



AMSA

Asset Management Study Association

The sustainability of young retail investors

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1. Introduction

For some, zero commission trading has become synonymous with young, hopeful retail investors giving their shot on the market. After all, the low to non-existent commission fees make it attractive for someone with little capital to enter the market and be able to trade on their perceived knowledge. While in the past financial returns were considered the only objective for any investor, the letters E S and G are no longer a negligible factor when considering investments. Asset managers have become keen on adopting some form of ESG inclusion in their investment criteria, be it through negative screening, positive screening, ESG-integration etc. (check Appendix for brief explanations). While large asset managers have vast arrays of data and knowledge with which they can attempt to take sustainable initiatives into account, small, young, potentially inexperienced investors must rely much more on widely available public information. Nevertheless, it should be argued that this generation, more than anyone, is concerned about the environmental impact of their decisions. In fact, research by the Pew Research Center has shown that Gen Z members and Millennials are most likely to frequently address the need to tackle climate change compared to their older counterparts. Additionally, younger cohorts are shown to be more likely to take action on climate change through donations, volunteering or contacting their government representatives (Venkateswaran, 2019). Choosing your investments can be considered a form of action too. Investors who feel strongly about the effects of climate change might opt out of seemingly lucrative investment opportunities if these do not align with their personal beliefs, since associating yourself with a company involved in unsustainable activities, e.g. oil drilling, may be considered a form of tacit support.

The goal of this paper is to see whether that is in fact the case. Younger generations feel much more strongly about climate change in addition to social and governance issues, opting to be more vocal about company operations' effects on both internal and external stakeholders. When looking at this issue from a market perspective, the abovementioned implication is that relative to the market in which investors of all ages, directly or indirectly, invest, younger retail investors should allocate less weight to negatively perceived companies and more weight to positively perceived companies compared to the overall market – the average investor (largely institutional) trading in public equity. The aggregate retail investor's actions should thus result in a relatively higher ESG-score compared to the market. Thus, the question for this paper is: *Do young, retail investors invest more sustainably than the market?*

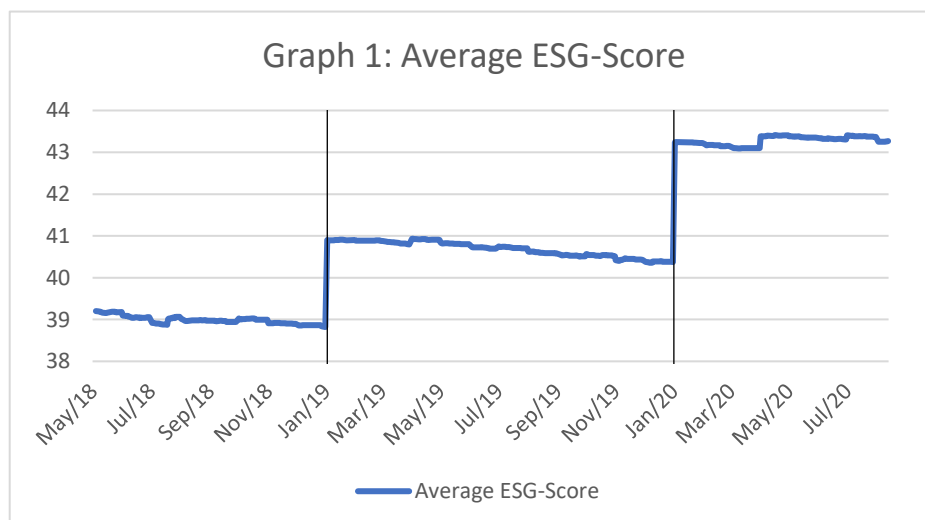
Based on the argumentation above, the hypothesis for this paper is:

Young retail investors invest a greater proportion of their wealth in sustainable companies compared to the market.

2. Data

As a proxy for young retail investors, data on the number of individuals holding each particular stock from the Robinhood trading platform is used. The data itself stems from the Robintrack website (<https://robintrack.net>). The website collects data on how many individuals hold each stock in the Robinhood investment universe per hour per day between May 2nd 2018 and August 13th 2020, after which Robinhood discontinued its public data provision services. To illustrate, on April 9th, 2020 188,230 users held a positive position in the Twitter stock. According to Venkateswaran (2019), the average Robinhood user is 31 years of age and has between \$1000 to \$5000 dollars invested in securities via the platform. The relatively young age of the platform's users makes it ideal for testing the hypothesis.

On the other hand, to estimate the sustainability of companies, yearly ESG data from Refinitiv is used. The Refinitiv database makes use of 630 firm-level ESG measures which result in an overall ESG score per company. For each industry, a different set of measures is used that is most relevant. In general, the ESG pillars can be split up into separate categories: For the environmental aspects of a firm, companies are evaluated on resource use, emissions, and innovation. The social aspect is reflected by workforce satisfaction, respect for human rights, positive community commitments, and product responsibility, whereas the governance aspects are quantified through management practices, equality of shareholder rights and the CSR strategy. Within each pillar, each of the abovementioned categories is weighted to provide a weighted average ESG score of the total. Graph 1 shows the average ESG-Score of the Robinhood investment universe for which an ESG-Score was found.



In general, it can be shown that the average ESG score per company in the Robinhood universe increases over time. The jumps in the average score are due to ESG data only being provided on a yearly basis at the beginning of the year, illustrated by the vertical bars in the graph.

3. Methodology

In order to estimate the sustainability of the aggregate retail investor on the Robinhood trading platform, a weighted average ESG score of the aggregate Robinhood user is calculated.

In general, the weighted average ESG score at time t for the aggregate Robinhood user is calculated in the following way:

$$\underline{ESG}_t = \sum_{i=1}^N w_{i,t} * ESG_Score_{i,t}$$

With \underline{ESG}_t representing the weighted-average ESG score and $w_{i,t}$ representing the weight allocated to the ESG Score of company q at time t.

While for the aggregate retail investor, the weights are calculated using a user-value-weighted method shown below:

$$w_{i,t} = \frac{Price_{i,t} * Users_{i,t}}{\sum_{i=1}^N (Price_{i,t} * Users_{i,t})}$$

With $Price_{i,t}$ being the stock price of company i and $Users_{i,t}$ being the number of users having a positive position in stock i at time t. The denominator thus proxies the aggregate retail investor's portfolio.

This results in a value-weighted ESG score, in which more weight is placed towards stocks making up a larger weight in the aggregate retail investor's portfolio. Thus, the larger the market value of the asset held, the larger its weight in the weighted average ESG score. Similarly, the higher the number of users holding each security, the higher its weight as well.

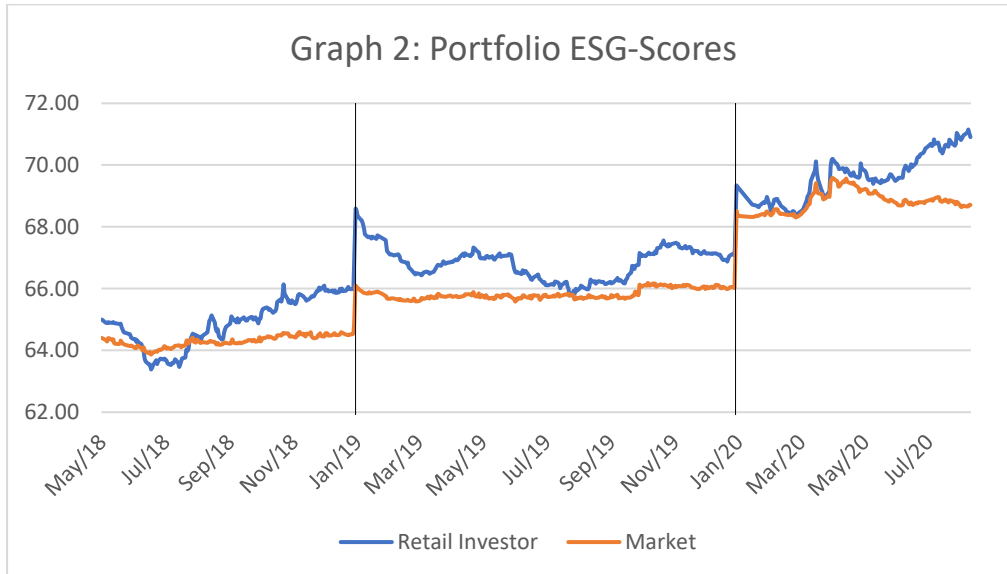
The benchmark portfolio weights used to calculate the market ESG score to which the sustainability of the aggregate retail investor is compared is calculated in the following way:

$$w_{i,t} = \frac{MCap_{i,t}}{\sum_{i=1}^N MCap_{i,t}}$$

With $MCap_{i,t}$ being the market capitalization for company i at time t. The market portfolio is calculated using all available stocks to Robinhood users (for which ESG data was available) as this represents the investment opportunity set for the aggregate retail investor of Robinhood.

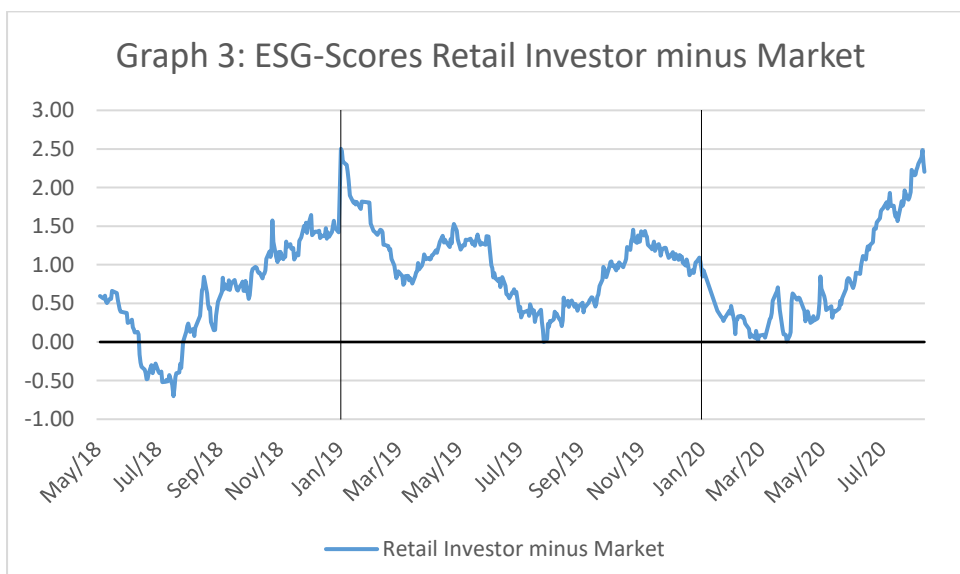
4. Results

Graph 2 below shows both the weighted average ESG-score for the aggregate retail investor's portfolio and the market portfolio between May 2018 and August 2020.



Similar to graph 1, the portfolio ESG scores for both the aggregate retail investor and the market increase over time. Though large increases are mostly reserved for the ESG publish dates, there is additional inter-year ESG-Score movement happening among retail investors through re-allocation of capital to different securities and return-specific movements in the aggregate investor's investment portfolio. Nevertheless, both the portfolio ESG-Score of the market and of the aggregate retail investor follow a similar trend over time.

To better visualize portfolio co-movements, graph 3 below shows the difference in portfolio ESG-Scores between the aggregate retail investor's portfolio and the market portfolio.



Based on graph 3, the aggregate retail investor does seem to have some outperformance in the ESG universe compared to the market, suggesting that the young, aggregate retail investor seems to be drawn to better ESG-performing companies compared to the market. No clear trend is shown, however, that would suggest that the aggregate retail investor is allocating more additional capital to better scoring ESG firms compared to the market.

Table 1 provides further evidence suggesting clear ESG-outperformance by retail investors in the ESG universe per year. The reason for estimating the significance of ESG outperformance per year is to prevent bias in the variance of the portfolio scores related to the publishing nature of the ESG data.

Table 1: Mean difference in ESG-Scores between retail investor portfolio and market portfolio per year between May 4th 2018 and August 13th 2020.

ESG-Scores: Retail Investor minus Market				
Year	Mean	Robust Std. errors	Robust t-stat	Days observed
2018	0.5943***	0.0499	11.90	160
2019	0.9978***	0.0291	34.25	244
2020	0.8332***	0.0583	14.28	141

Note: Robust Std. Errors refers to the robust standard errors of the difference in ESG scores between retail investors and market investors per year. Days observed refers to the number of trading days per year for which data is available. The sample period is between May 4th 2018 and August 13th 2020.

For each year, retail investors significantly outperform the market in their ESG-Scores at the one percent significance level, providing some evidence of more conscious and sustainable investing compared to their market peers. Interestingly, this outperformance, on average persists over time, suggesting that while the market does catch up in its overall ESG-Score as illustrated in graph 2, retail investors also make further ESG improvements over time, thereby maintaining a certain level of outperformance.

5. Discussion and Conclusion:

In conclusion, the question of this paper was: *Do retail investors invest more sustainably than the market?* with the hypothesis being that *Young retail investors invest a greater proportion of their wealth in sustainable companies compared to the market.*

The results outlined above provide several implications regarding young retail investor’s portfolio sustainability. First, Robinhood users on average appear to marginally invest more sustainably than the market, indicating that retail investors may consider a firm’s ESG standing, be it explicitly or implicitly. Secondly, during the period of 2018-2020, young retail investors can maintain their ESG-

outperformance to the market proxy. Therefore, the results provide no evidence that would counter the hypothesis of this paper. This may have several implications. First, it provides some insights into a continuous revolution in their views. Rather than being satisfied with a certain level of sustainability, as time progresses, retail investors' (implicit) demands for what is considered sustainable may change. Else one might expect to see an initial ESG-outperformance, followed by a leveling off in ESG performance to which the market may catch up. Furthermore, the results offer some insights into the investment considerations of young retail investors. Given that Robinhood investors allocate a larger proportion of their wealth to relatively better ESG-scoring firms compared to the market, young retail investors may demand a higher required rate of return for their investments than the market for lower ESG-scoring firms. This is in line with the research provided by Pew Research suggesting younger generations feel more strongly about climate change than their older counterparts.

Nevertheless, these results should be interpreted with caution. This paper only considers firms for which ESG ratings were found. Relative to the full dataset, companies with ESG data make up ~75% of total user holdings in the Robinhood universe. Thus, it is possible that relative to the market, Robinhood users invest a disproportionately larger amount in low ESG-scoring companies, thereby biasing the abovementioned results upwards. Additionally, the retail investor portfolio proxy assumes asset weights to be somewhat proportional to their stock prices, with greater weights being allocated towards stocks with higher market prices. It is possible that young retail investors may opt for a more equally weighted approach, whereby they simply buy more shares of firms with lower stock prices. Though given their limited budgets (Venkateswaran, 2019) this is questionable.

Lastly, this paper provides only a very basic overview of sustainable investment trends among younger generations. As a suggestion for further research, it may be interesting to see changes in preferences among retail investors following company-specific announcements to ESG performance to better understand young retail investors' preferences for sustainable companies.

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<https://www.pewresearch.org/science/2021/05/26/gen-z-millennials-stand-out-for-climate-change-activism-social-media-engagement-with-issue/>.

Appendix:

Sustainable Investment Approaches:

Negative Screening: the explicit exclusion of negatively ESG-performing companies and companies of certain sectors (e.g., Tobacco Industry)

Positive Screening:

Restricting investments to firms with relatively positive ESG scores, or firms performing comparably well in their sectors

ESG-Integration:

Explicitly including ESG as an investment criterion alongside risk and returns

Active Engagement:

Influence policies of through engaging with firm management, proxy-voting, and participating in shareholder initiatives