DOSRI: Do Socially Responsible Investing

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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 company and country's 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. Socially responsible investing (SRI), also known as social investment, is an investment that is considered socially responsible due to the nature of the business the company conducts. A common theme for socially responsible investments is socially conscious investing. Socially responsible investments can be made into individual companies with good social value, or through a socially conscious mutual fund or exchange-traded fund (ETF) [8]. In recent years, socially responsible investing has grown in popularity. Investors and clients are demanding more openness about how their money is being invested daily. Investors should keep in mind that socially responsible investments are still investments and be sure to weigh the potential for return in their decisions.

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. 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: Investing, Environmental, Social Value, Profits.

I. INTRODUCTION

Socially responsible investments include eschewing investments in companies that produce or sell addictive substances or activities (like alcohol, gambling, and tobacco) in favour of seeking out companies that are engaged in social justice, environmental sustainability, and alternative energy/clean technology efforts [8]. 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. Funds such as mutual funds and ETFs that focus on environmental, social, and governance principles (ESG Funds) have gained popularity with investors over time. Investors may hear about these funds from financial professionals, from investment-focused online sites, or even from popular media. 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.

for example, companies with policies aimed at minimizing their negative impact on the environment or companies that focus on governance principles and transparency. ESG practices may also entail screening out companies in certain sectors or that, in the view of the fund manager, have shown poor performance regarding management of ESG risks and opportunities. Furthermore, some fund managers may focus on companies that they view as having room for improvement on ESG matters, with a view to helping those companies improve through actively engaging with the companies [9].

Fund managers focusing on ESG generally examine criteria within the environmental, social, and/or governance categories to analyse and select securities.

- The environmental component might focus on a company's impact on the environment—for example, its energy use or pollution output. It also might focus on the risks and opportunities associated with the impacts of climate change on the company, its business, and its industry.
- The social component might focus on the company's relationship with people and society—for example, issues that impact diversity and inclusion, human rights, specific faith-based issues, the health and safety of employees, customers, and consumers locally and/or globally, or whether the company invests in its community, as well as how such issues are addressed by other companies in a supply chain.
- The governance component might focus on issues such as how the company is run—for example,

transparency and reporting, ethics, compliance, shareholder rights, and the composition and role of the board of directors.

II. LITERATURE REVIEW

In recent history, socially conscious investing has been growing into a widely followed practice, as there are dozens of new funds and pooled investment vehicles available for retail investors. Mutual funds and ETFs provide an added advantage in that investors can gain exposure to multiple companies across many sectors with a single investment. However, investors should read carefully through fund prospectuses to determine the exact philosophies being employed by fund managers, along with the potential profitability of these investments.

You may call it ESG, Socially Responsible Investment (SRI), Impact Investing, or Responsible Investment. 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 DOSRI 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]. 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.

There are two inherent goals of socially responsible investing: social impact and financial gain. The two do not necessarily have to go hand in hand; just because an investment touts itself as socially responsible doesn't mean that it will provide investors with a good return and the promise of a good return is far from an assurance that the nature of the company involved is socially conscious. An investor must still assess the financial outlook of the investment while trying to gauge its social value. For example, in the 1960s, investors were mainly concerned with contributing to causes such as women's rights, civil rights, and the anti-war movement. Martin Luther King Jr. played a large role in raising awareness for the civil rights movement by targeting companies that opposed the cause as socially irresponsible.

As awareness has grown in recent years over global warming and climate change, socially responsible investing has trended toward companies that positively impact the environment by reducing emissions or investing in sustainable or clean energy sources. Consequently, these investments avoid industries such as coal mining due to the negative environmental impact of their business practices [10].

The 13 ESG index funds available to U.S. investors that follow broad, diversified indexes of U.S. large-cap stocks posted gains ranging from 25.6% to 31.7% in 2021. Their average return was 29.2%. The S&P 500, represented here by iShares Core S&P 500 ETF (IVV), returned 28.7%. Seven of the ESG index funds gained more than 30%. Of all funds in the large-blend Morningstar Category, less than one in four outperformed IVV [11].

U.S. Large Cap ESG Index Funds 1- and 2-Yr Trailing Returns

| Name | Ticker | 2021 | | 2-Years | | Expense Ratio |
		Total Return %	% Rank Category	Total Return %	% Rank Category	
Xtrackers S&P 500 ESG ETF	SNPE	31.67	6	25.50	10	0.10
Xtrackers MSCI USA ESG Leaders Eq ETF	USSG	31.64	6	25.02	12	0.09
iShares ESG MSCI USA Leaders ETF	SUSL	31.59	6	25.01	12	0.10
Fidelity U.S. Sustainability Index	FITLX	31.57	7	24.95	13	0.11
iShares MSCI KLD 400 Social ETF	DSI	31.30	7	25.94	7	0.25
IQ Candriam ESG US Equity ETF	IOSU	30.47	11	29.32	2	0.09
iShares MSCI USA ESG Select ETF	SUSA	30.31	11	27.44	3	0.25
FlexShares STOXX US ESG Select Index ETF	ESG	28.52	26	24.61	14	0.32
Vanguard FTSE Social Index I	VFTNX	27.77	36	25.19	11	0.12
iShares ESG Aware MSCI USA ETF	ESGU	26.78	50	24.62	14	0.15
Vanguard ESG US Stock ETF	ESGV	26.41	54	26.06	6	0.09
Nuveen ESG Large-Cap ETF	NULC	25.80	62	24.05	19	0.20
Calvert US Large Cap Core Rspnb Idx I	CISIX	25.62	65	25.87	7	0.24
ESG Index Fund Average		*29.19*	*27*	*25.75*	*10*	*0.16*
iShares Core S&P 500 ETF (Conv'l Bmark)	*IVV*	*28.66*	*24*	*23.41*	*27*	*0.03*

Source: Morningstar Direct. Data as of 12/31/21. Note: Oldest shareclass used for mutual funds.

Fig 2.1 U.S. Large Cup ESG Index Funds 1 & 2-Yr

Top performers over the two-year period were IQ Candriam ESG US Equity ETF (IQSU), which gained 29.32% annualized, and iShares MSCI USA ESG Select ETF (SUSA), which gained 27.44% annualized.
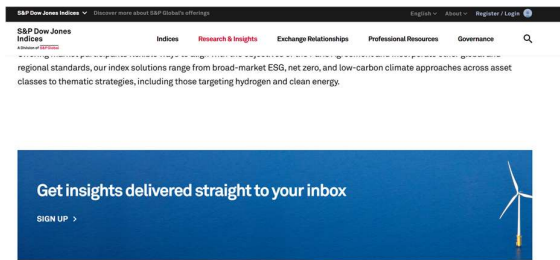
III. CURRENT ESG APPLICATIONS IN MARKET

Fig 3.1 Screenshot Of S&P Dow Jones Indices Requesting to Sign up Before Showing ESG Ranking, Company Stock Prices & Other Information
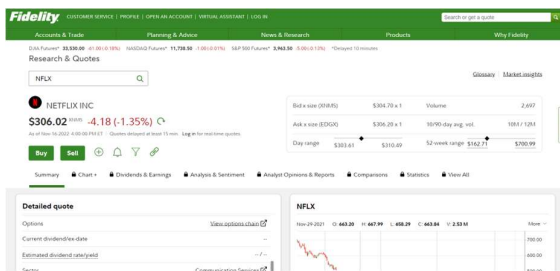

Fig 3.2 Fidelity an open- source website where most of the features are locked & ESG score is not displayed

IV. METHODOLOGY

1. 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. Ever since Yahoo! Finance decommissioned their historical data API, Python developers looked for a reliable workaround. As a result, my library, yfinance, gained momentum and was downloaded over 100,000 according to PyPi. The Ticker () module allows you get market and meta data for a security, using a Pythonic way.

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.

Available parameters for the history () method are:

- period: data period to download (Either Use period parameter or use start and end) Valid periods are: 1d, 5d, 1mo, 3mo, 6mo, 1y, 2y, 5y, 10y, ytd, max
- interval: data interval (intraday data cannot extend last 60 days) Valid intervals are: 1m, 2m, 5m, 15m, 30m, 60m, 90m, 1h, 1d, 5d, 1wk, 1mo, 3mo
- start: If not using period - Download start date string (YYYY-MM-DD) or datetime.
- end: If not using period - Download end date string (YYYY-MM-DD) or datetime.
- prepost: Include Pre and Post market data in results? (Default is False)
- auto_adjust: Adjust all OHLC automatically? (Default is True)
- actions: Download stock dividends and stock splits events? (Default is True)

- msft.financials: We are using this function to get the latest financial information. Show quarterly financials
- msft.sustainability: This function provides us with the ESG (economic, social and governance) scores
- msft.news: This function will fetch news from the API.

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.

2. 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. DOSRI 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

3. 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.

4. GOOGLE NEWS API:

Google News API is a REST API that returns search results for current and historic news articles. It provides all the data in JSON format. As a result, you can quickly show the trending news headlines in your web application. Also, Google News API is very easy to integrate.

V.   SYSTEM ARCHITECTURE

Fig 5.1 Architecture diagram of DOSRI App

Once a user has entered the DOSRI application, they are directed to the HOME page, where they may either sign up for the application or skip the signup process and just search for stock listings. After successfully logging in, the user can access company stock information such as stock price, recent news, graphs, company ESG score, and historical data of the company by utilizing the search box. If the user chooses to invest in that firm, they can do so by clicking the Invest in this Company feature, which will redirect the user to a third-party website where they can do so.

VI. RESULTS AND DISCUSSION

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 factor to minimize their losses and one of them should be the ESG score.

Fig 6.1 Home page of DOSRI application.

Fig 6.2 Historical data of company

VII. 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 gives the ESG awareness score for the 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 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. DOSRI 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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