI. CONCLUSION

As we know, how much environmental awareness has been growing since the past couple of years. As a result people are trying to find more ways to do good as much as they could for the current condition of the environment. Our website provides an ESG score which is Environmental awareness, Socially responsible and Governance percentile which as a whole gives the ESG awareness score for the particular company which helps them invest in the companies which are working more and more towards betterment of the environment. Within the website, a visitor can compare ESG scores from various companies. If the user wants to invest in a certain company, he/she will be sent to a third-party investing site. Whenever the SRI website is fully established and operational, it will provide users with the most up-to-date stock information in order for them to invest their money in the respective company they feel is suitable according to their requirement. We have included Yfinance which is an open-source library that allows us to access the financial data available on Yahoo Finance. A user can look up and search for different firms and stocks; if he/she chooses one, the company will have a positive ESG rating if it is socially responsible. We've also used Django for Yahoo Finance to get some stock data about the company and display it on the page in an easy manner. Our Website is basically helping every user who is working towards betterment of the society with the investing options which can benefit both.

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