MORNINGSTAR®

22 West Washington Street
Chicago
Illinois 60602

Telephone: +1 312 696-6000
Facsimile: +1 312 696-6001

Submitted Electronically

Oct. 1, 2021
Ms. Vanessa Countryman, Secretary
U.S. Securities and Exchange Commission
100 F Street NE
Washington, D.C. 20549-1090

RE: Release Nos. 34-92766; IA-5833; File No. S7-10-21, RIN 3235-AN00

Request for Information and Comments on Broker-Dealer and Investment Adviser Digital Engagement Practices, Related Tools and Methods, and Regulatory Considerations and Potential Approaches; Information and Comments on Investment Adviser Use of Technology to Develop and Provide Investment Advice

Ladies and Gentlemen:

Morningstar welcomes the opportunity to comment on the Securities and Exchange Commission's (Commission or SEC) Request for Information and Comments on Broker-Dealer and Investment Adviser Digital Engagement Practices, Related Tools and Methods, and Regulatory Considerations and Potential Approaches; Information and Comments on Investment Adviser Use of Technology to Develop and Provide Investment Advice (RFI).[1] Morningstar's mission is to empower investor success. Morningstar's Behavioral Insights Team researches savings and investing behavior to help individual investors and their ecosystem avoid common behavioral biases, and has published books and articles on the topic of applying behavioral science to digital platforms. Because we offer an extensive line of products for individual investors, professional financial advisors, and institutional clients, we have a broad view on the RFI and the assessment of market practices associated with the use of digital engagement practices (DEPs).

This letter contains: 1) a summary of our views; 2) a description of a Morningstar survey on a nationally representative sample of Americans about their use of trading apps and exposure to DEPs; and 3) detailed answers to selected questions posed in the RFI. We utilize our survey responses to address some of these questions and present specific findings in our answers. The survey consists of two parts: a screener for demographic information, attached as Appendix B, and the complete set of questions about individual experiences and views of DEPs, attached as Appendix C.

[1] SEC. 2021. Request for Information and Comments on Broker-Dealer and Investment Adviser Digital Engagement Practices, Related Tools and Methods, and Regulatory Considerations and Potential Approaches; Information and Comments on Investment Adviser Use of Technology to Develop and Provide Investment Advice. https://www.federalregister.gov/documents/2021/09/01/2021-18901/request-for-information-and-comments-on-broker-dealer-and-investment-adviser-digital-engagement (RFI).

Executive Summary

We share the Commission's concerns about the use of DEPs to encourage over-trading but urge caution about unintended consequences in terms of investor engagement and saving. We think the Commission should consider the impact of various DEPs on investors, both positive and negative, before proceeding with any rulemaking in this area and should tread cautiously. While scrutiny of the DEP practices of a particular registered entity, e.g., a broker, may be appropriate in the context of a holistic exam considering whether the broker engaged in practices that run counter to the interests of its clients, we do not believe that entities or specific DEPs should be restricted. Innovation by market participants has led to far greater engagement in the financial system than ever before, and DEPs played a key part in that progression.

We support the Commission's purpose of soliciting information from market participants in order to assess the market practices associated with DEPs. As the Commission notes, in recent years, digital platforms have increased "the opportunities for retail investors to invest and trade in securities."[2] As a result of increased accessibility, there has been an "increase of retail investor participation in U.S. securities markets."[3]

We find that the problem lies in some of the goals that DEPs and behavioral nudges are used to advance, rather than in the use of DEPs overall. We note that the behavioral technique of defaulting, one of the most powerful techniques that America has for helping people save for retirement, is a type of DEP.

Broadly, DEPs are used to target at least three distinct types of behaviors. First, they are deployed to encourage uptake of digital platforms; this is their most common purpose. Second, DEPs are used to help people save for the future and invest those savings. Third, DEPs are used to encourage specific activities within a digital platform, such as excessive trading and purchasing on margin. The latter use of DEPs to drive specific riskier trading behaviors can cause notable harm to investors. However, encouraging uptake of platforms can help engage people in their finances, and encouraging saving (especially) is a social and individual good that we urge the Commission to be careful not to unintentionally disrupt.

Thus, in this letter, we seek to add to the Commission's understanding of behavioral science and what it can tell us about trading nudges, using the findings from a nationally representative survey of 1,500 individuals. Our key recommendation is that, in moving towards regulation, the Commission should not regulate entities or DEPs as a whole, but rather provide guidance on what are some best practices in engaging investors with their financial security and savings and which practices should be used

[2] RFI, P. 49068.
[3] RFI, P. 49068.

more cautiously due to their potential to harm investors. We note that hard line rules and restrictions are not well-suited to this area.

The paradox of DEPs is that nudges to trade can also serve as nudges to save.

We recognize and concur with the Commission's concern that DEPs can be harmful to investors if they encourage trading activities inconsistent with individuals' investment goals. Further, we understand the concern that DEPs have been used to encourage frequent trading, pushing investors to trade more in volatile markets, and the increased frequency of trading could increase the broker's compensation earned through commission, payment for order flow, payment for data, or other forms of compensation.

As the Commission recognizes, however, these potential harms of DEPs in trading are simultaneously accompanied by tremendous benefits for investors of other uses of DEPs. We encourage the Commission to be mindful of not discouraging investors from saving and investing for the future, and undermining helpful innovation in financial markets.

As the Commission states in the RFI, DEPs have increased investor engagement in the marketplace and saving. Characteristics of DEPs, such as "simplified user interfaces and game-like features, [have aided] in the development and implementation of investor education tools."[4] DEPs also utilize "nudge[s],"[5] which encourage investors to participate in trading activities and "engage in other activities that are traditionally viewed as wealth-building exercises,"[6] such as contributing to retirement accounts.

We recognize that the Commission could interpret Regulation Best Interest (Reg BI) to include the use of DEPs to encourage trading as recommendations.[7] Such an interpretation could be too broad. For instance, we believe that simple notifications of market movements do not constitute recommendations, even if they lead to an increase in trading, and that individuals in self-directed brokerage accounts generally do not and should not view generic notifications from the app as recommendations.

We recommend that the Commission's priority in determining which DEPs to prioritize in considering future guidance in this area should be based on specific behaviors targeted by DEPs. The Commission should consider the following question: are the behaviors beneficial to the investor and in line with their personal goals and preferences? For instance, when a trading app defaults investors into a margin account, this default could trigger more risk taking. Margin trading could be harmful for unsophisticated investors, so defaulting all customers, without any screening for knowledge of the consequences of margin trading, could be harmful. On the other hand,

[4] RFI, P. 49069.
[5] RFI, P. 49070.
[6] RFI, P. 49069.
[7] RFI, P. 49075.

when a retirement plan's mobile app defaults investors into an automated savings plan, it is likely to be beneficial and in-line with the investor's desires and preferences.

In addition to evaluating which types of defaults are appropriate, financial institutions could be encouraged to provide "just in time" disclosures to inform investors of risks at the time of making an investment decision. For instance, disclosures regarding the risks of margin trading, ideally tailored to an individual's particular account balance, could be offered right before a margin trade. Similarly, disclosures providing information on the relationship between selling during a sudden downturn and long-term portfolio effects is most effective when provided before a sell transaction is executed.[8] Such "just in time" disclosures have been found to be particularly effective.[9]

Straightforward disclosures about conflicts may be beneficial.

In addition to evaluating DEPs around trading, the Commission could also consider the conflicts of interest present and how they are disclosed in trading apps. These conflicts exist even in self-directed brokerage accounts where individuals typically do not seek a recommendation from the broker. Up-front, straightforward disclosures about conflicts and compensation can help. Based on the research literature, the most effective of such disclosures should be brief, easy-to-understand, and direct. According to the research liteature, conflicts disclosures are likely to be most effective if delivered by a neutral party or third-party, rather than by someone with whom the investor has a positive personal relationship.[10] Layering disclosures, with more information available upon a deeper dive, is useful for sophisticated investors and third parties equipped to help retail investors make sense of the disclosures with which they are presented.

Conflicts disclosures should explain the true cost of trading. For instance, if individuals are not being charged a commission, they should be informed that they are still paying to trade, but through second order costs, such as the sharing of data, payment for order flow (which could lead to a slightly worse price than what they would have with other brokers), etc. When possible, concrete numerical examples, as are currently expected in the Form CRS, would be most helpful to investors to allow them to compare both explicit and hidden costs across brokers. The effect of this disclosure on the individual is then magnified by the use of that disclosed relationship and data via the media and through independent analysts and research houses.

---

[8] Morningstar. 2018. "Comment Letter in Response to SEC's Regulation Best Interest and the Form CRS Relationship Summary." https://www.sec.gov/comments/s7-07-18/s70718-4253460-173066.pdf.

[9] Chaudhry, S. & Kulkarni, C. 2021. "Design Patterns of Investing Apps and Their Effects on Investing Behaviors." P. 784. https://dl.acm.org/doi/pdf/10.1145/3461778.3462008.

[10] Sah, S. 2018. "Conflicts of Interest and Disclosure." Royal Comission into Misconduct in the Banking, Superannuation and Financial Services Industry. P. 17. https://financialservices.royalcommission.gov.au/publications/Documents/research-paper-conflicts-interest-disclosure.pdf. (Conflicts of Interest and Disclosure).

The Commission might consider DEPs as recommendations only in very specific circumstances.

In general, we support the utilization of digital platforms for investing, as they have increased accessibility and the opportunities for retail investors to participate in the U.S. securities markets. Certain practices, however, may need more specific regulation or guidance. Specifically, defaulting individuals into margin accounts appears to us to be a recommendation that the investor should consider trading on margin. We have seen multiple times, and as recently as earlier this year, the dangers of enabling millions of users to trade on margin during periods of market volatility. Reg BI could be interpreted to say that defaulting investors into margin accounts is a recommendation to trade on margin, which would lead to a violation of Reg BI for brokers serving many novice investors.

Robo-advisors provide beneficial investing opportunities for retail investors and should explain hidden costs.

We understand that the Commission is interested in whether it should modernize its exemption pertaining to robo-advisors. In particular, the Commission expresses concern over automated algorithms that may "produce investment advice for a particular client that is inconsistent with the client's investment strategy or relies on incomplete information about the client that depends on limited input data."[11] The Commission is also concerned that "increased reliance on automated advice may result in too much importance being placed on clients' responses to account opening questionnaires and other forms of automated client evaluation, which may not permit nuanced answers or determine when additional clarification could be necessary."[12]

Robo-advisors have generally been helpful in automating investment services and assisting cost-conscious and relatively underserved investors who are unable to receive traditional wealth management services. In 2015, we noted that costs were so low that many robos would not be profitable.[13] Robo-advisors, however, provide numerous benefits to retail investors.[14] Robos have automated investing, provide low-cost diversification, and have automated rebalancing, which many investors would not engage in if not algorithmic. As a result, robos have eliminated the need for retail investors to conduct their own research or make challenging decisions about their

---

[11] RFI, P. 49080.
[12] RFI, P. 49080.
[13] Wong, Michael. 2015. "Hungry Robo-Advisors Are Eyeing Wealth Management Assets." Morningstar. P. 2. https://www.morningstar.com/content/dam/marketing/shared/pdfs/Research/equityreserach/20150409_Hungry_RoboAdvisors_Are_Eyeing_Wealth_Management_.pdf. (Robo-Advisors Eyeing Wealth Management Assets).
[14] Roberge, E. 2019. "The Pros and Cons of Robo-advisors, According to a Financial Planner." Business Insider. https://www.businessinsider.com/personal-finance/pros-cons-robo-advisors-from-financial-planner. (Pros and Cons of Robo-advisors).

portfolio.[15] Robo platforms not only diversify investors' cash allocation across various funds or ETFs, but also automatically rebalance portfolios to keep them aligned with the algorithm's recommendation.[16] Due to the low-cost nature of services and automation, robo-advisors are a beneficial solution for retail investors. The industry has continued to become more competitive with major financial firms adding robos to their platforms and offering services at an extremely low cost to investors.

We understand the Commission's concern regarding conflicts of interest, including the circumstance where "digital advisers may encourage clients to trade more to the extent that the adviser integrates trade execution services, which may benefit the adviser at the expense of the client."[17] As in the broker-dealer trading app space, some of the costs are not transparent. For instance, when no or low management fees are substituted for higher cash allocations to allow institutions to earn a return on the cash, investors are paying for the service. Nothing is wrong with this form of payment in our view; we believe the only problem is the lack of straightforward disclosures telling investors how they are paying for the service they are getting—an explicit management fee, selling of data, higher cash allocation. In this way, investors are empowered to choose how they want to pay and to compare services, and third-party services are able to easily obtain the information to assist investors with such comparisons.

The Commission might consider clarifying the "internet" exemption to permit robo-advisors to provide increased human assistance.

We understand the Commission's concern that an algorithm may rely on a limited data set. Robo-advisors have evolved their product offerings to provide customizable services, which enable a retail investor to elect to receive more personalized advice for an increased subscription fee. Individuals using the pure algorithmic service may also benefit from human contact regarding technical questions, financial education, understanding the explicit and implicit costs, and the asset allocation itself. As such, we think that some human interaction should be permitted, and even encouraged, under the internet exemption.[18]

We recommend clarifying the internet investment adviser exemption, to the extent necessary for robo-advisors to feel comfortable providing human assistance for certain types of information. Robo-advisors should be encouraged to provide information about costs, allocation, and financial education, through human employees, as long as the actual asset allocation is conducted by the algorithm. More personalized allocations driven by human insights should not fall into the internet exemption. In this way, cost-conscious retail investors would thus be able to retain the educational benefits and low-cost services of robo-advisors.

---

[15] Pros and Cons of Robo-advisors.
[16] Pros and Cons of Robo-advisors.
[17] RFI, P. 49082.
[18] SEC. 2003. Final Rule: Exemption for Certain Investment Advisers Operating Through the Internet. https://www.sec.gov/rules/final/ia-2091.htm (Exemption for Certain Investment Advisers).

The 2021 Morningstar Investing Behavior Survey provides insights on investors' use of DEPs.

Morningstar conducted the 2021 Morningstar Investing Behavior Survey on a nationally representative sample of 1,500 investors. This survey was inspired by the Commission's Feedback Flyer questions in the RFI. Specific findings of the survey are included in our responses to selected questions following this letter.

In regard to the participants of the survey, we categorized them into four general categories—Trader, Engaged Investor, Passive Investor, and Non-Investor—according to the platform they indicated that they used *most often.* In general, it is difficult to disentangle trading behavior between the selection effect and the causal effect of DEPs. That being said, the results of the survey demonstrate a clear difference in the demographics and experience levels of each of these groups of people. Traders are younger, lower-income, more likely to be male, more likely to be from a minority ethnic or racial group, and have fewer years of investment experience than Engaged Investors. When compared to Passive Investors, Traders are more uniform in income, but are far less likely to have an advisor. In terms of DEPs, investors of all types dislike some DEPs, like games, badges, and membership levels, and like others such as investment ideas. Variations across the types are primarily in degree, not in direction: if one group disliked a particular DEP, all generally did.

Looking across our analysis, there are two main takeways about DEPs:

1) **The same DEPs can be used to benefit or to hurt investors**. Thus, we believe the focus of any regulatory action should be on the use to which the DEPs is put or the target behavior, and not the DEP itself. DEPs have been central to increasing saving and investing for retirement, and it would be a great tragedy to unintentionally hinder these efforts to help investors.
2) **Retail investors are not a homogenous group,** but form distinct groups that interact with online platforms and DEPs in very different ways.

Exhibit 1 summarizes how different segments of retail investors appear to be interacting with DEPs, for good and for ill:

Exhibit 1 Sub-Groups Among Participants and the Role of DEPs

Group	**% of Respondents**	**Likely Effect of DEPs**
Non-Investors	32%	DEPs are not currently relevant, but may help them save and invest in the future.
Passive Investors	9%	DEPs were very likely used to encourage them to participate and contribute.
Engaged Investors	38%	DEPs may have helped them save, and are unlikely to be significantly hurting them.
Traders	21%	DEPs may have helped them save/invest, but may also undercut their returns and offer a bad experience overall.

Note: In this analysis, there were 227 people who indicated they had at least one investment account in the first round of the study, but did not complete the second round of the study with detailed information about those accounts. Those people were proportionally allocated into the Passive, Active, and Trading groups according to the ratios among those who did complete both parts of the study.

Based on our survey results, we think that a blanket ban on DEPs might hurt a larger portion of the population than it would help. To avoid the negative aspects, and retain the positive, one needs a more nuanced focus on problematic trading behavior. Among frequent Traders, the group most likely to be facing negative consequences of DEPs, we find that they enjoy the act of trading, but dislike some of the practices used in the industry to increase trading and usage. A good place to start would be where the users of these apps themselves feel like there is a problem, specifically in the use of gamification (usually to encourage trading) and defaulting people into higher risk investing techniques (like options and margin trading). This provides room for supportive interventions, without simply alienating or limiting the investing options of this group.

Conclusion

In summary, we support the Commission's efforts to gather information about how trading apps have changed opportunities and created challenges for retail investors. We believe that the Commission could encourage certain best practices in DEPs but should be very cautious in restricting DEPs because of the potential for unintended consequences to savings behavior. We recommend requiring brokers and robo-advisors to disclose second-order costs, such as the non-transparent ways in which they are compensated, to all of their clients; broker-dealers should disclose conflicts to self-directed clients even though they are not providing advice. We also recommend that the Commission restrict financial firms from defaulting investors into margin accounts. We recommend clarifying the internet investment adviser exemption to encourage robo-advisors to provide some human assistance to their customers to facilitate investor knowledge. We have attached answers to specific questions to the end of this letter including our findings from our survey.

We thank the SEC for the opportunity to comment on the Request for Information. Should you wish to discuss any of the comments in this letter, please do not hesitate to contact any of us as indicated below:

Aron Szapiro at aron.szapiro@morningstar.com or (312) 696-6074.
Jasmin Sethi at jasmin.sethi@morningstar.com or (617) 501-5446.
Steve Wendel at steve.wendel@morningstar.com or (312) 348-3070.

Sincerely,

Aron Szapiro
Head of Retirement Studies and Public Policy, Morningstar, Inc./Morningstar Investment Management, LLC

Jasmin Sethi
Associate Director of Policy Research, Morningstar, Inc.

Steve Wendel
Head of Behavioral Science, Morningstar, Inc.

Appendix A – Answers to Selected Questions from the Request for Information

About the 2021 Morningstar Investing Behavior Survey

To help ground the discussion on DEPs in the real-world experiences of investors, we conducted a nationally representative study of 1,500 Americans. In this study, we asked participants about their experiences with online trading and investment platforms and with specific DEPs. The results help us shed light on what everyday Americans are experiencing, and how they feel about it. We draw on the responses from this survey to answer several of the questions asked by the Commission.

Specifically, between September 19th and September 28th we fielded our survey to an online panel of participants supplied by the service Prolific Academic. Prolific uses a quota-based sampling method to make the resulting population representative. It sets individual quotas according to three factors—age, sex and ethnicity—and uses them to match the characteristics of the U.S. Census.[19] This approach is a cost-effective but imperfect means of representing the population of interest. However, we believe it is a helpful supplement to the Commission's own solicitations in its Feedback Flyer, which will clearly attract a self-selected group of investors that will not be nationally representative.

Research by the Prolific team[20] and others[21] find that their method leads to samples that well match the target population, but care should be taken in directly generalizing to the entire population.

In our survey, respondents were asked to complete an initial screening survey—asking whether they had online trading or investing accounts, and gathering core demographic information. The respondents who did have an account were then invited to complete a follow-up survey with more detailed information about their experiences. This second-round group of invitees contained 1065 people, of whom 844 provided valid data, providing a 79% completion rate for that stage and a 85% completion rate overall. Individuals who indicated that they had accounts, but did not provide valid data on those accounts, have been excluded from the analyses unless otherwise noted.

II. DEPs, RELATED TOOLS AND METHODS, AND REGULATORY CONSIDERATIONS AND POTENTIAL APPROACHES

A. DEPs

---

[19] Prolific. "Representative Samples FAQ." 2021. https://researcher-help.prolific.co/hc/en-gb/articles/360019238413.

[20] Peer, E., Rothschild, D., Evernden, Z., et al. 2021. "Data Quality of Platforms and Panels for Online Behavioral Research." P. 1-46. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3765448.

[21] Coppock, A. & McClellan, O. 2019. "Validating the demographic, political, psychological, and experimental results obtained from a new source of online survey respondents." *Research & Politics*, Vol. 6, Issue 1, P. 1-14. https://journals.sagepub.com/doi/pdf/10.1177/2053168018822174.

Industry practices:

1.1 What types of DEPs do firms use (or in the future expect to use) on digital platforms and what are the intended purposes of each type of DEPs used? For example, are particular DEPs designed to encourage or discourage particular investor actions or behaviors, such as opening of accounts, funding of accounts, trading, or increasing engagement with the app or platform? To what extent and how are firms using DEPs such as notifications (e.g., push notifications or text messages) or other design elements and features (e.g., design aesthetics in the user interface) as a means to alter (or nudge) retail investor behavior or otherwise to encourage or discourage certain behaviors or activities? If so, what types of design elements are used and how are they used? Please explain any such specific design elements, how they intend to encourage specific retail investor behaviors, and whether and to what extent they are achieving their intended purposes.

Each DEP can be, and often is, used for multiple purposes. For example, push notifications are used to alert people about "hot stocks" as well as to warn them that someone might be fraudulently using their account. Gamification has been used to help people feel a sense of accomplishment for setting up a savings account, and to encourage them to trade recklessly.

We focus on the specific behaviors that DEPs are used to encourage. In particular, we think about the use of DEPs in terms of three overarching behavioral goals (i.e. the intended use):

1) Encouraging uptake of a service, such as encouraging people to sign up for a trading account.
2) Encouraging people to save or invest at all, something that may be part of the sign up process for a digital platform, but is conceptually distinct.
3) Encouraging people to take specific actions within the platform, such as signing up for account alerts (generally innocuous) to trading frequently (generally problematic).

Applications in the first area—encouraging uptake—are widespread, and we would conjecture that all major fintech companies and platforms have invested in this area. The latter two depend on the specific platform and its business model.

To see how DEPs can be used for each purpose, we can start by considering the onboarding or uptake process for new investors onto an investment platform. The first necessary step people take to start investing is to open a brokerage account. If they are new to investing, people might think opening a brokerage account would be a hassle or complicated because they are not familiar with such accounts.

Two simple and common strategies to encourage onboarding is social proof (showing that other people have signed up) or making the signup process as frictionless as

possible. These are, all else being equal, innocuous DEPs. However, another strategy firms employ is to offer free stocks upon signup. The offer makes users perceive the signing up process as a painless, or even rewarding, action. This stock offer is even more powerful when firms emphasize that there is a free benefit, as people tend to overvalue free products,[22] and may view the stock with a higher worth than it actually has.

The free stock has a further impact through the endowment effect[23]—after sign up, investors may want to keep trading since they already have stock, or value, in their account, and they do not want to give up or lose by not utilizing the account or switching to another trading platform. The free stock is, therefore, effective in getting individuals to sign up but may also have negative consequences in incentivizing over-trading or keeping accounts that are not optimal for the investor.

After onboarding, web design also plays an integral role in investors' engagement with investment platforms. For instance, including soothing images along with mood-lifting words like "enjoy" puts people in a positive mood. That can be a real benefit for new investors, helping them overcome the fear and uncertainty of trying something new. We know from the retail space that consumers are more prone to buy impulsively when they are directly affected by mood-relevant website cues.[24] An overly rosy portrayal may also obscure the risky side of investing and the potential loss it could bring.

In another example of a DEP with both beneficial and potentially harmful consequences, trading platforms have used push notification alerts to educate users, as well as prevent users from overtrading.[25] For example, Betterment sent out alerts during periods of market volatility. After testing the practice, Betterment found that "despite their good intentions, they were incentivizing people to trade more when they sent out these notifications, because the preponderance of their clients had never worried in the first place."[26] Notably, these push notifications, unlike "just in time" notifications, were triggered by market events, not user action. Thus, the ultimate impact of certain practices is not predictable, and is not inherent in the nature of the DEP. Rather, it is important to consider the behavior being targeted to measure that outcome to see if the DEP in fact drives a particular outcome.

---

[22] Shampanier, K., Mazar, N., & Ariely, D. 2007. "Zero as a Special Price: The True Value of Free Products." *Marketing Science*, Vol. 26, No. 6, P. 742–757. https://econpapers.repec.org/article/inmormksc/v_3a26_3ay_3a2007_3ai_3a6_3ap_3a742-757.htm.

[23] Kahneman, D., Knetsch, J., & Thaler, R. 1991. "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias." *Journal of Economic Perspectives*, Vol. 5, No. 1, P. 193-206. https://www.aeaweb.org/articles?id=10.1257/jep.5.1.193.

[24] Parboteeah, D., Valacich, J., & Wells, J. 2009. "The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively." *Information Systems Research*, Vol. 20, No. 1, P. 60-78. https://econpapers.repec.org/article/inmorisre/v_3a20_3ay_3a2009_3ai_3a1_3ap_3a60-78.htm.

[25] Benz, C. 2021. "Daniel Crosby: 'If You're Excited About It, It's Probably a Bad Idea.'" Morningstar. https://www.morningstar.com/articles/1056444/daniel-crosby-if-youre-excited-about-it-its-probably-a-bad-idea. (Push Notifications).

[26] Push Notifications.

1.5 Are DEPs used to promote or otherwise direct retail investors to specific securities or certain types of securities, investment strategies, or services? If so, what types of securities, investment strategies, and services, what types of DEPs are used, and how are the DEPs used for these purposes? Do firms use DEPs to promote or otherwise direct retail investors to securities, investment strategies, or services that are more lucrative for the firm or that may be riskier to the retail investor than others—such as: margin services, options trading, proprietary products, products for which the firm receives revenue sharing or other third-party payments, or other higher fee products? Do firms use DEPs that are or can be tailored to the retail investor's investment profile and risk tolerance? If so, how? If not, why not?

DEPs are used to encourage people to invest, as noted under the previous question. Indeed, platforms' efforts to attract people can be beneficial when they bring in new investors ready and able to handle the risks. Encouraging people to take the first step to grow their financial wealth and set the stage to reach their own financial goals is consequently a positive result of a behavioral nudge.

On the other hand, consider the case of retail investors investing in options. Many retail investors do not typically have expertise in options trading, which is more appropriate for investors with investment experience. Thus, it could be quite risky for retail investors to jump into options trading through a trading platform. However, some platforms make such trading easily accessible for users. Users without options-trading experience are able to begin options trading, as signing up to do so is designed to take only a few clicks. On one hand, this is a great opportunity for investors who have enough investment experience to engage in options trading. However, this same simple sign-up process, with limited screening for investor knowledge, may not be appropriate for users who are not experienced with this product.

Note – the answers to questions 1.14 and 1.16 have more information on company business models and the use of DEPs to encourage specific behaviors.

1.9 Do firms use DEPs to encourage longer-term investment activities, including, but not limited to, increased contributions to or establishment of retirement accounts? If so, how?

Behavioral interventions, one form of DEPs, have long been studied and deployed to help people save and invest for retirement and other long-term goals. Indeed, savings behavior is one of the most researched and most successful areas of behavioral science. Two examples of behavioral science applied in this domain are widely known: default contribution rates and auto-enrollment. A wisely chosen default helps individuals know what is a normal or reasonable rate, removes friction in the signup process, and still allows for personalization and individual freedom. Similarly, auto-enrollment allows individual choice while driving the outcome that most participants want to take.

There are many other techniques deployed in the field, beyond these two commonly cited ones. For example, researchers have demonstrated how displaying the participant's age-progressed face helps them connect with their future self, and thereby their future need, and save more for the future;[27] this technique was subsequently integrated into a major brokerage house's retirement platform.[28]

Researchers have shown that lump-sum portrayals of future wealth *discourages* saving, even among those who need it most because of a cognitive bias that creates the "illusion of wealth."[29] Instead, they advocated that platforms show savers their future standard of living in annual or monthly terms: to make it more real and meaningful, and encourage appropriate levels of saving. This DEP has been utilized by Morningstar and others to help people save for the future.

Companies with digital investment platforms themselves also develop new techniques to help people save and invest appropriately. For example, robo-advisor Betterment pioneered a DEP that successfully discouraged overtrading with a "just in time" window that reminded people of the tax consequences of such trades. That DEP helped people direct attention to where it was needed, and slowed down an otherwise hasty process. Similar techniques have been used by Morningstar[30] and the Financial Conduct Authority of the United Kingdom[31] to help participants pay greater attention to the fees they pay for their investments using DEPs that encourage thoughtful review of their decisions.

In addition to approaches to directly encourage saving and investing, the broader literature on financial inclusion and savings behavior is applied to help overall financial wellness and investing in particular. As an example, some apps integrate digital techniques to help people pay off debts along with encouraging saving and investing.[32]

1.13 What types of retail investors are customers or clients of firms that utilize DEPs? How does this customer or client base differ, if at all, from those firms that do

---

[27] Hershfield, H., Goldstein, D. & Sharpe, W. 2019. "Increasing Saving Behavior Through Age-Progressed Renderings of the Future Self." *Journal of Marketing Research*, Vol. 48, Issue SPL, P. S23-37. https://journals.sagepub.com/doi/abs/10.1509/jmkr.48.SPL.S23.

[28] Berkowitz, J. 2012. "See What You'll Look Like Old with Merrill Edge's 'Face Retirement.'" Fast Company. https://www.fastcompany.com/1682074/see-what-youll-look-like-old-with-merrill-edges-face-retirement.

[29] Goldstein, D., Hershfield, H., & Benartzi, S. 2016. "The Illusion of Wealth and Its Reversal." *Journal of Marketing Research*, Vol. 53, Issue: 5, P. 804-813. https://journals.sagepub.com/doi/abs/10.1509/jmr.14.0652.

[30] Sin, R., Murphy, R., Fontes, A., & Lush, M. 2018. "Expensive Choice What Wall Street Can Learn From Costco." Morningstar. https://www.morningstar.com/lp/expensive-choice.

[31] Hayes, L., Lee, W., & Thakrar, A. 2018. "Now you see it: drawing attention to charges in the asset management industry." Financial Conduct Authority, *Occasional Paper 32*, P. 1-32. https://www.fca.org.uk/publication/occasional-papers/occasional-paper-32.pdf.

[32] Shell, A. 2018. "Acorns savings app: Why saving $5 a day is easier than committing to $150 a month." USA Today. https://www.usatoday.com/story/money/2018/09/20/acorns-app-taps-behavioral-finance-helps-savers/1369620002/.

not use such features—including as to age, prior investment experience, education, net worth, risk tolerance, liquidity needs, investment time horizon, and investment objectives? What types of retail investors engage most frequently with DEPs on platforms that use them? Do firms utilize DEPs for only certain types of customers or clients? If so, which ones and why? To what extent and how have DEPs enabled firms to reach, educate, and provide experience to first-time retail investors? To what extent and how have DEPs enabled retail investors to access specific investments or investment strategies more quickly and/or with less investing experience than under traditional methods? Please provide or identify any relevant data and other information.

We find that many DEPs are used widely, often in conjunction with each other, in online investing and trading platforms. Generally speaking, firms gather data on the uptake of their digital platforms and engagement of their users, and use engagement practices to increase uptake and usage. These DEPs include: standard marketing (peer and expert testimonials, colorful displays, and vivid imagery), gamification (competitions, prizes), and behavioral science-based techniques (descriptive norms, loss aversion, etc.).

The key distinction, in our view, is not whether firms use DEPs, but rather the typical behavioral outcomes of these DEPs. If both beneficial and harmful outcomes occur, a particular DEP should not be restricted. If harmful ones are more likely, then it could be viewed with greater scrutiny in a situation where the firm's practices are being considered holistically. From the RFI, we believe that the SEC is particularly concerned about the use of DEPs to increase specific problematic behaviors, such as margin trading, frequent trading, and trading without due care or consideration of the risks involved. While not co-terminous with the type of platform, the use of DEPs for these types of behaviors appears to be concentrated in trading apps and websites: apps marketed for trading, instead of long-term investing. These apps and websites are often (but not exclusively) provided by companies that do not have an existing advisory or brokerage business, nor offer robo-advice. In the customers of these services, we can see some significant differences in terms of the demographics and financial experience of clients.

Specifically, our national survey of American investing behavior asked for the names of the digital platforms used, and what percent of their invested assets they had with each platform. We then categorized the platforms by the type of services they provided. For this analysis, we used two categories: platforms geared towards trading, and other investment and retirement apps. For example, Robinhood, Coinbase and Webull are labeled as trading apps, while the platforms provided by Fidelity, Schwab and Vanguard are labeled as "other investment and retirement apps." We categorized

trading apps primarily based on the specific descriptions offered by the companies themselves for their product and how they marketed them.[33]

In terms of participants, we categorized them according to the platform they indicated that they used *most often.* Participants were thus tagged as:

1) "Trader": someone who predominantly used a trading platform,
2) "Engaged Investor": someone uses a non-trading platform investment or retirement platform, to check the status of their accounts and/or to make changes to their investments,
3) "Passive Investor": someone who invested but did not actively use any platform (for example, someone who invests primarily through their advisor or a passive 401(k) default), or
4) "Non-Investor": someone who did not invest.[34]

We can see clear differences in the demographics and experience levels of each of these groups of people, as shown in Exhibit 2. Traders (people for whom their most commonly accessed online platform is for trading) are younger, lower-income, more likely to be male, more likely to be from a minority ethnic or racial group, and have fewer years of investment experience than (non-trading platform) Engaged Investors. Compared with Passive Investors, Traders have more uniform income, but are far less likely to have an advisor. Financial literacy and years of education are not differentiating factors.

[33] Our list of trading apps includes the following: Robinhood, Coinbase, Webull, Stash, Binance, SoFi, E*trade, M1, Voyager, MetaTrader, Tastytrade, Cash App, Invstr, Luno, Trust Wallet, Trade Navigator, Tastyworks, Uphold, OctaFX, eToro, Gemini, Firstrade, Moomoo, Kraken, Crypto.com.

[34] Seven respondents indicated that they had investment or trading accounts, but all such accounts that they indicated were with single-purpose insurance or traditional bank platforms; they were classified as "non-investor".

Exhibit 2 Demographic Data on Retail Investors, from the 2021 Morningstar Investing Behavior Survey

	Non-Investor	Passive Investor	Engaged Investor	Trader
Age (Median)	39	53.5	49	40
Income Band (Median)	$20,000 to $24,999	$50,000 to $59,999	$60,000 to $74,000	$50,000 to $59,999
Female	63%	67%	44%	35%
Minority	30%	14%	21%	30%
Financial Literacy (Mean Score)	4%	53%	61%	56%
Has a Human Advisor	5%	47%	23%	18%
Education in Years	14	16	16	16
Is Employed Full Time	28%	50%	58%	62%
Number of Years Since First Investing Experience (Median)	NA	5+ years ago	5+ years ago	3 to 4 years ago
% of Respondents	32%	9%	38%	21%

Note: 227 people indicated they had at least one investment account in the first round of the study, but did not complete the second round of the study with detailed information about those accounts. Those people were proportionally allocated into the Passive, Active, and Trading groups according to the ratios among those who did complete both parts of the study.

1.14 What trading or investment activities are retail investors engaging in through digital platforms that use DEPs? For retail investors who were investing prior to using digital platforms that use DEPs, how have their activities with respect to trading and investing changed since they started using such platforms and/or were first exposed to DEPs? For example, how often do retail investors engage in trading or investing through such platforms, how often did they engage in trading or investing prior to using such platforms, and how has such frequency changed as a result of using such platforms and/or being exposed to DEPs? How often do retail investors engage in other ways with such platforms (e.g., education, social features, and games)? How do retail investors learn of these platforms (e.g., news coverage, social media, internet search, paid advertisements)? Do firms collect data on how retail investors learn about or use the platforms, such as by asking as part of account opening? Please provide or identify any relevant data and other information.

In our national survey, we see notable differences in the trading and investing behavior of our four types of retail investors. As provided in Exhibit 3, users of trading platforms, Traders below, are far more likely to trade more often than once a month, have a holding period of less than a year, have short term investing goals, and more likely to expect abnormally high returns from their investments. They also have far less invested than Engaged or Passive Investors.

Exhibit 3 Trading Behavior of Retail Investors, by Investor Type

	Non-Investor	Passive Investor	Engaged Investor	Trader
Trades More Than Once a Month	NA	28%	37%	57%
Holding Period is Less Than One Year	NA	27%	30%	63%
Accesses More Than Once a Month	NA	45%	72%	87%
Money Is Needed in Less Than One Year	NA	25%	18%	30%
Investing Objective Is Short Term (<2 years)	NA	24%	19%	36%
Rates Self as Having Above Average Ability	10%	15%	22%	19%
Total Invested (Median)	NA	$30,000	$87,000	$12,500
Total Invested as % of Income (Median)	NA	83%	143%	27%
Expected Return Across All Platforms is Over 10% per annum	NA	15%	22%	29%
Expected Return for Most Commonly Used Platform is Over 10% per annum	NA	22%	23%	29%

We asked how long ago people started trading specific types of securities. As part of this question, we can determine the percent of each group who has ever engaged in a particular type of investing. As shown in Exhibit 4, we see very significant differences in investment in crypto currencies and individual stocks: 70% and 91%, respectively, of Traders have invested in these asset classes, versus 17% and 51%, respectively, for Passive Investors.

Exhibit 4 Retail Investor Experience with Specific Asset Classes

	Non-Investor	Passive Investor	Engaged Investor	Trader
Has Owned Mutual Funds	0%	65%	75%	62%
Has Owned ETFs	0%	23%	49%	52%
Has Owned Stocks	0%	**51%**	75%	**91%**
Has Owned Bonds	0%	33%	37%	31%
Has Owned Options	0%	15%	20%	26%
Has Owned Futures	0%	15%	9%	15%
Has Owned Crypto	0%	**17%**	30%	**70%**
Has Owned Commodities	0%	10%	11%	17%
Has Owned Money Market Funds	0%	35%	51%	35%

Two other questions on the survey can provide some insight here: on change in behavior and on perceptions of common DEPs. In terms of changing behavior, a subset of participants indicated that they had invested prior to gaining access to their current digital platforms. This group represented 26% of our sample, and not surprisingly, is an older group of investors (median age 58 for Engaged Investors with pre-digital access

versus 49 for all Engaged Investors). We asked these participants how their trading and investing behavior had changed. They responded as shown in Exhibit 5. We should interpret these results with caution however: for many investors, the "pre-digital" period was long ago, and their recollection of exactly how they invested at that time may be imperfect. Further, many other factors in their lives have changed alongside their investing platform—for example, with age generally comes increased assets and experience as an investor. Changes in time and changes in behavior are thus confounded here.

Exhibit 5 How Retail Investors with Pre-Digital Experience Recall Changing Their Behavior with Digital Platforms

	Non-Investor	**Passive Investor**	**Engaged Investor**	**Trader**
Age of People Who Invested Before Using Digital Platform (Median)	39	53	58	50
Did the Amount Invested Change (-1: Decreased, 0 no change; 1 Increased)	NA	0.20	0.56	0.63
Did Interest in Learning About Trading and Investing Change	NA	0.20	0.58	0.78
Did Amount of Time Spent Trading or Investing Change	NA	0.05	0.31	0.54
Did Knowledge of Financial Products Change	NA	0.45	0.72	0.89
Did Number of Trades Change	NA	0.15	0.47	0.79
Did Amount of Money Made When Trading Change	NA	0.35	0.60	0.63
Did Knowledge of the Markets Change	NA	0.35	0.67	0.79
Did Number of Different Types of Financial Products Traded Change	NA	0.15	0.46	0.71
Did Use of Margin Investing Change	NA	-0.05	0.08	0.29

Note: All values other than age are averages, in which "decrease" is coded as -1, "increase" is coded as 1, and "no change" is coded as 0. These responses indicate how the person saw their behavior before they started using digital platforms versus after. As such, the amount of time elapsed (before versus after) varies by person.

Finally, we asked participants whether they had experienced common DEPs when using any digital platform. Exhibit 6 provides those statistics. Users of Trading platforms are generally more likely to report seeing DEPs (e.g., Push notifications, Investment Ideas, and Level 2 Market Data). However, a majority of Passive Investors and Engaged Investors report seeing most of these features as well. This reinforces the previous point that DEPs are widely used, and that it is likely more fruitful to consider whether a DEP is typically harmful or beneficial to the investor, rather than examine the technique in isolation.

Exhibit 6 Percent of Retail Investors Who Report Seeing Specific DEPs

	Non-Investor	Passive Investor	Engaged Investor	Trader
Social networking	**NA**	66%	66%	75%
Games	**NA**	58%	53%	62%
Streaks	**NA**	56%	48%	59%
Contests with prizes	**NA**	57%	54%	68%
Points	**NA**	66%	51%	64%
Badges	**NA**	62%	52%	68%
Leaderboards	**NA**	64%	56%	71%
Push Notifications	**NA**	67%	73%	93%
Celebrations for trading	**NA**	49%	52%	71%
Interesting display with changing colors	**NA**	57%	69%	84%
Investment Ideas	**NA**	64%	79%	86%
Other curated lists of investments	**NA**	61%	65%	78%
Subscription and membership tiers	**NA**	57%	63%	80%
Chatbots	**NA**	64%	70%	73%
Level 2 Market data (richer and more in-depth information on trades in the market)	**NA**	60%	68%	81%

1.16 What are the benefits associated with the use of DEPs from the perspective of firms, retail investors, and other interested parties? How do these benefits differ depending upon the type of feature used? Are there specific types of DEPs or specific uses of DEPs that have the potential to be particularly beneficial to retail investors? Are there significant investor protection benefits that arise from the use of DEPs generally or particular DEPs? Which particular DEPs and why? Are there ways in which DEPs are particularly successful at conveying information to retail investors in a way that they can process and implement effectively? Please provide or identify any relevant data and other information.

From a company perspective, the benefits of DEPs depend on the business model of the company. As noted above, we think about the use of DEPs in terms of the specific behavior they are used to encourage (or discourage); one company can use a descriptive norm to increase retirement plan participation, while another might use it to encourage investment in "hot" cryptocurrencies. The benefits of the feature to the company depend more on the behavior being targeted than the technique used.

We know of no exhaustive and complete data on this subject, but in our experience companies use DEPs for the following benefits:

1) To drive product sales—for those products that require an upfront fee to use

2) To drive usage, to increase advertisement sales or collection of data sold to third parties
3) To drive the specific behavior change promised by the application
4) To drive usage of specific features that increase user satisfaction with the application, increasing company reputation and referrals
5) To specifically benefit the investor's financial wellness, regardless of business benefit

From the investor perspective, the benefits of DEPs are similarly numerous. Unlike for businesses, the benefit of the DEPs are of a different nature: businesses generally benefit from DEPs via uptake and usage; individuals benefit from DEPs because of the value of the underlying application itself. For example, when DEPs are used by platforms that help people save, the individuals benefit by increasing their savings rates. When they are used by platforms that encourage thoughtful review of investments (such as the use of "just in time" cost disclosure as noted above in our response to question 1.9), investors benefit by making more informed investments. Robo-advisors that use DEPs to increase uptake and usage benefit their clients by providing access to lower-cost advice: it's part of the service, not the DEP itself.

In our national survey of investors, we found that investors generally saw benefit in the features and practices such as investment ideas and vivid imagery, but disliked gamification techniques (games, points, badges, leaderboards), membership tiers and chatbots. Across the four investor types, preferences differed primarily in degree, not in direction. If one group disliked a particular DEP, all generally did. The one exception was Push Notifications, which Traders liked while others did not. See Exhibit 7 for more information.

Exhibit 7 Retail Investor Preferences on Specific DEPs

	Non-Investor	Passive Investor	Engaged Investor	Trader
Social networking	**NA**	-0.19	-0.66	-0.23
Games	**NA**	-0.50	-0.87	-0.58
Streaks	**NA**	-0.20	-0.40	-0.13
Contests with prizes	**NA**	-0.09	-0.44	-0.05
Points	**NA**	-0.14	-0.26	-0.03
Badges	**NA**	-0.06	-0.57	-0.41
Leaderboards	**NA**	-0.17	-0.41	-0.20
Push Notifications	**NA**	-0.08	-0.02	**0.37**
Celebrations for trading	**NA**	-0.11	-0.51	-0.27
Interesting display with changing colors	**NA**	0.16	0.10	0.29
Investment Ideas	**NA**	0.36	0.54	0.71
Other curated lists of investments	**NA**	0.00	0.27	0.26
Subscription and membership tiers	**NA**	-0.16	-0.58	-0.46
Chatbots	**NA**	-0.17	-0.35	-0.37
Level 2 Market data (richer and more in-depth information on trades in the market)	**NA**	0.03	0.61	0.58

Note: Each value above is the average score participants offered, in which "I really don't want this feature" is coded as -2, "I don't want this feature" is -1, "I don't care either way" is 0, "I'm glad for this feature" is 1, and "I'm very glad for this feature" is 2.

Turning to business practices, we find that retail investors generally supported business practices that are beneficial or neutral to them, but hostile to those that benefit the company at their expense. This is not surprising, but is useful to note.

Exhibit 8 Retail Investor Responses to "How would you feel if an online (investing) platform you used did...".

	Non-Investor	Passive Investor	Engaged Investor	Trader
Encourage me to save more money for the future	0.79	0.65	0.76	0.69
Automatically analyze my saving and investing history for potential areas to improve	0.72	0.68	0.77	0.77
Provide educational modules about finances and investing	0.79	0.85	1.01	1.03
Turn higher-risk investment strategies on by default, like options trading	-0.45	-0.81	-0.63	-0.46
Show me how other, anonymous, users were investing	0.47	0.35	0.34	0.38
Use data about you and your investments to provide personalized investment recommendations	0.40	0.22	0.31	0.31
Tell me about hot or trending investments	0.83	0.58	0.56	0.73
Sell information about me to advertisers	-1.22	-1.36	-1.38	-1.27
Sell information about my trades, before they executed, to high frequency traders or others	-1.02	-1.30	-1.40	-1.17
Sell information about my trades after they executed to high frequency traders or others	-0.96	-1.18	-1.21	-1.05
Encourage me to buy investments that they received a commission on (without telling me)	-0.67	-0.87	-1.20	-0.97

Note: This question is hypothetical for Non-Investors, since they do not currently have accounts that would have these features or business practices. All values are averages in which the responses are coded on a scale from "Very upset" (-2), “Upset” (-2), “Wouldn’t care either way” (0), “Happy” (1), to “Very happy” (2).

1.17 What are the risks and costs associated with the use of DEPs from the perspective of firms, retail investors, and other interested parties? How do these risks or costs differ depending upon the type of feature used? Are there significant investor protection concerns that arise from the use of DEPs generally or particular DEPs? Are there particular DEPs that may pose unique risks or elevated investor protection concerns? Are there characteristics of particular DEPs that may encourage retail investors to engage in more frequent trading or invest in higher risk products or strategies? Please provide or identify any relevant data and other information.

As noted above, our primary concern is with the investor behavior the DEPs are applied to, rather than the DEP itself. Peer comparisons, for example, can be a powerful technique to help people save; they also be used to drive over-trading. Particular behaviors that can be problematic are overtrading (leading to higher fees paid and lower returns), trading on margin, options trading, and the selling of personal data without investor consent or benefit. And indeed, retail investors generally disliked these practices as well, as previously shown in Exhibit 7.

When we look specifically at over-trading, prior work in Behavioral Science on the frequency of trading shows that it is an important factor in forecasting likely investor outcomes: the more often that people trade, the worse off they are, on average. We would argue that this risk is particularly concentrated among the Trader group identified above. For those who do not trade frequently, it is largely irrelevant whether the platforms are *trying* to make them trade more often. In addition, for those who would not have invested at all, if the platform nudges them to invest (but not trade frequently), the net effect is largely positive for the individual.

Moving from specific behaviors to business risks, some of the DEPs that appear to be common are features that consumers themselves dislike. Above and beyond the negative *behaviors* that they may be applied to (especially overtrading), this provides a signal of a business risk: business may want to decrease their use simply to avoid annoying and losing customers.

1.23 Have researchers (including in the fields of behavioral finance, economics, psychology, marketing, and other related fields) studied the use of DEPs by broker-dealers and investment advisers? In particular, how have these practices been studied or observed to influence or reinforce the behavior of retail investors? To the extent retail investors have shifted from investing through human interaction (with a financial professional) to digital interaction (on a digital platform), how has that shift affected the behavior of retail investors? Please identify any relevant literature or data, including research related to the use of similar practices in other fields that could assist the Commission in its consideration of these issues.

To the best of our knowledge there is little published evidence from independent researchers specifically on the use of DEPs by broker-dealers and investment advisers. A few robo-advisors have shared the results of their experiments in this area, most notably Betterment.[35] In addition, other financial companies like Morningstar share the results of their studies with investors; a repository of these studies can be found online.[36]

1.26 How do commenters view the disclosures that firms are providing in connection with or specifically addressing the use of DEPs and the timing of such disclosures? In particular, how effective are disclosures at informing retail investors of any associated conflicts of interest presented by the use of DEPs and how DEPs could influence them and their trading and investing behavior? How accessible are these disclosures to retail investors engaging with DEPs? Please identify any relevant data or other information.

---

[35] Egan, D. 2017. "Our Evidence-Based Approach to Improving Investor Behavior." Betterment. https://web.archive.org/web/20190121145811/https://www.betterment.com/resources/behavioral-testing/.
[36] Morningstar. "Behavioral Science Research." https://www.morningstar.com/company/behavioralinsights/library.

Disclosures by financial firms, and particularly by advisors, have been studied in detail by the research community. An excellent summary of that work can be found in Dr. Sunita Sah's writeup for the Australian Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry. Dr. Sah has directly participated in much of that research, and provides cogent lessons for regulators and policy makers. To quote two especially relevant sections from her report:

> "not only is disclosure likely to fail as a discounting cue for biased advice, it may even make matters worse. Disclosure can often have the opposite of its intended effect on advisees… Although conflict of interest disclosure can decrease trust in advice (ostensibly the intended effect of the disclosure), it can also unwittingly pressure advisees to comply with that advice."
>
> "To increase the effectiveness of conflict of interest disclosure, it should be delivered in a way that avoids the above compliance pressures (insinuation anxiety and the panhandler effect) on advisees. To do this, advisees could be allowed to make their choices in private and without having to go back to their conflicted advisers…Likewise, we have shown that giving advisees a chance to change their minds via a mandatory "cooling-off period" before the deal is exercised could also decrease the compliance pressures on the advisee…An alternative method we examined is to give advisees disclosure from an external source—a third party—rather than from the adviser themselves. This decreases the pressure that advisees feel to reject advice if they suspect it is of low quality."[37]

The key limitation on the effectiveness of disclosures appears, therefore, to be the interpersonal pressure to comply—that the disclosee wants to help, or otherwise feels obligated to help, the person disclosing the conflict. We should expect, and avoid, this issue when there is a person, or a well-liked and personified organization, making the disclosure. Such undermining of disclosures is likely mitigated with robo-advisors and trading platforms where there is no interpersonal relationship.

Looking beyond the interpersonal dynamics of disclosure, another issue well-studied by researchers is informational overload. To summarize the literature, and in line with people's everyday experience, most recipients don't read privacy policies or similar disclosures.[38] The longer and more complicated the disclosure, the less likely someone is to read it. Thus, look for simplification and a hierarchy of information: a short simple summary for most people, and optional detailed information (if needed) that builds on that summary for the people who want it.

---

[37] Conflicts of Interest and Disclosure, P. 16-17.

[38] Steinfeld, H. 2016. "I agree to the terms and conditions": (How) do users read privacy policies online? An eye-tracking experiment." *Computers in Human Behavior*, Vol. 55, Part B, P. 992-1000. https://www.sciencedirect.com/science/article/abs/pii/S0747563215301692.

Straightforward disclosures explaining that the lack of commission on a trade does not mean that there is no cost for trading would be helpful. Many investors do not understand that in the case of broker-dealer trading apps, their lack of commission could be substituted with payment of a second order, such as a slightly worse price. The disclosure could also note that such a cost is most meaningful if they plan to trade often.

B. DEP-RELATED TOOLS AND METHODS

Industry practices:

2.16 Have researchers (including in the fields of behavioral finance, economics, psychology, marketing, and other related fields) studied the use of such tools and methods in the context of the use of DEPs by firms, or in related contexts of individual decision-making? Please identify any relevant literature or data, including research related to the use of similar practices in other fields, that could assist the Commission in its consideration of these issues.

Yes; please see prior responses.

C. REGULATORY ISSUES ASSOCIATED WITH DEPs AND THE RELATED TOOLS AND METHODS AND POTENTIAL APPROACHES

Questions: Suggestions for modifications to existing regulations or new regulatory approaches to address investor protection concerns, including:

3.13 What additions or modifications to existing regulations, including, but not limited to, those identified above, or new regulations or guidance might be warranted to address investor protection concerns identified in connection with the use by broker-dealers and investment advisers of DEPs, the related tools and methods, and the use of retail investor data gathered in connection with DEPs? What types of requirements, limitations, or prohibitions would be most appropriate to address any such identified investor protection concerns?

The SEC could interpret Reg BI to determine that defaulting investors into a margin account is a recommendation to trade on margin, which would lead to a violation of Reg BI for brokers working with many novice investors.

An appeal of DEPs is that they make trading accessible for retail investors. As market activities have demonstrated in the past year, retail investors have an appeitite for trading when volatility is high. Some DEP firms default investors into margin accounts, which has several consequences.

Defaulting investors into margin accounts requires that these investors be wary of market volatility. If market volatility is high, as with the case of GameStop stock in

January 2021,[39] trading could be affected for all investors. Investors buying on margin cause an externality to the market by borrowing from the broker, which makes it more difficult for the broker to meet its obligations at the clearing house. Due to this externality, we recommend that margin accounts be subject to greater restrictions than cash accounts, like halting trading depending on market conditions.

Cash accounts, however, would not need to be subject to similar restrictions. If investors are not defaulted into margin accounts, but rather actively choose a margin account, then firms could allow those who trade on cash to continue trading during volatile times. Firms would then only have to halt trading for those with margin accounts. This solution would be more equitable because it limits the cost of the externality to those who cause it. It would also potentially lead to less volatility in the marketplace.

3.15 To the extent commenters recommend any modifications to existing regulations or new regulations, how should DEPs and the scope of tools and methods be defined to capture practices and tools and methods in use today and remain flexible to adapt as technology changes? Should any such modifications or new regulations specifically and uniquely address DEPs or the related tools and methods (i.e., distinct from regulation of interactions with retail investors such as marketing, investment advice, and recommendations)? If so, how? Should any such modifications or additional regulations be targeted specifically to address certain types of DEPs or certain tools or methods? If so, how? For example, should specific DEPs be explicitly prohibited or only permitted subject to limitations or other regulatory requirements (e.g., filing or pre-approval)?

As the Commission noted its concern regarding disclosure and elimination of conflicts of interest, we recommend requiring that DEPs notify customers of any conflicts regarding their investment portfolio. Although the use of digital platforms may be self-directed, retail investors still should be made aware of the conflicts their brokers have.

3.16 Should any such modifications or additional regulations be targeted specifically to address particular risks, such as those related to certain types of securities (e.g., options, leveraged and inverse funds, or other complex securities), services (e.g., margin), or conflicts (e.g., payment and revenue sources)? If so, how? Should any such modifications or additional regulations be targeted specifically to increase protection for certain categories of investors (e.g., seniors or inexperienced investors)? If so, how?

We recommend mitigating broker-dealer conflicts of interest that arise from financial incentives in the context of DEPs. Digital platforms have the capabilities to implement tools to oversee conflicts of interest and notify customers of them. In particular, broker

[39] Phillips, M. 2021. "4 Things to Know About the GameStop Insanity." New York Times. https://www.nytimes.com/2021/01/28/business/gamestop-stock-market.html.

compensation, whether by order flow, commission, or selling data, should be transparent and made known to customers in plain english.

III. USE OF TECHNOLOGY BY INVESTMENT ADVISERS TO DEVELOP AND PROVIDE INVESTMENT ADVICE

A. ISSUES FOR CONSIDERATION

4.2 Are our descriptions of the potential benefits and risks of investment advisers' use of technology in developing and providing investment advice accurate and comprehensive? If not, what additional benefits or risks to advisory clients are there from such use? What additional benefits or risks does using these types of technology provide to investment advisers? How do investment advisers weigh these benefits and risks in using technology to develop and provide investment advice? Does technology enable investment advisers to develop investment advice in a more cost-effective way and are clients able to receive less expensive advice as a result? Does technology increase access to investment advice for some clients who would otherwise not afford it or mitigate (or have the potential to mitigate) biases in the market that may have prevented access to some clients or prospective clients? Are there risks associated with the quality of services clients ultimately receive? If so, what are they and how do investment advisers address such risks? What factors do advisory clients consider in choosing to engage a robo-adviser rather than a traditional investment adviser? In what ways does investment advice developed or provided by a robo-adviser differ from investment advice developed or provided by a traditional investment adviser?

Robo-advisors increase retail investors' access to U.S. securities markets by offering low-cost subscriptions for investment portfolios. Robo-advisors are appropriate for investors looking for a simple, strategic asset allocation. [40] Robo-advisors algorithmically determine appropriate investment portfolios, usually composed of low-cost ETFs, based on a risk-tolerance questionnaire. The automated, semi-tailored strategic asset allocation offered by robo-advisors is ideal for investors that are cost-conscious or do not require the tailored, full services of a traditional wealth manager. That being said, disclosures about hidden costs and conflicts could be improved for robo-advisors. If low management fees are being offset with higher allocations of cash, investors should be made aware that this is the tradeoff with which they are presented.

4.22 What costs or benefits do investment advisers experience in registering with the Commission under the exemption for internet investment advisers? What costs or benefits do clients of internet investment advisers experience as compared to clients of other investment advisers registered with the Commission? Do commenters believe that the exemption for internet investment advisers should be updated in any way, including to facilitate its use or to modernize it? Are its conditions appropriate? Should we consider changes to, for example, the de minimis exception for non-

[40] Robo-Advisors Eyeing Wealth Management Assets, P. 2.

internet clients or the recordkeeping requirement? Should we consider changes to the exemption's definition of "interactive website"? Should the exemption specify what it means to provide investment advice "exclusively" through the interactive website? Would additional guidance on any of the exemption's conditions or definitions be useful?

We recommend clarifying the internet investment adviser exemption for robo-advisors to encourage the provision of information via a human, so long as the asset allocation of the investment portfolio is still performed by an algorithm. Explanations of how the algorithm works, the website, investor education, costs, and other such information that applies to all investors should not violate the internet exemption even if provided by a human. While such information may fall within the exemption now, we believe that the Commission's guidance is not sufficiently clear on this subject to give market participants the comfort to provide appropriate human assistance. In general, as long as the advice is not individually tailored by humans and is based on an algorithm, which considers answers to risk and other questions as inputs, the entity is functioning as a robo-advisor and should benefit from the internet exemption.

4.23 The Commission has stated that an investment adviser relying on the internet investment adviser exemption "may not use its advisory personnel to elaborate or expand upon the investment advice provided by its interactive Web site, or otherwise provide investment advice to its internet clients." Should the Commission consider eliminating or modifying this language? Should the Commission consider changes to the exemption that reflect or otherwise address this language? Should the Commission provide additional guidance about the internet investment adviser exemption?

We recommend modifying the language in the internet investment adviser exemption[41] to the following: may use its advisory personnel to elaborate or expand upon the investment advice provided by its internactive Web site, or otherwise provide investment advice to its internet clients so long as the asset allocation of the clients' investment portfolios is completed by an algorithm.

[41] Exemption for Certain Investment Advisers.

Appendix B
Financial Behavior Screener

Prolific

Page entry logic:
This page will show when: PID

DATA Shortname / Alias: **Prolific_ID**
ID 8
1. What is your Prolific ID?

Screener

DATA Shortname / Alias: **Age**
ID 50
2. How old are you?

DATA Shortname / Alias: **IncomeBand**

ID 171

3. Which of the following options best describes your annual income (over the last twelve months)?

- Less than $5,000
- $5,000 to $9,999
- $10,000 to $14,999
- $15,000 to $19,999
- $20,000 to $24,999
- $25,000 to $29,999
- $30,000 to $34,999
- $35,000 to $39,999
- $40,000 to $49,999
- $50,000 to $59,999
- $60,000 to $74,999
- $75,000 to $84,999
- $85,000 to $99,999
- $100,000 to $124,999
- $125,000 to $149,999
- $150,000 to $174,999
- $175,000 to $199,999
- $200,000 or more
- I don't know

DATA Shortname / Alias: **TotalInvested**

ID 53

4. In total, approximately how much do you have invested in any type of trading or investment account (Employer-provided retirement account, Individual retirement account, brokerage account, trading platforms like Robinhood or Coinbase, etc.) and in any type of investment (Mutual funds, Money market accounts, ETFs, Stocks, Bonds, Crypto, etc.)?

DATA Shortname / Alias: **NumCompanies_WithAccounts**

ID 10

5. How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab).

- None
- One
- Two
- Three
- Four
- Five or more

DATA Shortname / Alias: **Gender**

ID 51

6. What gender do you identify with?

- Male
- Female
- Other
- I prefer not to answer

DATA Shortname / Alias: **HasAdvisor**

ID 54

7. Do you currently have a human financial advisor?

- Yes
- No
- Not sure

DATA Shortname / Alias: **Race**

ID 55

8. Which of the following best describes you?

- White
- Black or African-American
- Hispanic or Latino/a
- Asian
- American Indian or Alaska Native
- Hawaiian Native or Pacific Islander
- Another race or ethnicity
- I prefer not to say

DATA Shortname / Alias: **EducationGroup**

ID 56

9. What is the highest level of education you have completed?

- Did not complete high school
- High school or GED
- 2-year college or trade school
- 4-year college
- Master's degree or higher

DATA Shortname / Alias: **EmploymentStatus**

ID 57

10. What is your current employment status?

- Employed full-time
- Employed part-time
- Unemployed
- Student
- Retired

Appendix C
Financial Behavior Details

Prolific

Page entry logic:
This page will show when: PID

DATA Shortname / Alias: **Prolific_ID**

1. What is your Prolific ID?

Where You Trade or Invest

LOGIC Show/hide trigger exists.

DATA Shortname / Alias: **Num_Companies_With_Accounts**

2. How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab).

- None
- One
- Two
- Three
- Four
- Five or more

Company 1 Details

Page entry logic:
This page will show when: #2 Question "How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab). " is one of the following answers ("One","Two","Three","Four","Five or more")

DATA Shortname / Alias: **Name_Company1**

3. Think about the investment app or company where you have the **MOST MONEY** invested. What is the **name** of that investment app or company?

DATA Shortname / Alias: **Allocation_Company1**

4. Roughly speaking, what percent of your investments with this company is in each of the following types of accounts? If you don't have a particular account type with the company, just leave it blank.

Workplace retirement account, like a 401(k), 403(b), TSP or SEP	
Personal retirement account, like a Roth or Traditional IRA	
Trading account like Robinhood or Coinbase	
General non-retirement investment account, like a Schwab brokerage account	
Other (HSA, 529, employee stock options, etc.)	
	0 out of 100% Total

DATA Shortname / Alias: **AccessMethods_Company1**

5. Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply.

- ☐ By contacting the company directly (by email, phone or in person)
- ☐ Using the company's website
- ☐ Using a mobile app or website from a different company (like an app that aggregates multiple accounts)
- ☐ I did not access any account with this company in the past 12 months
- ☐ Using a mobile app from the company
- ☐ By contacting your advisor (by email, phone or in person)
- ☐ Other - Write In

DATA Shortname / Alias: **GetsAdvice_Company1**

6. Do you receive investment advice or recommendations from this company?

- ○ Yes
- ○ No
- ○ Not sure

Company 2 Details

Page entry logic:
This page will show when: #2 Question "How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab). " is one of the following answers ("Two","Three","Four","Five or more")

DATA Shortname / Alias: **Name_Company2**

7. Think about the investment app or company where you have the **SECOND-LARGEST** amount of money invested. What is the **name** of that investment app or company? *

DATA Shortname / Alias: **Allocation_Company2**

8. Roughly speaking, what percent of your investments with this company is in each of the following types of accounts? If you don't have a particular account type with the company, just leave it blank.

Workplace retirement account, like a 401(k), 403(b), TSP or SEP	
Personal retirement account, like a Roth or Traditional IRA	
Trading account like Robinhood or Coinbase	
General non-retirement investment account, like a Schwab brokerage account	
Other (HSA, 529, employee stock options, etc.)	
	0 out of 100% Total

DATA Shortname / Alias: **AccessMethods_Company2**

9. Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply.

- ☐ Using the company's website
- ☐ Using a mobile app or website from a different company (like an app that aggregates multiple accounts)
- ☐ By contacting the company directly (by email, phone or in person)
- ☐ By contacting your advisor (by email, phone or in person)
- ☐ I did not access any account with this company in the past 12 months
- ☐ Using a mobile app from the company
- ☐ Other - Write In

DATA Shortname / Alias: **GivesAdvice_Company2**

10. Do you receive investment advice or recommendations from this company?

- ○ Yes
- ○ No
- ○ Not sure

Company 3 Details

Page entry logic:
This page will show when: #2 Question "How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab). " is one of the following answers ("Three","Four","Five or more")

DATA Shortname / Alias: **Name_Company3**

11. Think about the investment app or company where you have the **THIRD-LARGEST** amount of money invested. What is the **name** of that investment app or company? *

DATA Shortname / Alias: **Allocation_Company3**

12. Roughly speaking, what percent of your investments with this company is in each of the following types of accounts? If you don't have a particular account type with the company, just leave it blank.

Workplace retirement account, like a 401(k), 403(b), TSP or SEP	
Personal retirement account, like a Roth or Traditional IRA	
Trading account like Robinhood or Coinbase	
General non-retirement investment account, like a Schwab brokerage account	
Other (HSA, 529, employee stock options, etc.)	
	0 out of 100% Total

DATA Shortname / Alias: **AccessMethods_Company3**

13. Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply.

- [ ] Using a mobile app or website from a different company (like an app that aggregates multiple accounts)
- [ ] Using a mobile app from the company
- [ ] By contacting the company directly (by email, phone or in person)
- [ ] Using the company's website
- [ ] By contacting your advisor (by email, phone or in person)
- [ ] I did not access any account with this company in the past 12 months
- [ ] Other - Write In

DATA Shortname / Alias: **GivesAdvice_Company3**

14. Do you receive investment advice or recommendations from this company?

- ○ Yes
- ○ No
- ○ Not sure

Company 4 Details

Page entry logic:
This page will show when: #2 Question "How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab). " is one of the following answers ("Four","Five or more")

DATA Shortname / Alias: **Name_Company4**

15. Think about the investment app or company where you have the **FOURTH-LARGEST** amount of money invested. What is the **name** of that investment app or company? *

DATA Shortname / Alias: **Allocation_Company4**

16. Roughly speaking, what percent of your investments with this company is in each of the following types of accounts? If you don't have a particular account type with the company, just leave it blank.

Workplace retirement account, like a 401(k), 403(b), TSP or SEP	
Personal retirement account, like a Roth or Traditional IRA	
Trading account like Robinhood or Coinbase	
General non-retirement investment account, like a Schwab brokerage account	
Other (HSA, 529, employee stock options, etc.)	
	0 out of 100% Total

DATA Shortname / Alias: **AccessMethods_Company4**

17. Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply.

- [ ] Using a mobile app from the company
- [ ] I did not access any account with this company in the past 12 months
- [ ] Using the company's website
- [ ] By contacting your advisor (by email, phone or in person)
- [ ] By contacting the company directly (by email, phone or in person)
- [ ] Using a mobile app or website from a different company (like an app that aggregates multiple accounts)
- [ ] Other - Write In

DATA Shortname / Alias: **GivesAdvice_Company4**

18. Do you receive investment advice or recommendations from this company?

- ○ Yes
- ○ No
- ○ Not sure

Investment Details

Page entry logic:
This page will show when: #2 Question "How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab). " is one of the following answers ("One","Two","Three","Four","Five or more")

LOGIC Hidden unless: #2 Question "How many different **companies** do you have a trading, investing, or retirement account with? For example, if you have both a Schwab Retirement Account and a Schwab Brokerage account, that's one company (Schwab). " is one of the following answers ("Two","Three","Four","Five or more")

DATA Shortname / Alias: **AllocationByCompany**

19. Previously, you said you have accounts with [question('value'), id='10'] companies. Roughly speaking, what percent of your investments are with each company?

[question("value"), id="74"]	
[question("value"), id="79"]	
[question("value"), id="188"]	
[question("value"), id="193"]	
All others	

0 out of 100% Total

DATA Shortname / Alias: **TimingOfFirstPurchase**

20. How long ago did you first purchase, trade or invest in the following products, with any account or company?

	Never	Last 12 months	1-2 years ago	3-4 years ago	5+ years ago
Mutual Funds	○	○	○	○	○
ETFs	○	○	○	○	○
Stocks (The stock of a specific company, not in a mutual fund or ETF)	○	○	○	○	○
Bonds (The bond of a specific company or agency, not in a mutual fund or ETF)	○	○	○	○	○
Options	○	○	○	○	○
Futures	○	○	○	○	○
Cryptocurrencies	○	○	○	○	○
Commodities	○	○	○	○	○
Money Market Funds	○	○	○	○	○
Variable Insurance Products	○	○	○	○	○
Precious/rare earth metals (e.g., gold, silver, platinum) as physical assets	○	○	○	○	○
Other assets (e.g., collectibles, stamps)	○	○	○	○	○

21. Where do you receive your information about what to invest in or trade? Select all that apply.

- [ ] Social media
- [ ] By analyzing detailed data on hundreds (or more) investments
- [ ] Blogs and articles
- [ ] Friends and family
- [ ] Reddit or other online forums
- [ ] Other - Write In
- [ ] Investing or trading apps
- [ ] A financial advisor
- [ ] TV or Radio

DATA Shortname / Alias: **NewMoney_Last30Days**

22. Roughly speaking, how much money did you contribute to your investment accounts in the last 30 days? That is, how much new money did you put in?

DATA Shortname / Alias: **NewMoney_LastYear**

23. Roughly speaking, how much money did you contribute to your investment accounts in the last twelve months?

DATA Shortname / Alias: **ExpectedReturn_General**

24. What annual return do you expect to earn on investments? (On average and across all of your accounts. In nominal, non-inflation adjusted terms)

- I don't expect to earn any return
- 0.1-2% each year
- 2.1-5% each year
- 5.1-10% each year
- 10.1-20% each year
- 20.1-50% each year
- 50.1-100% each year
- Over 100% each year
- I'm not sure

Online Trading & Investing

Page entry logic:
This page will show when: (((#5 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)") OR #9 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)")) OR #13 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)")) OR #17 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)"))

LOGIC Show/hide trigger exists.

DATA Shortname / Alias: **InvestedBeforeOnline**

25. Did you trade or invest before you started using online platforms?

- Yes
- No
- Not sure

LOGIC Hidden unless: #25 Question "Did you trade or invest before you started using online platforms? " is one of the following answers ("Yes")

DATA Shortname / Alias: **ChangeInBehaviorWithOnline**

26. How have your investing and trading behaviors changed since you started using an online platform?

	Decreased	Increased	No Change
The amount of money you have invested	○	○	○
Your interest in learning about investing and saving for retirement	○	○	○
The amount of time you have spent trading	○	○	○
Your knowledge of financial products	○	○	○
The number of trades you have made	○	○	○
The amount of money you have made in trading	○	○	○
Your knowledge of the markets	○	○	○
The number of different types of financial products you have traded	○	○	○
Your use of margin	○	○	○

DATA Shortname / Alias: **Satisfied_OnlineReturns**

27. In general, how satisfied have you been with your investment outcomes (the returns and money you've earned) with your online trading and investing platforms?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
○	○	○	○	○

DATA Shortname / Alias: **Satisfied_OnlineUI**

28. In general, how satisfied have you been with the apps or website themselves that you use for online trading and investing -- how well they work, their user interface, their customer support and such?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
○	○	○	○	○

DATA Shortname / Alias: **OnlineFeatures**

29. Online investing platforms may have a variety of features. Have you seen these features in the online platforms you use, and how do you feel about them?

	I haven't seen this feature	I really don't want this feature	I don't want this feature	I don't care either way	I'm glad for this feature	I'm very glad for this feature
Badges	○	○	○	○	○	○
Social networking	○	○	○	○	○	○
Points	○	○	○	○	○	○
Level 2 Market data (richer and more in-depth information on trades in the market)	○	○	○	○	○	○
Subscription and membership tiers	○	○	○	○	○	○
Chatbots	○	○	○	○	○	○
Push Notifications	○	○	○	○	○	○
Celebrations for trading	○	○	○	○	○	○
Games	○	○	○	○	○	○
Investment Ideas	○	○	○	○	○	○
Interesting display with changing colors	○	○	○	○	○	○
Streaks	○	○	○	○	○	○
Contests with prizes	○	○	○	○	○	○
Other curated lists of investments	○	○	○	○	○	○
Leaderboards	○	○	○	○	○	○

DATA Shortname / Alias: **WouldTradeIfNotOnline**

30. Do you think you would trade or invest in the future if you could not do so online using a computer or using a mobile app?

- ○ Yes
- ○ No
- ○ Not sure

DATA Shortname / Alias: **NameOfMostUsedPlatform**

31. What is the name of the online investing or trading platform that you use most often? *

Platform Used Most Often

Page entry logic:
This page will show when: ((((#5 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)") OR #9 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)")) OR #13 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)")) OR #17 Question "Within the last 12 months, have you accessed an account with this company using any of the following means? Please select all that apply." is one of the following answers ("Using the company's website","Using a mobile app from the company","Using a mobile app or website from a different company (like an app that aggregates multiple accounts)","By contacting the company directly (by email, phone or in person)","By contacting your advisor (by email, phone or in person)")) AND #31 Question "What is the name of the online investing or trading platform that you use most often? ")

DATA Shortname / Alias: **AccessFrequency**

32. In general, how often do you access [question("value"), id="124"]?

- Daily or more than once a day
- One or more times a week
- One or more times a month
- Less often than once a month
- Never
- I don’t know

DATA Shortname / Alias: **TradeFrequency**

33. In general, how often do you make trades or otherwise change your investments in [question("value"), id="124"]?

- Daily or more than once a day
- One or more times a week
- One or more times a month
- Less often than once a month
- Never
- I don't know

DATA Shortname / Alias: **HoldingPeriod**

34. How long to do you hold investments with [question("value"), id="124"] before you sell them? If you only started using [question("value"), id="124"] recently, please answer based on how long your hold investments in accounts like this.

- I've never sold investments with them
- Less than a day
- More than a day, up to one week
- More than a week, up to one month
- More than a month, up to six months
- More than six months, up to a year
- More than a year, up to two years
- More than two years, up to five years
- More than five years

DATA Shortname / Alias: **Commission**

35. What commission do you pay on trades on [question("value"), id="124"]?

- 0%
- More than 0% and less than 1%
- More than 1% and less than 2%
- More than 2% and less than 3%
- 3% or more

DATA Shortname / Alias: **GainedOrLostMoney**

36. Overall, have you lost or gained money over the last twelve months using [question("value"), id="124"]?

- I've lost a whole lot of money
- I've lost some money, but not a lot
- I've lost only a little bit of money
- I've neither gained nor lost money
- I've gained only a little bit of money
- I've gained some money, but not a lot
- I've gained a whole lot of money

DATA Shortname / Alias: **WhenMoneyNeeded**

37. When do you anticipate you'll need to spend or use the money you currently have with [question("value"), id="124"]?

- Within a week
- Within a month
- Within the next six months
- Within the next year
- Within the next five years
- Within the next ten years
- Longer than the next ten years
- I'm not sure

DATA Shortname / Alias: **InvestmentObjective**

38. When you use [question('value'), id='124'], what is your overall investment objective?

- Keep the amount of money I have, while keeping up with inflation
- Save and grow my money for short-term goals (in the next year or two)
- Save and grow my money for medium- to long-term goals (beyond two years)
- Have fun
- Learn about trading and investing
- Other - Write In

DATA Shortname / Alias: **HarmFromLoss**

39. If your account(s) with [question('value'), id='124'] lost 80% of its value, what would that do to your finances? Select all that apply.

- ☐ It would have no significant effect, either in the short term or long term
- ☐ I'd struggle to buy one or more things I'd planned to buy over the next five years
- ☐ I'd be unable to pay my bills next month
- ☐ I'd need to work more, or get a higher paying job
- ☐ I'd struggle to buy one or more things I'd planned to buy over the next year
- ☐ I'd need to save more for my long term goals
- ☐ Other - Write In

DATA Shortname / Alias: **CauseOfTrade**

40. What typically leads you to make a trade using [question("value"), id="124"]? (Select all that apply)

- ☐ I think it will make me a lot of money
- ☐ Lots of people are talking about it
- ☐ I receive a suggestion in one of my platforms to check out the investment
- ☐ I receive some free shares or tokens for that investment, and want more
- ☐ My advisor recommends it
- ☐ Other - Write In

DATA Shortname / Alias: **CauseOfUsingPlatform**

41. What leads you to use this platform instead of others? (Select all that apply)

- [ ] I was required to use it through my work
- [ ] The platform gave me a nice signup bonus
- [ ] It is the platform that I trust
- [ ] They let me do the most margin trading
- [ ] It looked like the safest company to go with
- [ ] It allows me to use options, futures trading or other advanced features
- [ ] It is fun to use
- [ ] It was really easy to sign up
- [ ] Many other people I know use it
- [ ] My advisor recommended it or set it up for me
- [ ] It helps me earn the most money
- [ ] I signed up for the account a while back, and don't want to switch to a new one
- [ ] Other - Write In

DATA Shortname / Alias: **AmountInMostUsedPlatform**

42. Approximately how much money do you have in your account(s) with [question('value'), id='124']?

- Less than $1,000
- $1,000 to $4,999
- $5,000 to $9,999
- $10,000 to $14,999
- $15,000 to $19,999
- $20,000 to $24,999
- $25,000 to $29,999
- $30,000 to $34,999
- $35,000 to $39,999
- $40,000 to $49,999
- $50,000 to $59,999
- $60,000 to $74,999
- $75,000 to $84,999
- $85,000 to $99,999
- $100,000 to $124,999
- $125,000 to $149,999
- $150,000 to $174,999
- $175,000 to $199,999
- $200,000 or more
- I don't know

DATA Shortname / Alias: **ReturnExpected_MostUsed**

43. What annual return do you expect to earn when you use [question("value"), id="124"]? (In nominal, non-inflation adjusted terms)

- I don't expect to earn any return
- 0.1-2% each year
- 2.1-5% each year
- 5.1-10% each year
- 10.1-20% each year
- 20.1-50% each year
- 50.1-100% each year
- Over 100% each year
- I'm not sure

DATA Shortname / Alias: **Trust_MostUsed**

44. How well do you trust [question("value"), id="124"] to do what's in your best interests?

I don't trust them at all	I don't trust them much	I don't trust or distrust them	I trust them somewhat	I fully trust them
○	○	○	○	○

Finance Questions

DATA Shortname / Alias: **FeelIfPlatformDid**

45. Apps and websites for trading and investing have a variety of features and business models. How would you feel if an online platform you used did the following:

	Very upset	Upset	Wouldn't care either way	Happy	Very happy
Turn higher-risk investment strategies on by default, like options trading	○	○	○	○	○
Show me how other, anonymous, users were investing	○	○	○	○	○
Use data about you and your investments to provide personalized investment recommendations	○	○	○	○	○
Tell me about hot or trending investments	○	○	○	○	○
Provide educational modules about finances and investing	○	○	○	○	○
Automatically analyze my saving and investing history for potential areas to improve	○	○	○	○	○
Encourage me to buy investments that they received a commission on (without telling me)	○	○	○	○	○
Sell information about my trades, before they executed, to high frequency traders or others	○	○	○	○	○
Encourage me to save more money for the future	○	○	○	○	○
Sell information about me to advertisers	○	○	○	○	○
Sell information about my trades after they executed to high frequency traders or others	○	○	○	○	○

DATA Shortname / Alias: **AbilityAsInvestor**

46. How would you rate your level of ability as an investor?

No ability (A beginner or novice)	Less than average ability	About average ability	More than average ability	An expert
○	○	○	○	○

DATA Shortname / Alias: **fin_lit1**

47. Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- ○ More than $102
- ○ Exactly $102
- ○ Less than $102
- ○ Do not know
- ○ Refuse to answer

DATA Shortname / Alias: **fin_lit2**

48. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

- ○ More than today
- ○ Exactly the same
- ○ Less than today
- ○ Do not know
- ○ Refuse to answer

DATA Shortname / Alias: **fin_lit3**

49. Please tell me whether this statement is true or false. “Buying a single company’s stock usually provides a safer return than a stock mutual fund.”

- True
- False
- Do not know
- Refuse to answer

DATA Shortname / Alias: **HowLongPlanAhead**

50. How far ahead do you tend to think and plan, when it comes to your finances?

- A few days
- A few weeks
- A few months
- A few years
- More than 5 years

DATA Shortname / Alias: **WhySuspended**

51. Under what circumstances, if any, could trading or investing in an account be suspended or restricted?

- If I borrow too much to buy or short a stock
- If the other customers of my broker borrow too much to buy or short a stock
- If my broker takes on too much risk
- All of the above
- None of the above
- Not sure

A final request

DATA Shortname / Alias: **KeepResponses**

52. Realistically, we understand that people may not always be completely honest in their responses to surveys. Honesty in responses is very important to us because it allows us to get a clear view of how people think, feel, and behave. Judging by how honest you think you were in your responses, should we keep your answers for our analyses? You'll be paid for your time either way.

- Yes, keep my responses
- No, toss my responses

DATA Shortname / Alias: **Feedback**

53. Please provide any feedback you have in the field below. For example, were there any parts of the survey that were confusing? Were there any questions you think we missed? Or is there anything else you want us to know?