EMPOWERING INVESTORS WITH SOCIAL ANNOTATION WHEN SAVING FOR RETIREMENT

Jeremy Burke (USC/CESR)
Oded Nov (NYU)
Junius Gunaratne (NYU)

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NYU | TANDON SCHOOL OF ENGINEERING

USCDornsife
*Center for Economic
and Social Research*

INTRODUCTION

Disclosure is a pillar of regulatory policy around the globe. In investment markets, disclosures often take the form of financial prospectuses, which are designed to help consumers make informed decisions by providing information about an investment's key characteristics, including fees, past performance, and risk. Indeed, financial prospectuses are commonly used throughout the world and are increasingly provided electronically to investors.

While prospectus documents are intended to help individuals become more informed investors, in practice they are often complex and filled with jargon that consumers find difficult to understand. Prior research has indicated that financial disclosures often go unread, that consumers are often confused by the complex language and terminology used, and that the convoluted nature in which prospectuses are written can allow firms marketing financial products to hide unfavorable information, such as high fees.

Recent mandates implemented by U.S. regulators have simplified the language used in prospectus documents. However, prior work has found that simplified disclosure alone may not be sufficient to improve outcomes for investors. An alternative approach we pursue in this study involves the use of social content. In particular, we explore how exposing consumers to online comments of other users on financial prospectuses can help inform consumers' decision-making. Such contextual comments, known as social annotations, have demonstrated promise in improving consumer comprehension and improving task performance in other complex environments, particularly among novices.

RETIREMENT SAVINGS SIMULATION

To examine how social annotations can influence investment knowledge and performance, we developed and employed a retirement savings simulation designed to mimic the process of saving for retirement. In the simulation, consumers are asked to accumulate $1.5M over the course of 35 years (periods) and are incentivized to attain performance as close to that goal as possible (through bonus payments that decrease with distance from the goal). Each period participants are given a hypothetical $10,000, which can be allocated across ten possible investment funds (three stock funds, three bond funds, three target date funds, and a money market fund). Fees, volatility, and rating attributes vary across funds such that within each investment class, one fund clearly has the best attributes of its category (for example, low fees and relatively high rate of return), one fund clearly has the worst attributes (for example, high fees and relatively low rate of return), and the third has attributes between the best and worst funds in its category. The money market fund has no fees, zero volatility and return (and represents a choice not to invest).

The retirement simulator features a home screen displaying the current amount of money saved to date, a chart showing the amount of money saved over time, a list of previous transactions, and a pie chart with the current fund composition of the participant's portfolio (Figure 1). From the home screen, consumers can choose this year's savings mix or optionally rebalance their entire savings. Each of the selection screens consists of a list of the ten funds over which participants can allocate their assets. The retirement simulator allows participants to set asset allocations for the $10,000 saved for the year, to rebalance the entire portfolio from all years of saving, or both.

On fund selection screens, funds of the same category are grouped together (Figure 2). However, within a category funds appear in arbitrary orders and have names that do not make it possible for participants to discern differences simply by reading the fund's name. For example, we used the following names for lifecycle funds: Lifecycle Fund 4, Lifecycle Fund 6 and Lifecycle Fund B. Once consumers click "submit" on their chosen asset allocation, they move to the next

simulation year. Users are then presented with market behavior of the previous year (modeled on past returns of similar assets, unbeknownst to participants) as well as their updated portfolio balance.

Prior to selecting funds, participants are able to click on a fund's name to access the investment's prospectus, which describes the associated fees, risk, historical performance and other pertinent information (Figure 2). Prospectuses used in the simulation are derived from existing investments, though we modified numerical information (for example, fees) for the purpose of the simulation and to create investments with better and worse attributes.
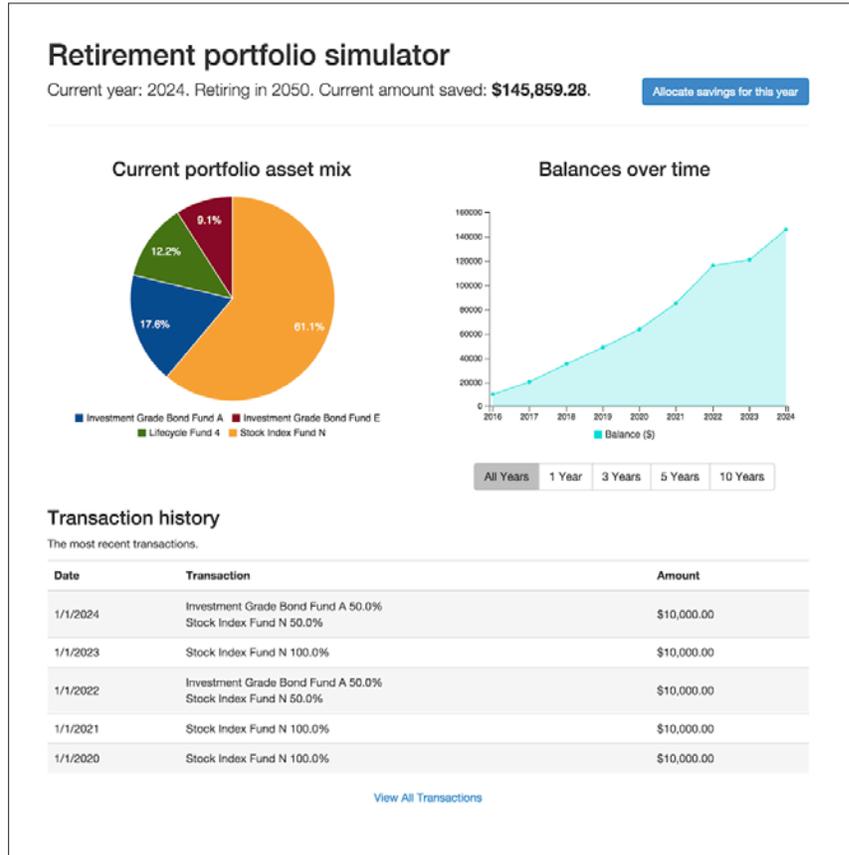

Figure 1: Retirement Simulation
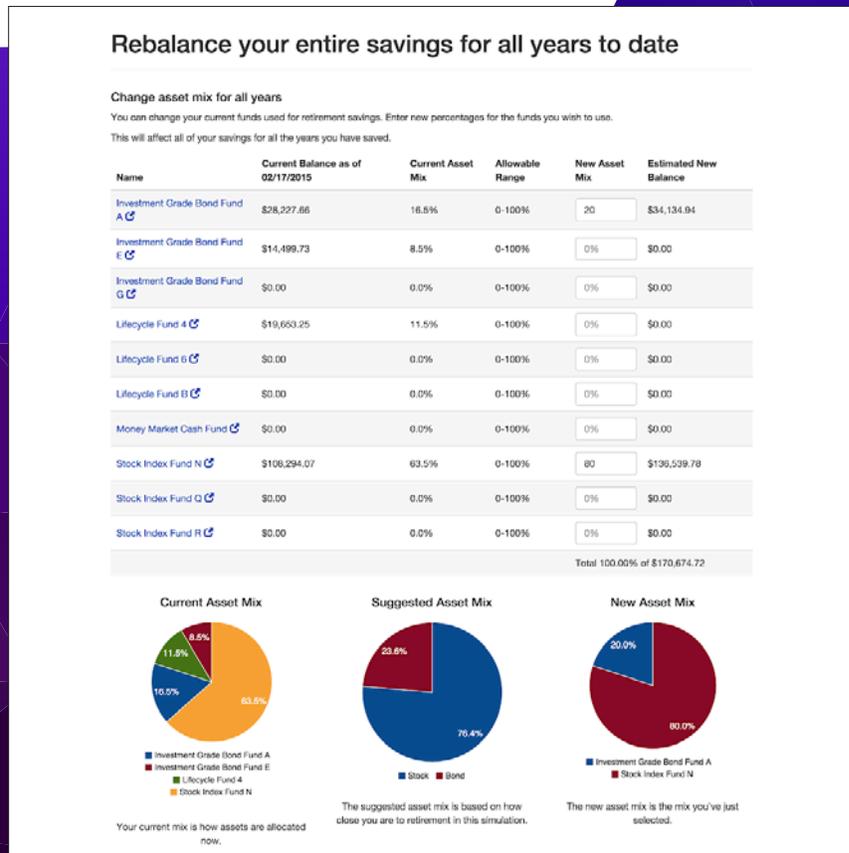
Figure 2: Asset Allocation Choices

SOCIAL ANNOTATION

To generate annotations for our fund prospectuses, we conducted a separate pre-study. We recruited 31 participants via Amazon Mechanical Turk (MTurk) and limited participation to U.S. users with a record of at least 100 tasks at an approval rate above 99%. Pre-study participants were shown the list of ten funds, and were randomly assigned to make comments on one fund. We sought to elicit relatively focused annotations that would enable other consumers to navigate complex information and select appropriate products. We therefore asked annotation writers to: (1) make note of the best funds and where possible highlight numeric data; (2) emphasize specific fund attributes such as fees; and (3) use comparative terms such as "best" and "worst" to discuss funds. We allowed annotation writers to see a previous annotation to get a sense of what information may be important. From this procedure, we obtained three to five comments for each section in a prospectus document, for a total of 215 unique comments for all prospectus documents, ranging between 21 and 29 annotations per prospectus. The vast majority of comments accurately described the investments – only one comment was objectively incorrect. We did not edit (or exclude) any of the participant generated comments.

EXPERIMENT

To examine the efficacy of social annotations in improving investing decisions and comprehension, we recruited 228 participants via MTurk who were not included in the previous annotation collection effort (U.S. based participants with a record of at least 100 tasks at an approval rate above 99%) to participate in the previously described retirement savings simulation. The average age in our sample was 35.2, 41.2% were female, and 64% self-identified as a novice investor. Prior investment experience is a key characteristic in our experiment, as we hypothesized that social annotations would have a larger influence on novices rather than experts.

Within the simulation, participants were randomized into one of two conditions: a social annotation condition in which subjects were presented with the comparative comments generated by pre-study participants, and a control condition. The pre-study comments were placed in the left and right margins of the prospectus documents in the social annotation condition.

The control condition allowed participants to view the prospectus documents, but without the social annotations. The two conditions were otherwise identical.

Figure 3: Social Annotation Condition

RESULTS

We find that the social annotations improved novices' performance in the retirement savings simulation, though had little impact on experts. Novices' mean gap from the $1.5M retirement goal in the social annotation condition was $151,949, significantly lower than the $191,266 mean gap for novices in the control condition (p=0.043). Novices in the social annotation condition were also significantly more likely to reach within 10% of their goal than their counterparts in control (0.55 vs 0.36, p=0.026). Importantly, novices in the social annotation condition also invested significantly more in low-fee funds; novices in the social annotation condition had 41.8% of their portfolio allocated towards low-fee funds compared with 30.7%

for novices in control (p<0.01). There were no statistically significant differences for experts across conditions.

We also compared performance of novices and experts within condition. Strikingly, we find that novices performance was similar to that of experts in the social annotation condition — there were no significant differences in mean gap from goal, likelihood of reaching within 10% of the goal and the mean percent invested in low-fee funds. There were, however, significant differences between novices and experts in the control condition across all measures: mean gap from goal ($191,266 vs. $133,901, p<0.01); likelihood of reaching goal (0.36

vs. 0.53, p<0.01); and mean in low-fee funds (0.31 vs. 0.46), p<0.01).

Finally, we examined whether the social annotations influenced perceived understanding of the disclosures and confidence in decisions. We find little difference across conditions, though novices in the social annotation condition were slightly less likely to report they understood all the material than novices in control (3.68 vs. 3.99 on a 1 – 5 increasing scale, p=0.066). Combined with the improved performance observed in the simulation, our results suggest that social annotations can increase objective performance, yet may decrease subjective knowledge.
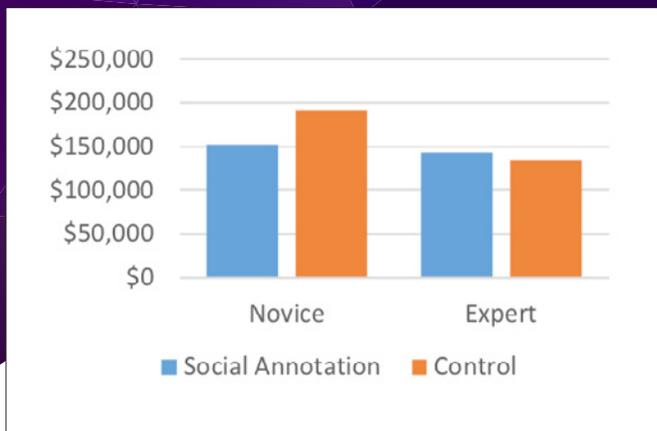

Figure 4: Mean Gap From Goal
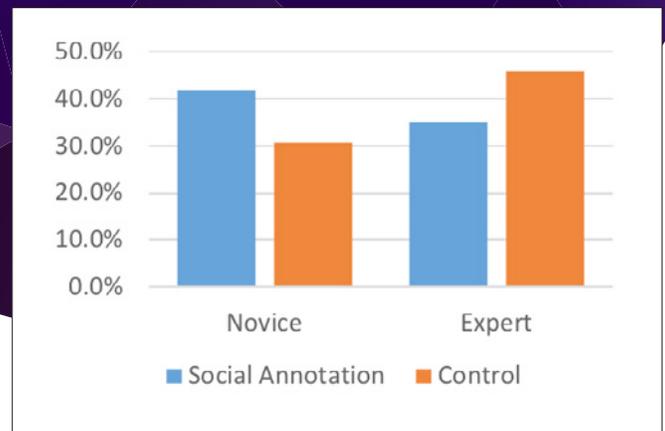
Figure 5: Fraction Held in Low-Fee Funds

INSIGHTS

Our research suggests that social annotation can be an effective way to augment complex financial information and empower non-experts who often make uninformed decisions. Novices in

our retirement savings simulation invested less in high-fee funds and attained performance closer to their goal when exposed to social annotations. While these results are encouraging, further research

is necessary to examine whether and how social annotations influence decisions in less controlled environments.

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