Financial Advice and Investor Beliefs: Experimental Evidence on Active vs. Passive Strategies

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Abstract

Using a randomized controlled trial, we examine the demand side of financial advice: how do retail investors assess and update their beliefs based on advice that aligns or contradicts their priors. We compare advice emphasizing passive (diversification, low fees) versus active strategies (stock picking, market-timing). Participants rate advice higher when it aligns with their priors but update beliefs in the direction of the advice received. There is significant heterogeneity by financial literacy: Financially literate subjects react positively to passive strategies and reject active strategies. Less literate subjects respond symmetrically to both. Finally, misaligned advisor incentives reduce the effectiveness of advice.

JEL codes: C91; G41; G53

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Households in the U.S. and other developed economies regularly face complex financial choices, from allocating their retirement savings to insuring against health shocks and beyond. To help consumers with these decisions, a large and almost equally complex market for financial advice has developed alongside. This financial advice can take many forms, from traditional in-person advice by individual advisors, technology-aided (robo) advice tools, to increasingly online financial education resources.

A large and growing literature has analyzed the factors that shape the supply of financial advice, but there is limited evidence on how the demand side perceives and processes this advice. The difficulty of studying the demand for financial advice is that typically researchers can only observe the advice that is provided in equilibrium, which can be significantly shaped by both sides.[1] In this paper we address this gap by conducting a randomized controlled trial (RCT) that allows us to investigate how investors with different priors and varying demand for advice process financial advice, how individuals' perceptions of advice are influenced by their prior beliefs about alternative investment strategies, their financial literacy and their self-assessed financial knowledge. We further evaluate the extent to which advice can successfully change people's posterior beliefs and whether they incorporate this advice when making (incentivized) portfolio choices.

In our experiment we focus on two of the most prominent investment strategies that are available to retail investors: active versus passive investment strategies.[2] These strategies also represent one of the oldest debate in the asset management literature. While most of the academic finance literature suggests that passive strategies dominate active strategies for retail investors, active investment strategies still command a significant market share. In 2022, passive strategies held 46% of all fund assets, up from 13% in 2005 (ICI 2022).[3] Our context allows us to analyze how retail investors, who vary in their priors and understanding of financial markets, assess the quality of advice and update their beliefs in response to different types of advice.

We document four main results. First, the perception of advice is influenced by individuals'

1. Gomes, Haliassos, and Ramadorai 2021 carefully reviews the distortions and benefits of financial advice focusing on the supply side. Reuter and Schoar 2024 highlights the interaction between supply-side and demand-side constraints.

2. Active strategies aim to outperform a benchmark index through stock selection and market timing, while passive strategies replicate the performance of the index, see for instance, Gruber 1996 and French 2008.

3. Wealthier and more sophisticated investors might have access to other strategies, but we want to capture the type of broad advice that is available to a typical middle class investor.

prior beliefs. While passive advice on average is rated higher than active advice, any advice that contradicts a person's prior beliefs is rated lower than when it aligns with the recipient's existing views. But even though people rate advice lower that contradicts their prior beliefs, it does prompt some updating in the direction of advice. Results from an incentivized portfolio choice question also reveal that the advice significantly impacts participants' choices, even when it contradicts priors. Second, however, there is important heterogeneity in how people update in response to advice depending on their financial literacy. More financially literate participants positively revise their beliefs after watching the passive video but show no change following the active advice. In contrast, those with lower financial literacy are strongly influenced by either type of advice. Third, our results suggest that individuals who are more confident in their (self-perceived) financial knowledge place less weight on financial advice. Finally, individuals appear to be concerned with the incentives of advisors - they update more in the direction of the advice if the advisor has lower conflicts of interest, i.e. they are paid via a flat fee rather than commission-based compensation.

Our experiment is designed to emulate a typical (online) financial advice session, which usually presents retail investors with a set of relevant financial information and a narrative to make sense of this information. We explicitly take into account that financial advice is not equivalent to financial literacy training, since it uses data to support a particular narrative, rather than to teach finance from first principles. Therefore, our study tests how different narratives about financial markets (active versus passive strategies) affect retail investors' response to the advice. For example, advisors who want to promote passive strategies over active ones might provide a narrative of efficient markets and explain the distribution of fund returns and the importance of minimizing fees. Alternatively, financial advisors who want to convince investors that active strategies are better might provide a narrative that highlights the benefit of market timing or stock picking and point out that there are more active funds in the upper tail of the distribution of fund returns.[4]

Ideally, consumers should evaluate the advice by weighing it against all available information to determine which narrative is most convincing, as suggested by, for example, Eliaz and Spiegler 2020 and Schwartzstein and Sunderam 2021. In practice, however, most retail investors face

4. Thus our paper complements studies that assess the effectiveness of financial literacy training programs. For an overview of randomized controlled trials on financial literacy training, see Kaiser and Lusardi 2024.

constraints such as limited financial knowledge, time, and attention. This makes it is unrealistic that advisors could teach finance or statistics to their customers. Instead, we choose an advice format that follows closely the existing practices in the financial advice industry, offering concise narratives with supporting data, and observe how these narratives are evaluated and adopted by consumers.[5]

We conduct a randomized controlled trial (RCT) that is akin to a lab-in-the-field study. To present both active and passive investment advice, we worked with real financial advisors to develop a set of scripts. These scripts use representative industry language to recommend either a strategy of diversification and low-fee passive index investing (which we call *Pro-Passive*), or a strategy of active management focused on identifying "hot" industries (which we call *Pro-Active*). We recorded these scripts as short videos with trained actors. Both types of videos are fully scripted. The setup, content and language of the videos mirrors those of online investor education videos.

We recruited participants by advertising through a large number of employers in the Boston and Cambridge area. Participants were invited to a lab setting, where they first answered a survey about their demographics, as well as their pre-existing beliefs regarding financial markets and the best investment strategies. From these answers, we classify subjects into *"Pro-Active"* and *"Pro-Passive"* types: investors who came into the study believing a good investment strategy is to identify promising industries or firms and time the market, versus those who believed one should hold a diversified low-fee portfolio. We also assessed the subjects' financial literacy levels before the video, but participants were randomized independent of their literacy.

The focus of our experiment is a 2-by-2 assignment, where investors are randomly assigned to view a video that either aligns with or contradicts their existing investment beliefs. Independent of being classified as *Pro-Active* or *Pro-Passive*, both sets of subjects are randomly assigned to either an *Active Video* or a *Passive Video*, each promoting the corresponding strategy.[6] Following the videos, participants rate the quality of the advice as well as the advisor. We also reassess participants' beliefs on the two investment strategies. After the post-video survey, each participant watches a comprehensive debriefing video, which provides academic insights into good investment

5. It is important to note that we did not provide participants with false information but provided data that selectively highlight the benefits of either active or passive strategies, which is what is typical in the industry. At the end we debriefed all participants in a detail financial literacy session to ensure that people did not leave the experiment with wrong information.

6. This randomization leaves us with four groups (1) Pro-Active, saw Active Video, (2) Pro-Active, saw Passive Video (3) Pro-Passive, saw Active Video, and (4) Pro-Passive, saw Passive Video.

strategies, designed to mitigate any potentially misleading effects of the original video treatments.[7]

We begin by analyzing the participants' post-video ratings of the advice presented. The results show that passive advice is rated higher than the active advice, and advice contradicting participants' prior beliefs receives lower ratings compared to advice aligning with their existing views. On a 1-to-9 scale, both effects are about 0.6 points, roughly one-third of the standard deviation of advice ratings. To ensure that the difference in raw ratings is not driven by varying literacy levels among people with different prior beliefs, we estimate the effects of all treatment groups in regressions that control for differential responses to the videos by literacy levels. The regressions confirm that lower ratings were given in the two groups where the videos contradicted participants' prior beliefs, however, among all groups, people with a pro-passive prior and watch the active advice gave the lowest ratings.

When separating the sample into high- and low-literacy sub-groups, we find that those with high financial literacy showed distinct rankings across the treatment groups, but people with low literacy rate any advice similarly. This suggests that the financially less literate may be unable to effectively evaluate the quality of financial advice. We also find that participants who are more confident about their own financial knowledge tend to give lower ratings if the advice conflicts with their prior beliefs.

When looking at how investors update their beliefs, we find a sizable treatment effect of the videos on the subjects' ex post beliefs. On average, people who watch the video with the active advice become more pro-active in their posterior beliefs, and vice versa for people who watch the passive advice. Our belief measure is constructed as a score that ranges from -4 (highly pro-active) to +4 (highly pro-passive), based on a set of questions to elicit people's priors.

However, we find a large asymmetric impact of the two types of advice: On average passive advice moved participants priors more strongly than active advice: Beliefs are moved by 3.4 points toward more pro-passive beliefs for ex ante pro-active participants who watched the passive video, and 1.6 points toward more pro-active for pro-passive individuals who watched the active video. These effects are measured relative to the reference group which represents pro-active individuals

7. We also cross the advice treatments, with a sub-treatment, where we randomize within each two by two cell, the description of the advisor's compensation (flat fee, commission, or unspecified). These are detailed later.

watching the active video.

Importantly, we find very different results for participants with high versus low levels of financial literacy. The asymmetric effect of passive versus active videos is entirely driven by the high literacy group: Financially literate individuals rate the passive advice as higher quality and only update when shown the passive advice. In contrast, less financially literate subjects respond with similar magnitudes to both types of advice. This susceptibility to any form of advice potentially makes them vulnerable to lower quality financial advice.[8]

Interestingly, subjects in all groups and literacy levels rank the "likability" of the advisor at a similar level, and their ratings do not depend on whether the advice confirms their priors or not. This implies that participants in the experiment are able to separate the content of the advice from the personality of the advisor in the video.

At the end of the session participants were asked to make a portfolio choice from six portfolios as if they were to invest with their own money. We incentivized the choices: Subjects could win a $3,000 award, set up as a lottery prize for participating in this experiment, which would be received in the form of the portfolio they picked in this question. The six funds are three pairs, where each pair consists of an index fund and an actively managed fund that have approximately equal risk and net-of-fee return. The results confirm our previous findings - both pre-existing beliefs and the advice received matter for people's portfolio choices. Similarly, the advice that recommends active management has a stronger effect on the portfolio choices of the low-literacy subjects.

Lastly, we investigate how individuals process information about advisors' incentives, particularly whether they pay attention to potential conflicts of interest and understand that incentive misalignment may affect the quality of the advice. To this end, we embed sub-treatments within the introductory sections of the videos where the advisor explains their compensation structure – either flat fees, which do not depend on sales generated, or commissions, which do. We randomize this compensation sub-treatment in the videos, with some videos omitting the compensation information altogether. We then examine the effects of these compensation sub-treatments while controlling for the main treatment effects.

8. Some prior studies have shown that low financial literacy also leads to low take-up of financial advice (Bhattacharya et al. 2012; Gaudecker 2015; Chang and Szydlowski 2020)

We find that, all else being equal, participants rate advice as higher quality when the advisor is compensated by a flat fee rather than a commission, with a rating difference of about 0.55 on a 9-point scale. Moreover, individuals update their beliefs by 0.77 point more (on the -4 to +4 scale) toward the recommendation in the advice for flat-fee advisors than for commission-based advisors. These effects are present across different levels of financial literacy but are stronger for those with low financial literacy, possibly due to their awareness of their limited ability to evaluate the quality of the advice.

Related Literature A large and growing literature has examined the effects of financial advice on the portfolios of advisees. The effects include under-performance relative to self-directed portfolios (e.g., Bergstresser, Chalmers, and Tufano 2009; Hackethal, Haliassos, and Jappelli 2012; Kramer 2012; Del Guercio and Reuter 2014; Egan, Ge, and Tang 2022), favoring active funds (e.g., Linnainmaa, Melzer, and Previtero 2021), excessive turnovers and risk-taking (e.g., Bluethgen et al. 2008; Del Guercio and Reuter 2014), and high commissions (e.g., Christoffersen, Evans, and Musto 2013; Egan 2019; Chalmers and Reuter 2020).[9]

These portfolio outcomes are frequently attributed to supply-side frictions, most notably conflicts of interest between advisors and their clients, e.g., Edelen, Evans, and Kadlec 2012; Christoffersen, Evans, and Musto 2013; Gurun, Stoffman, and Yonker 2021. Several studies have found widespread violations of fiduciary duty among financial advisors (Dimmock, Gerken, and Graham 2018; Charoenwong, Kwan, and Umar 2019) and persistent misconduct (Qureshi and Sokobin 2015; Egan, Matvos, and Seru 2019). Other supply-side limitations include advisors' own beliefs and/or incompetence (Foerster et al. 2017; Linnainmaa et al. 2020; Anagol, Cole, and Sarkar 2017; Andries, Bonelli, and Sraer 2024). But the literature has also highlighted that financial advisors can provide valuable services even in the presence of conflicts of interests between advisers and their clients, as shown in Gennaioli, Shleifer, and Vishny (2015) and Hackethal, Haliassos, and Jappelli (2012).[10] For a review of the potential value added by financial advice, see Reuter and Schoar (2024).

Several papers use audit studies and online experiments to analyze the quality of financial advice

9. Beyond individual portfolios, research also suggests that financial advice can influence aggregate asset allocations and returns (e.g., Da et al. 2018; Parker, Schoar, and Sun 2023; Aldunate et al. 2023; Andonov, Eiling, and Xu 2024).

10. Dulleck and Kerschbamer (2006) discuss this general type of information problems in markets for experts' services.

offered by advisors. In an audit study, Mullainathan, Noeth, and Schoar (2012) show that U.S. financial advisors often provide advice biased toward active investment and only correct advisees' misconceptions about financial markets if it benefits the advisors financially. Similarly, Anagol, Cole, and Sarkar (2017) present evidence of low-quality advice in the Indian life insurance market. Bhattacharya et al. (2024) find that female subjects in Hong Kong receive worse financial advice. Bucher-Koenen et al. (2023) confirms this statistical discrimination using administrative data from a German bank.

Studies on the demand side of financial advice have mainly focused on factors influencing the uptake of advice. The literature shows that confidence in financial advisers can boost advice-taking (Bhattacharya et al. 2012; Agnew et al. 2018; Gurun, Stoffman, and Yonker 2021; Burke and Hung 2021; Fisch and Seligman 2022; see also theory by Georgarakos and Inderst 2014 and Gennaioli, Shleifer, and Vishny 2015). However, reliance on simple default options can discourage more individualized advice (Reuter and Richardson 2022). Regarding financial literacy, Chang and Szydlowski (2020) demonstrate that unsophisticated investors should seek more financial advice in a rational world, but Bhattacharya et al. (2012) and Gaudecker (2015) find that in fact high financial literacy is associated with increased use of financial advice. Further, Kim, Maurer, and Mitchell (2019) conducted an experiment in the 2016 Health and Retirement Study to study the relationship between cognitive ability, financial literacy and the demand for advice. Their findings indicate that financial literacy enhances the quality, but not the quantity, of the advice sought.

Methodologically two papers are most closely related to our study. First, our paper is complementary to Agnew et al. (2018), who conduct an RCT to test how subjects react to financial advisors. This earlier paper investigates how investors develop trust with different financial advisors, varying the personal characteristics and credentials of advisors. In contrast, our analysis abstracts from the personal characteristics of the advisors by controlling for advisor fixed effects in all specifications, which allows us to focus on the effects of different narratives of advice. A second related paper is Barron and Fries (2023) which conducts an online experiment to focus on the supply side of advice. The paper tests how subjects, acting as advisors, endogenously generate advice when presented with financial returns and a set of randomized incentives. The advice generated by the subjects is in the form of statistical parameters not financial narratives that are inspired by what is used in the

industry (as in our paper). The paper finds that advisees are influenced by the parameters presented by advisors, even if the advisor has no informational advantage.

1 Experimental Design and Data Collection

1.1 Subject Recruitment and Setup

We conducted an experiment in which we invited people from the greater Boston area to watch financial advice videos. The experiment was conducted between June 4^{th} and November 21^{st}, 2012 and was run at the MIT and Harvard experimental labs to allow participants more convenient access to different sites. The experiment procedure consists of three parts. First, we elicit people's priors about investment via a pre-video survey. Independent of their prior beliefs, we randomly assign people to watch two types of videos of financial advice. Lastly, we use a post-video survey to measure people's perceptions of financial advice and any changes in their beliefs about investment strategies.

To attract residents, particularly employees in the greater Boston area, we contacted a number of local employers to advertise our recruiting materials via their internal email lists and blackboards in public areas such as workplace cafeterias. In addition, we circulated recruiting materials on Craigslist, the Harvard Decision Science Lab and the MIT Behavioral Research Lab websites, and school newsletters and emails. We advertised the chance of getting a $3,000 award in the form of fund portfolios from this experiment to provide a monetary incentive.

Participants must physically come to our research laboratory. Once people show up at the lab, we confirm their IDs and eligibility. This check-in step differentiates our study from online survey experiments. We did not collect names or any personally identifiable information from the participants. Each of them was assigned a randomly generated number for identification purposes throughout the experiment process.

Although the experiment participants self-selected into the study, we believe this does not introduce significant bias into our results - people interested in financial advice might be more likely to participate in our study, but those are also the people who would be more likely to seek for a financial advisor. Furthermore, in order to reduce the concern that participants might expect the advice to be "right", we explicitly stated in all communication that the stated objective of the

experiment was to examine how retail investors perceive different retirement saving strategies and evaluate various types of financial advice. There was no implication regarding the quality of the advice, or receiving "free advice".

1.2 Financial Advice Videos

The advice videos are central to our experiment design. We aimed for these videos to emulate pre-recorded (instead of live or customized) professional financial advice, which is common in online investor advice or educational programs, including resources provided by large asset management companies, robo-advisors or even social media. We then screened and hired four actors, two females and two males, to perform in our videos as financial advisors. We provided the actors with a full script to memorize and trained them to act as advisors. They strictly followed the scripts with the help of a teleprompter and with the natural emotions that advisors would normally present.

In each video, a professionally-dressed advisor talks about investment strategies and financial advice in front of a plain white background. We keep the screen cuts, camera angles, and lighting the same across the videos. Each video lasts for approximately 4 to 6 minutes. In order to keep the viewers' attention and pass on messages more effectively in a few minutes, we divided the whole video into several sections. Between each section, there was a 3-second black transition screen with the topic of the next section showing on the screen in white.

We wrote scripts that recommend either a passive or an active investment strategy to the audience, providing the most common supporting arguments for each recommendation. To ensure these scripts represent professional advice, we consulted with several local financial advisors to incorporate their typical language. In the *Passive Video*, the advisor argues that no active fund manager can always beat the market and recommends low-cost well-diversified index funds. The supporting arguments highlight that diversification can help reduce risk exposure to any one stock or sector, and the lower cost of index funds makes a large difference at long time horizon. In the *Active Video*, the advisor emphasizes the importance of outperforming the market benchmark and recommends funds managed by competent portfolio managers with a good track record. The advisor further argues that by paying for the professional managers and market research, actively managed funds can assist investors in identifying stocks and sectors that are most promising for high returns, and

timing the market to better seize opportunities.

In the first section of every video, the presenter gives a brief self-introduction, highlighting their qualifications. This introductory script is the same in all videos. The second section provides a general overview of what index funds and actively managed funds are and the average annual fees for each. The third section recommends either a passive or active investment strategy. The fourth section supports the recommended strategy with arguments and a histogram. The active investment video underscores the importance of stock selection and market timing, presenting the narrative that market research adds value, and that top-performing funds are often actively managed. In contrast, the passive investment video stresses the benefits of diversification and low fees. The passive narrative explains that no one can predict the market (an argument following the efficient market hypothesis) and that, on average, index funds outperform actively managed funds. While both videos explain in the second segment that actively managed funds generally incur higher fees than index funds, they diverge in the fourth segment: the video promoting passive investment cautions against high fees, whereas the one on active investment argues that higher fees are justified by better management quality.

In addition to the two types of investment strategies, we cross the advice treatment with a sub-treatment related to the incentive of the advice provider: Advisors in the videos either state that they are compensated via a "flat fee", "commission fee" or do not mention how they are compensated, "skip fee". We refer to these sub-treatment groups as "incentive treatments", designed to assess how participants' awareness of advisors' potential conflicts of interest influences their perception of financial advice.[11] This variation in incentives is inserted into the first section of the video. Following the self-introduction, the financial advisor in both the "flat fee" and "commission fee" videos describes how they are compensated via a flat fee or through commission, respectively. Then these two types of videos continue to the second section. The "skip fee" videos, however, exclude the part in which the advisor talks about their compensation. After the opening part, the "skip fee" videos jump to the second section of describing index funds and active funds. The

11. The flat fee sub-treatment emphasizes that the advisor's compensation is independent of sales, which promotes unbiased advice. The commission fee sub-treatment states that the advisor's compensation (commission) is based on the amount of sales they generate for the fund company and fees paid by customers into the mutual funds. This compensation structure can lead to conflict of interest, as advisors might prefer selling higher-fee funds to increase their earnings.

treatment arms are tabulated in Table 1 and Appendix A provides the full scripts of the videos.

The main focus of our study is the 2-by-2 treatment groups combining the pro-active and pro-passive priors with the active and passive video treatments. We report most results for only these four groups, thus merging the incentive sub-treatments. Analysis of the incentive treatments is presented at the end.

1.3 Pre- and Post-Video Surveys, and Post-Experiment Debrief

Our pre-video survey starts with collecting a standard set of demographic information, including age, gender, marital status, job status, annual income, etc., from the participants. We also asked them to give a self-assessment of financial literacy on a 7-point scale and on a percentile scale. In order to measure how people think about investment strategies, we asked the subjects to rank seven potential components of investment strategies in the order of importance. This pre-video ranking question is designed to elicit people's prior beliefs on passive versus active investment strategies. The seven components we used in this question are: *Diversification*, *Picking Good Fund Managers*, *Picking Good Stocks*, *Timing the Market*, *Minimizing Risks*, *Minimizing Fees*, and *Selling Funds That Had Bad Performance Last Year*. We construct belief measures from the answers to these questions, which is discussed in the next section. After these belief questions, we ask people eight questions that are intended to test their financial literacy levels. These knowledge questions range from relatively easy ones, for example, about the meaning of owning stock, to harder ones that need some calculations or college-level financial knowledge.

After watching the financial advice videos, people filled out a post-video survey. First we asked them to rate the quality of the advice and the advisor, and report how much they agree with what they just saw. We then gave them the same investment strategy ranking question as that in the pre-video survey, which required ranking the seven components of investment strategies in the order of importance. This question serves to elicit people's post-video belief on passive versus active investments. Further, we asked the subjects whether they believe it is possible or impossible to beat the market in the long term.

Finally, the subjects were invited to choose one portfolio from six hypothetical portfolios if they were to invest with their own money. No fund names were given. Graphs displaying the

historical annual returns of the six portfolios were shown on screen. The portfolios varied in risk and average returns, with three labeled as actively managed portfolios and the other three as passive. Each actively managed portfolio had the same net-of-fee return and risk as a corresponding passive portfolio.[12] People were also informed that if they were selected to receive the $3,000 award, they would receive it in the fund portfolio which they picked in this question.

After the subjects completed the post-video survey and before they left the lab, we showed them a "debrief" video that was designed to neutralize any potentially misleading information presented by the "advisor". The debrief videos were recorded by the same actors as those in the treatment videos, and had two scripts depending on whether the advice was passive or active. The debrief highlighted the conflicts of interest facing advisors who are employed by fund companies or compensated by commissions, how the agency conflict can lead them to recommend actively managed funds, and that academic research found only limited merit of active management.

2 Measurement and Random Assignment

2.1 Answers to Pre-Video Investment Strategy Ranking Question

We extract people's prior beliefs about active versus passive management from their answers to the pre-video ranking question. This question asked people to rank seven different components of investment strategy in the order of importance. These components were carefully selected to represent a mix of goals and features related to passive investment, active investing, and some that are neutral or irrelevant. The components were presented in a random order. The post-video ranking question is identical to the pre-video ranking question, and the post-video beliefs are assessed in the same way.

We show the summary statistics of answers to the pre-video ranking question on the seven investment strategies in Table 2. The ranking answers for each strategy range from the lowest importance 1 to the highest importance 7. The *Diversification* strategy has the highest average rank of 5.07, and the *Selling Funds That Had Bad Performance Last Year* strategy has the lowest average rank of 2.10. The reason could be that many people heard about praises of diversification, possibly

12. By matching the pairs of portfolios on net-of-fee returns, we ensure that participants' decisions to choose an active or passive portfolio were not influenced solely by fee considerations.

from school or financial media, but could not see the value of selling losing positions.[13]

[Table 2 About Here]

2.2 Construction of "*Pro-Passive*" Score

We use these rankings to construct an ex-ante belief score on the passive-active spectrum. Based on academic theory, we expect *Diversification*, *Minimizing Risk*, and *Minimizing Fees* to correlate with passive beliefs; *Picking Good Stocks*, *Picking Good Fund Managers*, and *Timing the Market* to associate with active management; and *Selling Poorly Performed Funds* to be uncorrelated with either. However, investors' beliefs may not align with this classification, thus, we first examine the revealed correlations among people's rankings.

Table 3 presents the pair-wise correlations between the component rankings, as well as their correlations both with the financial knowledge score (to be explained in the next sub-section), and with the self-ranked financial literacy. Our goal is to identify the belief components that are more inclined toward active or passive investment strategies, which we will refer to as "pro-active" and "pro-passive" beliefs in the rest of this paper.

The rank of *Diversification* has a significant negative relationship with *Picking Good Fund Managers*, *Picking Good Stocks*, *Timing the Market*, and *Selling Poorly Performed Funds*, all of which are representative of the philosophy of active management, suggesting *Diversification* be categorized as a pro-passive belief component. For the same reason, *Minimizing Fees* is a clear indicator for the pro-passive belief, though *Diversification* and *Minimizing Fees* appear to be uncorrelated with each other.

Picking Good Stocks and *Timing the Market* are strongly negatively correlated with both *Diversification* and *Minimizing Fees*, and we count for them as pro-active beliefs. *Picking Good Fund Managers* is potentially a component of pro-active beliefs, but it appears negatively correlated with both passive and active beliefs, and in particular has a strong negative correlation with *Timing the Market*. In the same vein, *Minimizing Risk* and *Selling Poorly Performed Funds* are also irrelevant to beliefs on whether passive or active management is important, because they are ambiguously related to more clearly narrated strategies like *Timing the Market* and *Minimizing Fees*.

13. For example, due to loss aversion (Tversky and Kahneman 1992).

Together, Table 3 suggests that the following four components are the most central to beliefs on passive versus active investments, and we use them to construct our main belief score: *Diversification* and *Minimizing Fees* for pro-passive, and *Picking Good Stocks* and *Timing the Market* for pro-active.

[Table 3 About Here]

We define a 4-point classification scheme to measure investment beliefs on the active-passive spectrum. Starting with an initial value of zero, we add 1 if *Diversification* is ranked among the top three most important components, and subtract 1 if it is among the bottom three. We repeat this step for the ranking of *Minimizing Fees*. Conversely, we add 1 if *Picking Good Stocks* is among the bottom three components, and subtract 1 if it is among the top three. This is repeated for the ranking of *Timing the Market*. We call the resulting metric the "*Pro-Passive Score*" of a participant. The largest possible Pro-Passive Score is 4, which indicates that the participant has strong preference for passive management in their pre-video belief. The smallest possible value -4 indicates the opposite extreme that the participant has a strong prior preference for active management.

Figure 1 Panel A plots the distribution of the 4-point Pro-Passive Score. Based on the distribution, we categorize the participants with positive scores as the *Pro-Passive* type and those with non-positive points as the *Pro-Active* type. In robustness checks, we single out the participants with zero point as the *Unclear* belief group, while leaving the positive-scored participants in the Pro-Passive group and negative participants in the Pro-Active group, and the results remain unchanged. We explore alternative approaches to measure beliefs and obtain similar results. These alternative measures are discussed in Appendix B.

[Figure 1 About Here]

2.3 Financial Knowledge Score

In the pre-video survey, we use eight questions that are designed to test the participant's knowledge on financial investments. Details of each question are shown in Table 4 Panel A. These eight questions are shown to people in a random order in our pre-video survey. If we sort the eight questions by the percentage of right answers in our sample, one question about the meaning of owning stock turns out to be the easiest one, five questions cluster at the medium level, and two questions are the hardest (Table 4 Panel B).

These eight questions were mainly derived from the questions widely used in the existing literature of measuring financial literacy. For example, the "risk diversification" question (Q5) was taken from one of the three questions, which are later known as the "Big Three", piloted in the 2004 Health and Retirement Study (HRS) by Lusardi and Mitchell (2008). The "compound interest" question (Q2) was adapted from interest compounding question from the "Big Three". The "time value of money" question (Q3) is the same as one of the five *Basic Literacy Questions* in van Rooij, Lusardi, and Alessie (2011). Three other questions (Q4, Q6, Q8) are from the *Advanced Literacy Questions* in van Rooij, Lusardi, and Alessie (2011). The remaining two questions are relatively new. The "percentage changes" question (Q1) aims to test the numeracy of how percentage changes are calculated, and the "mutual fund fees" question (Q7) is designed to test people's basic knowledge of how annual management fees are charged.

[Table 4 About Here]

In order to check whether our knowledge questions reasonably measure the financial literacy level (i.e., whether the three-level classification of knowledge questions is reasonable), we test whether participants act consistently given the three-level grouping by difficulties. In Panel C of Table 4, we show the results of consistency checks. First, for people who answered the two hard-level questions (Q4 and Q6) right, they indeed perform better on average (i.e., higher right %) in lower-level questions than the whole sample. For example, the average correct rate among the sub-sample who answered the hard questions right is 87.27% for the easiest question about the meaning of owning stock, while the whole sample average is 79.27%. Second, for people who answered at least three out of the five medium-level questions (Q1, Q2, Q3, Q5, and Q7) right, on average they have higher correctness in answering the easy question (Q8) than the whole sample (i.e., 88.58% versus 79.27%). Third, for people who answered the easy question right but got at least three out of the five medium-level questions wrong, they perform much worse (i.e., lower right fraction) in hard questions than the whole sample average right fraction.[14]

Summary statistics of the knowledge score can be found in Table 2. The minimum of knowledge score is 0, which means the participant gets no knowledge question right; the maximum is 8, which

14. We also compare the accuracy rates in our sample with those in the literature. The details are presented in Appendix C.

means the participant gives right answers to all of the questions. Table IA.1 shows a monotonic increase in financial literacy as education level rises.[15] In addition, the knowledge score has a strong positive correlation with self-assessed financial literacy (see Table 3) and is positively associated with having a retirement account, investing in stocks, as well as being male and older, though it has no significant correlation with whether the participant uses a financial advisor or reports high trust in financial institutions (see Table IA.2).

Figure 1 Panel C plots the distribution of the knowledge score among the Pro-Passive and Pro-Active subjects. Pro-Passive people on average have higher financial knowledge scores, however, the two distributions have substantial overlap and imply that the groups based on prior beliefs are not purely an approximation for financial literacy. Table IA.3 reports the correlation between prior beliefs and participants' characteristics. In addition to the *Knowledge Score*, pro-passive beliefs are also associated with having a retirement account and a college degree, both of which are linked to higher financial literacy.

2.4 Self-Assessed Financial Knowledge

The ability to make personal financial decisions relies not only on actual financial knowledge but also on an individual's self-perception and confidence in their own knowledge. To gauge this confidence we included two questions in the pre-video survey. The first question asked participants to rate their overall knowledge of investing on a scale from 1 (not knowledgeable) to 7 (very knowledgeable). The second question requested participants to estimate their percentile rank among U.S. individual investors. Summary statistics for both measures are presented in Table 2. These two variables exhibit a high correlation of 0.88, but a significant number of participants did not answer the percentile rank question (which was arguably harder). Therefore, we choose the 7-point self-assessment as the primary measure of confidence.

We expect that self-assessment of financial knowledge should have a positive correlation with our more objective measure of *Knowledge Score*. This is confirmed by the strong correlation shown in Table 3. Additionally, we plot the distribution of self-assessed financial knowledge for each

15. Though the majority of participants in our experiment hold a college degree or higher, Table IA.1 suggests education level serves as a close proxy for financial literacy. Our findings on the difference between high and low financial literacy remain robust when comparing the sub-samples with and without college degrees.

level of actual knowledge score in Figure 2. In addition to re-confirming the correlation, this figure also suggests there is significant variation in self-assessment within each level of actual knowledge. Nonetheless, extreme over- or under-confidence is relatively uncommon among the experiment participants.

[Figure 2 About Here]

Confidence can potentially affect the outcomes of our experiment in two ways. First, confidence influences the expected precision of both the prior belief and the advice, thereby affecting the weights individuals assign to each when forming their posterior beliefs. More confident individuals may place relatively more weight on their prior beliefs and less on the advice provided. Second, confidence may interact with how people perceive the quality of the two types of advice. Specifically, more confident individuals might find active management more attractive because they feel capable of selecting top fund managers. In contrast, less confident individuals might prefer passive management to avoid the additional decisions involved in choosing managers.

In our empirical analysis we focus on the variation in confidence that is orthogonal to actual financial knowledge to isolate its own effects. To do so, we perform an OLS regression of self-assessed financial knowledge on the actual knowledge score and use the residuals from this regression. These residuals represent the component of confidence conditional on actual knowledge and have a mean of zero. For ease of interpretation, we further normalize this confidence measure to have a standard deviation of one.

2.5 Verification of Random Assignment

Independent of their answers to the pre-video ranking question that captures the prior beliefs on passive versus active management, we randomly assigned participants into treatment arms that show the subjects a video where an advisor recommends either a passive or an active investment strategy. The pre- and post-video surveys are the same for all of them. A total of 521 valid responses were obtained from our experiment,[16] in which 265 were assigned to be in the active investment advice

16. In order to screen out those participants who are not paying attention when answering the questions, we set out screener questions in several positions in the survey and dropped the invalid responses.

group ("*Active Video*"), and 256 in the passive investment advice group ("*Passive Video*"). [17] The random assignment of people into the two types of investment advice treatment videos, combined with our classifications of Pro-Passive and Pro-Active prior beliefs, leads to a 2-by-2 division of our whole sample. Table 1 Panel B shows the sizes of the treatment cells.

To assess the quality of random assignment, we examine the observed differences between individuals assigned to watch the two types of videos. We test the differences in means which are presented in columns 1-2 of Table 5. Some variables, such as gender and age, are directly from pre-video survey responses, while others, like knowledge score and prior belief, are constructed from answers to pre-video questions. The number of observations for some variables is less than 265 for the active investment advice group or less than 256 for the passive investment advice group due to some individuals choosing "I do not know" or "I do not want to answer" for certain survey questions. Column 3 shows the p-value of the t-test for each variable. None of the p-values is statistically significant, indicating that all co-variates are balanced between the two groups. This suggests effective randomization of the subjects at least according to their observable characteristics.[18]

[Table 5 About Here]

3 Perception of Advice

3.1 Differences in Advice Ratings Across Treatment Groups and Financial Literacy

We begin by examining whether the different treatments affect how the subjects evaluate the quality of the advice. The main outcome variable comes from the post-video survey asking: "In general, do you agree with what the advisor recommended?" People were required to choose from a Likert scale for these question, which ranges from 1 (strongly disagree/not very believable) to 9 (strongly agree/very believable). The mean rating is 6.44 and the standard deviation is 1.71 (see Table 2).[19]

Our baseline regression analysis follows an OLS specification:

17. The video recorded by the two male advisors are watched by 101 and 161 participants respectively; the video recorded by the two female advisors are watched by 97 and 162 participants respectively.

18. We repeat the balance test on the two treatment groups conditional on people's prior beliefs and present the results in Tables IA.4 and IA.5 in Appendix D. Although a few variables are not perfectly balanced within the sub-samples, our results remain consistent regardless of whether these imbalanced variables are included as controls.

19. Similarly, we collected the subjects' opinions on whether the advice was convincing, whether the advisor was likable, and whether they would return to the advisor in the video with their own money. Analyses of these other measures are discussed later.

$$Y_i = \alpha + \beta\ Prior\ Belief\ \&\ Video\ Treatment\ Dummies_i + Advisor\ FE_i + \varepsilon_i \quad (1)$$

The dependent variable Y_i represents participants' evaluations of the advice in this section. The main independent variables of interest are dummy variables representing the 2-by-2 treatment groups, categorized based on participants' prior beliefs and the type of advice video they watched. We also estimate variations of this equation where the dummy variables represent specific subsets of the four treatment groups, such as those grouped by the type of advice or by whether the advice contradicts pre-existing beliefs. Importantly we include advisor fixed effects in all regressions, which allows us to single out the effect of the advice content from the characteristics of the advisor. α is a constant and ε_i is an error term.[20]

Table 6 column 1 indicates that advice contradicting prior beliefs is rated lower (0.64 point higher on a 9-point scale), indicating that people employ existing beliefs when evaluating financial advice. Column 2 shows that, on average, participants perceive the passive advice as higher quality. These magnitudes are about one third of the standard deviation of the dependent variable. Further evidence in Table IA.6 demonstrates that individuals with stronger priors exhibit stronger reactions to financial advice: they respond more favorably to advice aligned with their priors and more negatively to advice opposed to the priors. These results further support the finding in column 2 of Table 6, i.e. participants are consistent in their responses to financial advice based on the level of their prior beliefs.[21]

Columns 3-4 examine the effects of all four treatment groups. The regressions replace the treatment dummies with three of the groups and omit Pro-Active subjects watching the Active Video as the baseline group. Given the correlation between pro-passive beliefs and financial literacy, we control for the direct effects of financial literacy on the responses to both videos by including the interaction between the *High Literacy* dummy variable with the two types of videos in equation 2 below. *High Literacy* is an indicator for whether the *Knowledge Score* is six or above.[22] This

20. We drop one of the advisor dummy in the advisor fixed effects, so the constant can be estimated.

21. The heterogeneity examined here focuses on the "first moment," or the level of belief. In the next subsection, we explore the "second moment," where we try to capture the certainty or confidence in these beliefs.

22. This classification results in two sub-samples (*High Literacy* and *Low Literacy*) that are almost equal in size. Moreover, 94% of

ensures that the estimated effects of the 2-by-2 treatment groups are not simply driven by difference in financial literacy.

$$Y_i = \alpha + \beta\ Prior\ Belief\ \&\ Video\ Treatment\ Dummies_i + \eta\ High\ Literacy_i \times Video\ Treatment\ Dummies_i + \delta\ Controls_i + Advisor\ FE_i + \varepsilon_i \tag{2}$$

Estimation of this equation is presented in columns 3. Consistent with column 2 we observe that people agree less with advice that is opposite to their prior beliefs. Both pro-active individuals watching the passive video and those pro-passive watching the active video exhibit negative coefficients relative to the omitted group (pro-active individuals watching the active video). In contrast, pro-passive individuals watching passive video tend to give slightly higher ratings. There is also some asymmetry in the disagreement, with the pro-passive group showing particularly strong disagreement with the active advice video. Further, as shown by the coefficients on the interaction terms, people with high financial literacy are significantly less likely to agree with the active video. Nevertheless, the pro-passive group's low rating of the active video persists even after accounting for the potentially higher literacy level of the pro-passive participants.

Although including control variables is not strictly necessary in a randomized controlled experiment, we include participant characteristics as control variables in column 4 as they may improve the precision of our estimates. These control variables include continuous measures of actual and self-perceived financial literacy (ranging from 0 to 8 and 1 to 7, respectively), as well as measures of experience with the financial sector, such as indicators of having a retirement account, investing in stocks, having a financial advisor, and a rating of the degree of trust in financial institutions (1 to 7). Moreover, we include demographic variables, such as gender, age, whether they have a college degree and employment status. We find that the main coefficients change little when controls are introduced, confirming the effectiveness of our randomization, and some become more precisely estimated. The estimated constant is lower, as the covariates explain part of the outcome variable for the omitted group. The coefficients on the control variables (unreported) indicate a

the *High Literacy* subjects answered at least one "hard" question (as indicated in Table 4) correctly, and 48% answered both hard questions correctly in the financial literacy test, so the *High Literacy* dummy seems to correlate with a high degree of financial knowledge.

strong correlation between trusting financial institutions and agreeing with the advice.

[Table 6 About Here]

In columns 5 and 6, we split the sample by high and low financial literacy. Individuals with high literacy may be better positioned to assess the logic of the advice and its fit with the data which is either provided as part of the advice or informed by the individual's prior experiences. In contrast, those with low financial literacy may lack the ability to adequately evaluate the advice. The results indicate an important difference: The high-literacy group shows clear and distinct reactions across treatment groups. In contrast, the low-literacy group does not exhibit significant variation in responses. This finding suggests that less sophisticated investors may have difficulty evaluating financial advice, generally agreeing with any advice presented to them.

We present the same analyses in Table IA.7 using the rating on *Advice Convincing* as the dependent variable. This question, also part of the post-video survey, asked participants to rate how convincing they found the advice on a scale from 1 to 9. The results are qualitatively and quantitatively similar to those in Table 6, suggesting robustness under an alternative framing of the survey question.

3.2 Role of Confidence

In Table 7 we explore how confidence influences people's evaluation of financial advice. This analysis is particularly relevant when the narrative in the video contradicts one's prior belief, as confidence can then affect the relative weight given to prior beliefs versus the advice. In columns 1-3, we interact the indicator for advice contradicting priors with our measure of confidence, based on self-assessed financial knowledge, and examine the full, high-literacy, and low-literacy samples, respectively. The dependent variable is the rating on agreeing with the financial advice. The *Confidence* measure, as explained in Section 2.4, is the residual of the self-assessment after accounting for true financial literacy, thus, it is uncorrelated with true financial literacy. The measure has a mean of zero and a standard deviation of one. The results indicate that when faced with advice that contradicts their prior beliefs, individuals with higher confidence are less likely to agree with the advice. This effect is especially pronounced among those with higher financial literacy.

In columns 4-6, we examine how confidence interacts with the treatment effects across the 2-by-2 groups. Within the high-literacy sub-sample, the coefficients on the interaction terms between the treatment groups and *Confidence* show relatively large coefficients, reinforcing that financially literate and confident individuals tend to rate advice that contradicts their prior beliefs more negatively. However, these effects are not statistically significant at traditional levels. In contrast, for the low literacy group, confidence has little influence, which might suggest that they struggle to form clear evaluations of the advice they receive. These results also show that less financially literate but over-confident individuals (those who self-rank their knowledge higher than it actually is) are not particularly resistant to advice that challenges their prior beliefs.

3.3 Ratings of "Advisors"

While we focus on how people respond to the financial advice content, we also examine whether they form assessments of the characteristics of the advisor featured in the video. Table 8 shows the effects of the treatment groups on whether the subject finds the advisor to be likable (columns 1-3), and whether they would return to the advisor with their own money (columns 4-6). Both dependent variables are again on a 9-point Likert scale.

The estimated treatment effects on the advisor's likability are small and insignificant. In addition, there is no difference between the high- and low-Literacy sub-samples. This suggests experiment participants did not mix the content of the advice with the personality traits of the advisor, This suggests that experiment participants did not confuse the content of the advice with the advisor's personality traits, indicating that they evaluated the advice content in an objective, arms-length context.[23]

When examining whether subjects would return to the advisor with their own money - a proxy for their "trust" in the advisor - we find that financially literate individuals are less likely to return to the advisor recommending the active strategy, consistent with their rating of the advice. Another finding is that although pro-passive subjects rated the passive advice significantly higher compared with the reference group, they are not more likely to return to the advisor who recommends the passive strategy. If generalized, this result implies that recommending passive funds is unlikely to

23. We also see no effect when using the subject's rating of the advisor's competency as the dependent variable. Those results are omitted.

be profitable for financial advisors.

4 Update of Investment Beliefs

4.1 Shifts in the Pro-Passive Score

We now examine the changes in people's beliefs about active versus passive management following the video treatment, starting with the *Pro-Passive Score*. From the post-video ranking question (identical to the pre-video question), we create a *Posterior Pro-Passive Score*, which again ranges from -4 (strongly pro-active) to +4 (strongly pro-passive), and compute the difference between the posterior and the prior. A positive change means a subject's belief becomes more pro-passive, and vice versa.

Figure 3 offers graphical evidence of how beliefs shifted. Panel A plots the levels of the posterior beliefs, showing a marked divergence among people who shared the same prior but watched different videos: beliefs shifted toward the strategy recommended in the corresponding video. The asymmetric effects of the two types of videos are also evident: after the passive video, a large portion of the subjects adopted a strong pro-passive belief. In contrast, those who watched the active video exhibited more varied posterior beliefs.

Panel B plots the distributions of changes in pro-passive scores. In the top row, representing treatment groups where the advice video aligned with people's prior beliefs, changes cluster around zero, implying that beliefs respond little when financial advice confirms existing views. This result is consistent with the prediction of Schwartzstein and Sunderam (2021). The bottom row indicates that when the advice in the video contradicts prior beliefs, both videos generally shift beliefs toward the video's narrative, with the passive video having a stronger impact.

[Figure 3 About Here]

Figure 4 illustrates the changes in beliefs among participants with different financial literacy levels, with Panel A and Panel B displaying high- and low-literacy sub-samples, respectively. As discussed earlier, individuals with high financial literacy may update their beliefs based on their evaluation of the advice. In contrast, those with lower financial literacy might be more easily influenced by the advice due to weaker prior beliefs or limited external knowledge, or they might

disregard the advice altogether, either because of difficulty understanding it or overconfidence in their own judgment.

In Panel A, the bottom two charts reveal that high-literacy individuals responded differently to the two types of videos. After watching the passive video, high-literacy participants originally inclined toward active management shifted their beliefs by +2.8 toward a pro-passive stance (bottom left). Conversely, those with pro-passive beliefs who watched the active advice video shifted only 0.85 toward pro-active (bottom right). 30% of the group had zero change in their beliefs.

Panel B, particularly the bottom row, reveals that the low-literacy subjects are strongly swayed by both types of advice. The mean shifts in beliefs after the passive and active advice are +3.3 and -2.3, respectively, indicating a high and almost unconditional receptivity to advice. This is consistent with the earlier result that this group rates advice similarly regardless of its content and their prior beliefs. This finding contrasts with prior literature, which suggests that low-literacy individuals may be less inclined to adopt financial advice. However, at the same time, their lack of financial sophistication puts them at a disadvantage when it comes to discerning the quality of advice.

[Figure 4 About Here]

Table 9 presents the regression analysis. The dependent variable is the change in the four-point *Pro-Passive Score*. The model in column 1 regresses this dependent variable on an indicator *Video Direction* (± 1) that equals +1 for the passive video and -1 for the active video. The coefficient indicates the magnitude of belief shifts toward the video's suggested investment strategy, showing a shift of 1.34 points on a scale of -4 to +4. This is an average effect without conditioning on the investor's prior or the type of advice. In column 2, we interact *Video Direction* with the participants' confidence in their own financial knowledge, measured as the residual of the self-assessed financial knowledge after accounting for true financial literacy. The result indicates that individuals whose confidence is one standard deviation above the mean update their beliefs by 15% ($= 0.205/1.343$) less according to the advice, compared with individuals with average confidence.

We then estimate Equation (1) in column 3. The group with pro-active priors who watched the active video is omitted.[24] Relative to this reference group, those with pro-active priors who viewed

24. Equation (2) yields very similar estimates, and the inclusion of control variables for participant characteristics has minimal

the passive video show a significant 3.1-point shift toward pro-passive beliefs. The coefficient for the pro-passive group who watched the passive video group is much smaller, suggesting less updating when the advice confirms prior beliefs. However, it is significantly different from zero, implying that the pro-passive and pro-active groups' beliefs became more polarized after watching videos that support their existing views. For individuals with pro-passive priors who watched the active video, the coefficient shows a 1.6-point shift toward pro-active beliefs, which is less than the effect of passive advice on the pro-active group. We then interact the treatment group dummies with *Confidence* in column 4. The coefficients on these interaction terms confirm that the more confident individuals are less likely to revise beliefs in the direction of the video. However, this effect is absent among the pro-passive individuals who watched the active video. As indicated by Figure 4 (to be confirmed by columns 3-6 of the current table), the treatment effect of that group is mainly driven by the low-literacy individuals and Table 6 indicates confidence has little impact for them.

[Table 9 About Here]

We break down the sample by the level of financial literacy in columns 3-6. The main differences between the two sub-samples based on financial literacy are the coefficients for the *Pro-Passive, Active Video* treatment group. Column 3 shows that the active video does not influence high-literacy individuals with pro-passive beliefs, but column 5 shows that it substantially changes the beliefs of low-literacy participants holding similar initial views. The magnitudes of the coefficients 3.03 and 2.57 are not statistically different. Thus, we fail to reject the null hypothesis that low-literacy individuals respond equally to the two types of financial advice.

We allow the treatment effects to vary by confidence in columns 4 and 6. Interestingly, although financially literate individuals generally responded positively to the passive video, even if they held pro-active prior beliefs, the coefficient on the interaction term of *Pro-Active, Passive Video* with *Confidence* is significantly negative. This implies that confidence reduces the openness of these individuals to the passive advice. This effect may stem from their more well-defined prior beliefs or from a sense of greater capability among confident individuals to successfully engage in active

impact on the results. To conserve space, we report only the baseline estimates. We obtain a small and insignificant effect on the treatment group of Pro-Active, watching the Active Video, if the regression includes all four treatment group dummies and suppress the constant term.

strategies.

In Table 10 we present the same analysis using the level of the posterior *Pro-Passive Score* as the dependent variable. The main conclusions remain the same: both prior beliefs and financial advice significantly impact posterior beliefs. When the financial advice aligns with pre-existing beliefs, it leads to the most extreme ex-post beliefs. In contrast, those who change their views in response to opposing advice adopt more moderate beliefs.

In Table IA.8, we present several robustness tests of belief shifts, with the motivations outlined in Section 2.2 and the measure construction detailed in Appendix B. All alternative measures show similar results. We further verified that the observed changes in belief scores are not driven by a single belief component. Instead, participants' rankings of all investment strategy components (except for 'selling poorly performed funds') shifted in ways that align with the overall belief changes.

4.2 Shifts in Beliefs about Beating the Market

To mitigate the possibility that participants might change their rankings of investment strategy components based on what they thought the experimenters expected, we included another question in the post-video questionnaire asking whether participants believed it was possible to consistently outperform the market. This aspect of belief did not factor into the rankings used to construct the pro-passive score, but it plays a crucial role in how investors value active and passive strategies: Those who believe in a higher likelihood of beating the market are typically more inclined to prefer active management.

The question asked respondents to rate their agreement with the statement, "It is possible to always beat the market," on a scale of 1 (strongly disagree) to 7 (strongly agree). Analysis of answers to this question is presented in Table 11. The result from the full sample shown in column 1 indicates that participants with a pro-passive prior who watched the passive video were least likely to believe in the potential to outperform the market, while the omitted group (pro-active individuals who watched the active video) expressed the strongest convictions in beating the market. The beliefs of the other two groups were similar and leaning slightly towards skepticism about beating the market. Column 2 examines the interactions between treatment dummies and our confidence

measure and finds that confidence does not significantly influence the treatment effects.

Columns 3-4, focusing on participants with high financial literacy, show large negative coefficients on *Pro-Passive, Active Video*, and these coefficients are not significantly different from those on *Pro-Passive, Passive Video*. These results suggest that the active video does not significantly alter the beliefs of pro-passive participants with high literacy, who consistently believed that beating the market was unlikely. In contrast, columns 5-6, focusing on low-literacy participants, reveal a small and insignificant coefficient on *Pro-Passive, Active Video*, indicating that their beliefs after the viewing the active video were similar to those of the omitted group *Pro-Active, Active Video*. This shift suggests that even initially pro-passive participants adopted the belief on the possibility to beat the market, aligning their views with those who were pro-active from the start. These results support the conclusions in Gruber (1996) and French (2008) that the clientele of actively managed funds may be influenced by financial advisors or marketing materials to believe in stock-picking.

5 Portfolio Choice

In the post-video questionnaire, participants were asked to select one from six portfolios as if they were to invest their own money. They were informed that the $3,000 prize money they might win would be invested in their chosen portfolio. Each portfolio's historical annual returns were displayed in a bar chart, with three portfolios labeled as actively managed and the other three as passive. The fund names were not provided. These portfolios displayed different risk-return profiles to appeal to various risk preferences. Each passive portfolio was chosen to match the average historical returns of a corresponding actively managed portfolio after fees.

Figure 5 presents participants' portfolio selections and highlights the influence of both prior beliefs and financial advice. Those with pro-active priors were more likely to choose an actively managed fund compared to those with pro-passive priors (70% vs. 49% among those who watched the active advice, and 94% vs. 81% among those who watched the passive advice). In addition, the passive video increased the likelihood of selecting a passive index fund (81% vs. 25% for those with pro-active priors and 94% vs. 49% for those with pro-passive priors). Interestingly, despite the combination of a pro-active prior belief and the active video fostering the strongest pro-active beliefs, a quarter of that group still chose a passive fund.

[Figure 5 About Here]

Figure 6 breaks down the fund choices by financial literacy levels. While the main patterns of Figure 5 remain, we note that when the advice and the prior belief conflicted (the middle two bars), individuals with high financial literacy were more likely to choose a passive fund than those with low literacy. This observation reinforces the earlier findings regarding their post-treatment beliefs.

[Figure 6 About Here]

Table 12 estimates the effects of the treatment groups in a linear probability model.[25] The dependent variable equals one (zero) if the subject chose a passive index fund (actively managed fund). Subjects who replied "Do not want to answer" are dropped from this regression analysis. The treatment effects mirror the patterns in Table 10, suggesting that portfolio choices are generally consistent with post-treatment beliefs. Furthermore, priors appear to have less influence than the advice on portfolio choices. For example, column 1 suggests that watching the passive video increases the likelihood of choosing a passive fund by 58% (0.576) for people with pro-active priors and by 47% (0.705-0.237) for those with pro-passive priors. In contrast, the influence of prior beliefs is much smaller, with effects of 24% (0.237) and 13% (0.705-0.576) under the active and passive video treatments, respectively. Column 2 shows very similar estimates when the treatment groups are interacted with *Confidence*, where the main coefficients represent the treatment effects for individuals with average confidence. The interactive effects with confidence are small and statistically insignificant in the full sample.

We then divide the sample by high- and low financial literacy. Columns 3 and 5 reveal distinct patterns. Among financially sophisticated individuals (column 3), the passive video has a strong influence, leading to similar portfolio selections regardless of prior beliefs. The difference between the first two groups *Pro-Active, Passive Video* and *Pro-Passive, Passive Video* is statistically insignificant. However, among the financially unsophisticated group (column 5 reveals that for the financially unsophisticated people, the effect of priors is undone after participants see the active video. Specifically, the *Pro-Passive, Active Video* group is statistically indistinguishable from the

25. The results remain similar with a Probit model.

omitted *Pro-Active, Active Video* group, while the first two groups (*Pro-Active, Passive Video* and *Pro-Passive, Passive Video*) remain significantly different (p-value < 0.01).

Columns 4 and 6 examine the effect of confidence and uncover a few nuanced findings. Among financially literate individuals, higher confidence makes them more open to the narrative of active management. This is reflected in the negative coefficients on the interaction terms with *Confidence*, indicating that all else equal, more confident (high-literacy) individuals are more likely to select an actively managed fund. In contrast, among the low-literacy sub-sample, the interaction terms with confidence are positive, and statistically significant for the groups with pro-passive priors. This suggests that while low-literacy individuals are influenced by both types of advice, those with more confidence in pro-passive priors are more likely to select a passive fund. Thus, in this sub-sample, confidence appears to measure the strengths of prior beliefs.

[Table 12 About Here]

6 Perceived Conflict of Interest

In this final section, we analyze the sub-treatment groups that provide different information about advisor compensation, as outlined in Table 1. We study whether the compensation types affect people's perceptions of advice quality and the impact of the advice on beliefs. Specifically we estimate effects of dummy variables for two sub-treatments – flat fee and commission – while the omitted category merges the groups that provide no compensation information and those that skip both the compensation information and the overview of the two types of funds. As no significant differences were found between those two groups, we combine them into a single baseline group to simplify comparisons.

Table 13 columns 1-3 examine the rating of agreement with the advice as the dependent variable. We regress this variable on the stated compensation types while controlling for the primary 2-by-2 treatments and participant characteristics.[26] Results are shown for the full sample as well as sub-samples segmented by financial literacy levels. Across the columns we consistently find positive coefficients for *Flat Fee* conditional on the advice content and people's prior beliefs. This suggests that advice from incentive-aligned advisors is perceived as higher quality compared to

26. Including or excluding controls for the main treatment groups and/or participant characteristics has little impact on the results.

the baseline. On average, advice from flat-fee advisors is rated 0.55 point higher than advice from commission-based advisors.

When we break down the effects by financial literacy in columns 2 and 3, we find that although both groups value flat-fee compensated advisors, the difference between flat-fee and commission is larger and only statistically significant for the low literacy group. Column 2 reaffirms that individuals with high literacy assess advice based on its content and how well it aligns with their prior beliefs. In contrast, column 3 indicates that low literacy participants primarily evaluate advice based on the advisor's compensation. These imply that individuals lacking financial literacy can still recognize incentives. Moreover, because they may lack the expertise to assess advice content, low literacy individuals place greater weight on incentives to gauge advice quality.

In columns 4-6, we test whether people are more likely to update their beliefs based on financial advice when it is perceived to be free of conflicts of interest. In column 4 we regress the dependent variable on an indicator (*Video Direction* = ± 1) that represents the direction of the video: +1 for the passive advice video and -1 for the active advice video. The coefficient estimates the magnitude of belief shift in the direction of the video. We further interact this variable with different types of advisor compensation.

The results in column 4 suggest that, on average, participants update their beliefs by 1.37 points toward the recommended strategy in the video. Point estimates suggest that this effect increases to 1.7 points when the advisor in the video discloses flat fee compensation, implying minimal conflict of interest. In contrast, the magnitude shrinks to 0.94 when the advice is offered by a commission-based advisor. The difference between the effects of the flat-fee and commission sub-treatments is 0.77 points, which is statistically significant with a p-value less than 0.01. Columns 5 and 6 indicate similar results within the high-literacy and low-literacy sub-samples, with the effects being more pronounced among financially less literate individuals.

[Table 13 About Here]

7 Conclusion

This paper investigates the demand side of financial advice by setting up a randomized controlled experiment that focuses on advice that recommends either active or passive investment strategies.

The experiment captures participants' prior beliefs and randomly assigns them to receive either active or passive advice.

We first show that participants, especially those with lower financial literacy, are receptive to financial advice and their posterior beliefs move in the direction of the advice they received. However, there are significant differences in the type of advice that people with high versus low financial literacy are willing to accept. Participants with high financial literacy are tend to update their beliefs strongly in response to passive advice, but not to active advice, and rate active advice very poorly. In contract, people with low financial literacy are similarly affected by passive and active advice, even independent of their priors.

These results suggest that more informed and financially sophisticated consumers are looking for specific advice that aligns with the knowledge that they have acquired and they are more confident in their own knowledge. In contrast, less financially sophisticated investors seem to be more easily swayed by any advice they receive, which could make them also more susceptible to bad advice. Our results also suggest that advisors are not uniformly constrained in the advice they can provide, and to cater to their clients "bad" priors. We see that especially less sophisticated customers are open to advice, while more sophisticated consumers might be looking for specific advice that aligns with their prior. This is an important finding since it highlights how demand side considerations can shape the supply side.[27]

Our findings also show that subjects on average understand the importance for advisors to have well aligned financial incentives. Interestingly, we find that people with lower financial literacy, tend to be more sensitive to incentive misalignment and discount any type of advice more heavily, if the advisor does not have well aligned incentives. This might suggests that these individuals are aware of their limited ability to evaluate the quality of the advice.

27. It is important to keep in mind that the priors of our participants were shaped within the US market where passive investing is already widely known.

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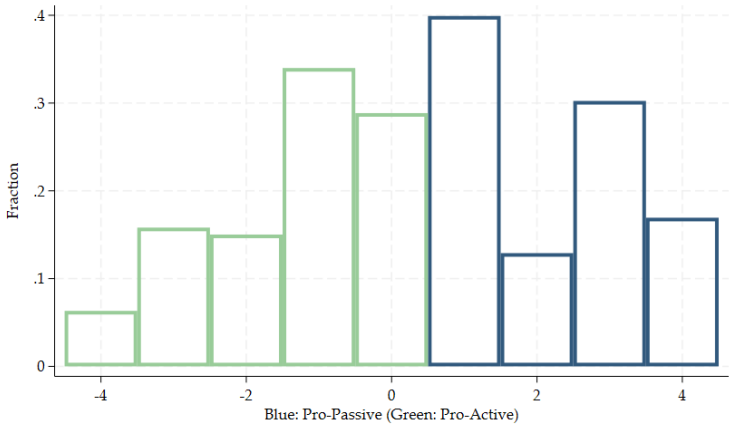
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(a) *Pro-Passive 4-Point Score*



(b) Knowledge Score

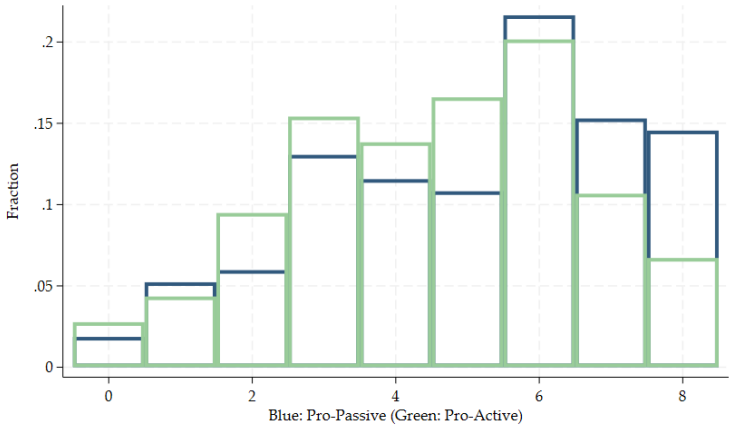


Figure 1: **Distribution of Prior Beliefs and Financial Literacy**

Panel (a) plots the distribution of the pre-video *Pro-Passive 4-Point Score* ranging from -4 to 4. This score is calculated based on participants' rankings of seven investment strategy components. Starting at zero, 1 point is added if *Diversification* is in the top three components and 1 point is subtracted if it is in the bottom three. The same process is applied to *Minimizing Fees*. Additionally, 1 point is added if *Picking Good Stocks* is in the bottom three and 1 point is subtracted if it is in the top three, with the same steps for *Timing the Market*. Panel (b) shows the distribution of the *Knowledge Score*, which counts the correct answers to eight financial literacy questions. Participants whose *Pro-Passive Score* is one or above are classified as pro-passive, indicated by the blue bars. Participants whose *Pro-Passive Score* is zero or below are classified as pro-active and indicated by the green bars.

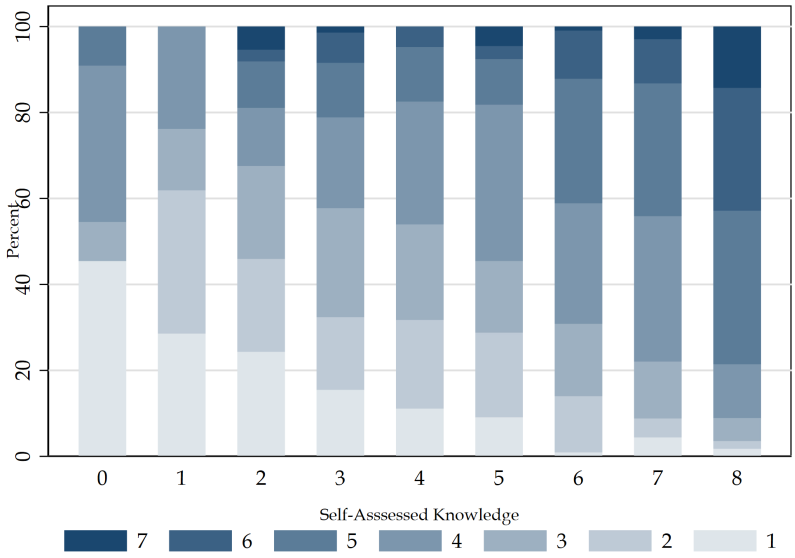
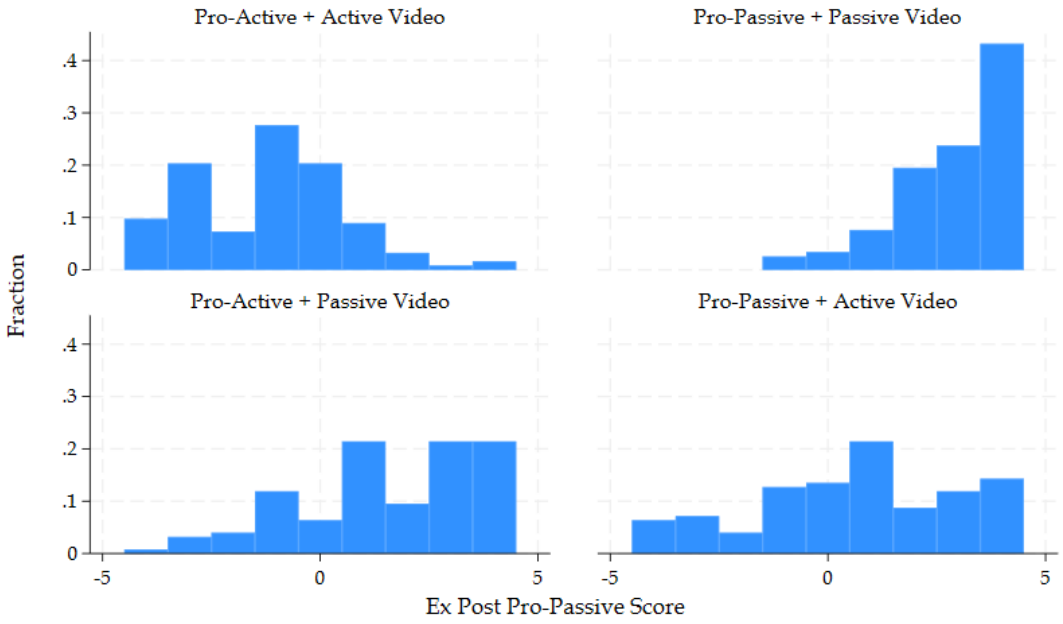


Figure 2: **Distribution of Self-Assessed Financial Knowledge**

This figure illustrates the distribution of participants' self-assessed financial knowledge levels across different actual financial literacy scores. The x-axis represents the *Knowledge Score*, ranging from 0 to 8, indicating the number of correctly answered questions in the 8-question financial literacy test. This score reflects the participants' actual financial literacy. The y-axis shows the *Self-Assessed Financial Knowledge* levels, representing how participants perceive their own financial knowledge on a scale of 1 to 7.

(a) Posterior Pro-Passive Score



(b) Change in Pro-Passive Score

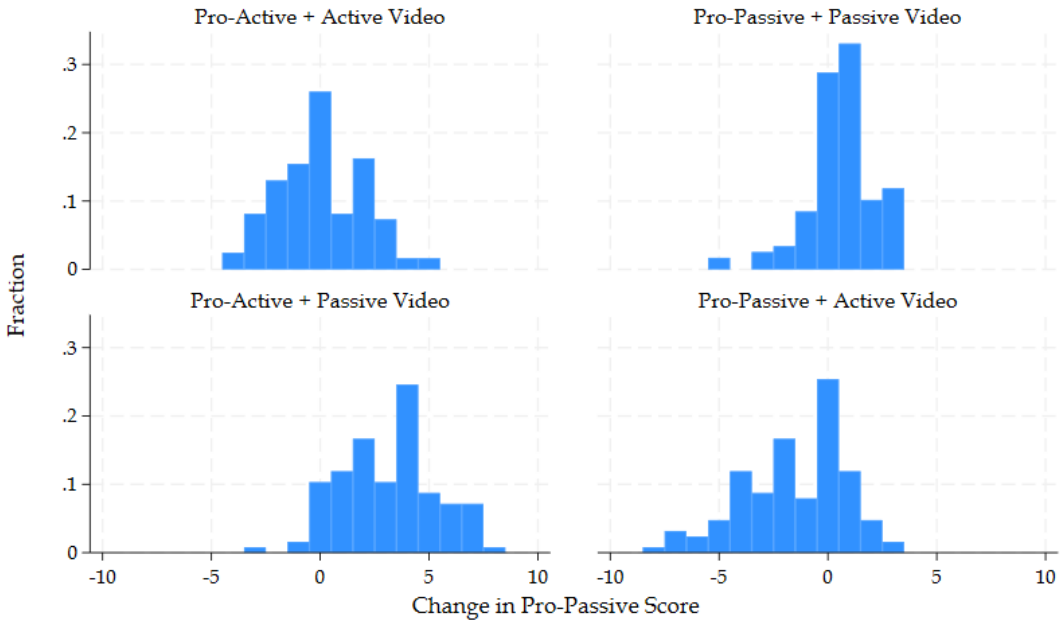
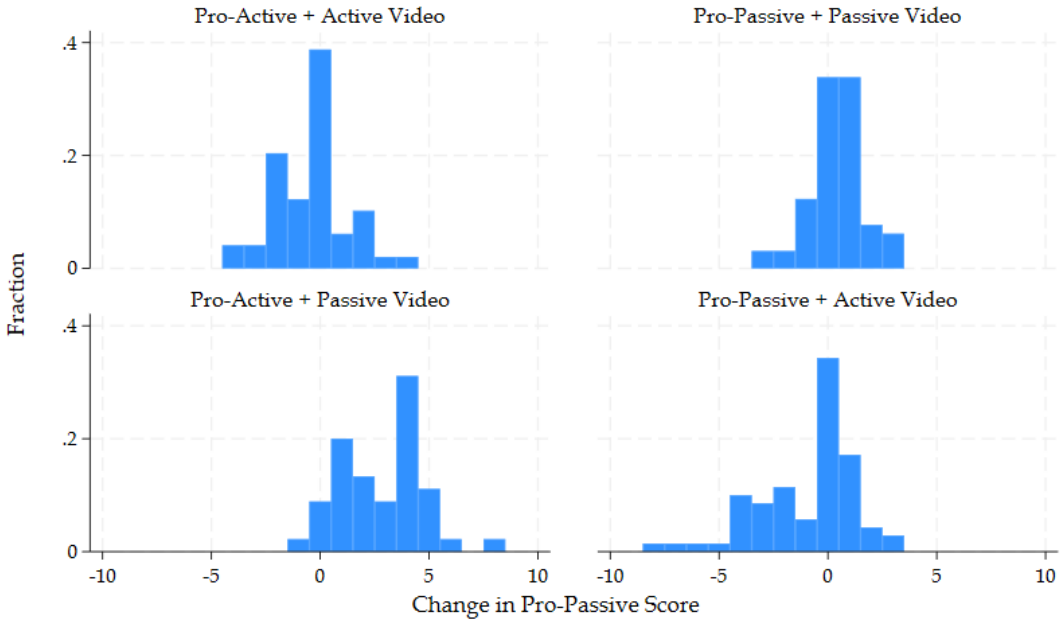


Figure 3: **Posterior Beliefs and Changes in Beliefs about Investment Strategy**

Panel A plots the distributions of the post-video *Pro-Passive Scores* for the two-by-two treatment groups. Panel B plots the changes in the *Pro-Passive Scores* from before to after the video treatment. The posterior scores range from -4 (strongly pro-active) to +4 (strongly pro-passive). The changes range from -8 to +8.

(a) High Literacy Sub-Sample



(b) Low Literacy Sub-Sample

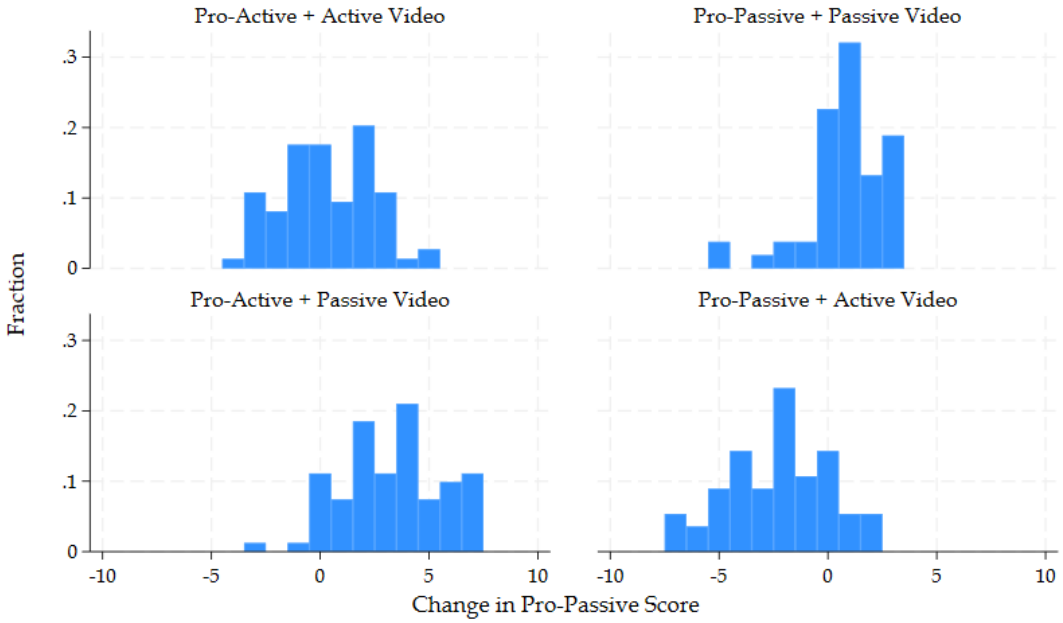


Figure 4: **Changes in Beliefs about Investment Strategy by Financial Literacy**

Panel A plots distributions of the changes in the *Pro-Passive Scores* from before to after the video treatment for the two-by-two treatment groups for the sub-sample of high-literacy subjects whose knowledge score is 6 or above out of 8. Panel B plots the changes for the sub-sample of low-literacy subjects whose knowledge score is below 6. The changes of beliefs range from -8 to +8.

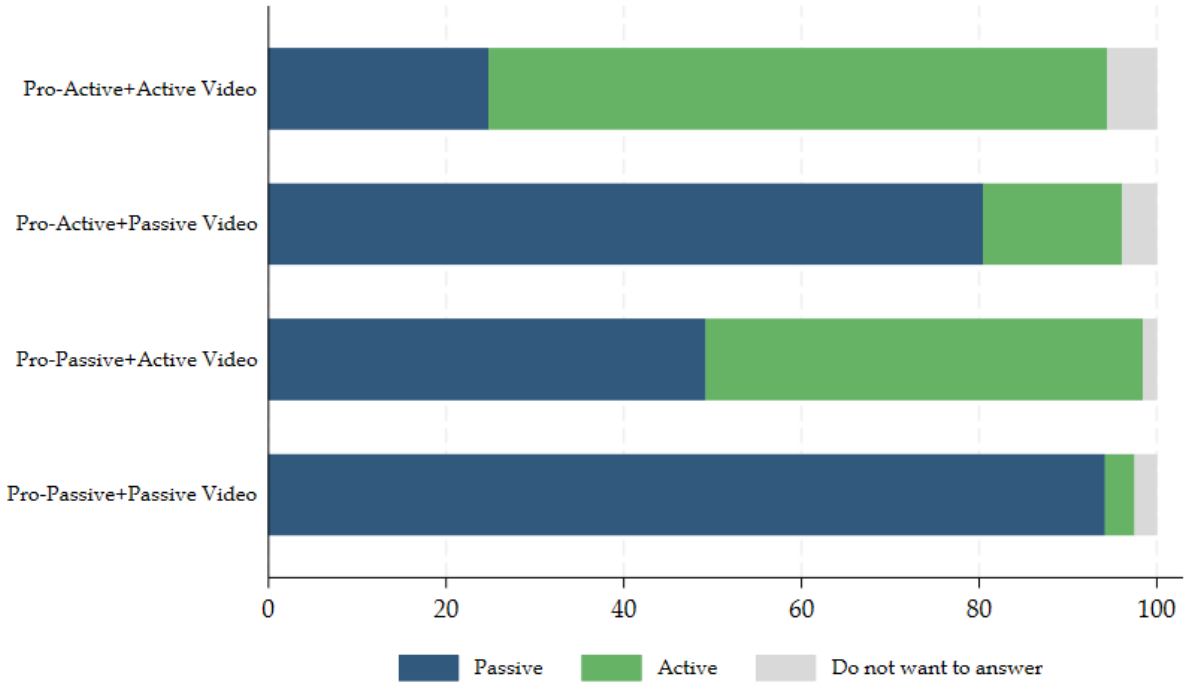
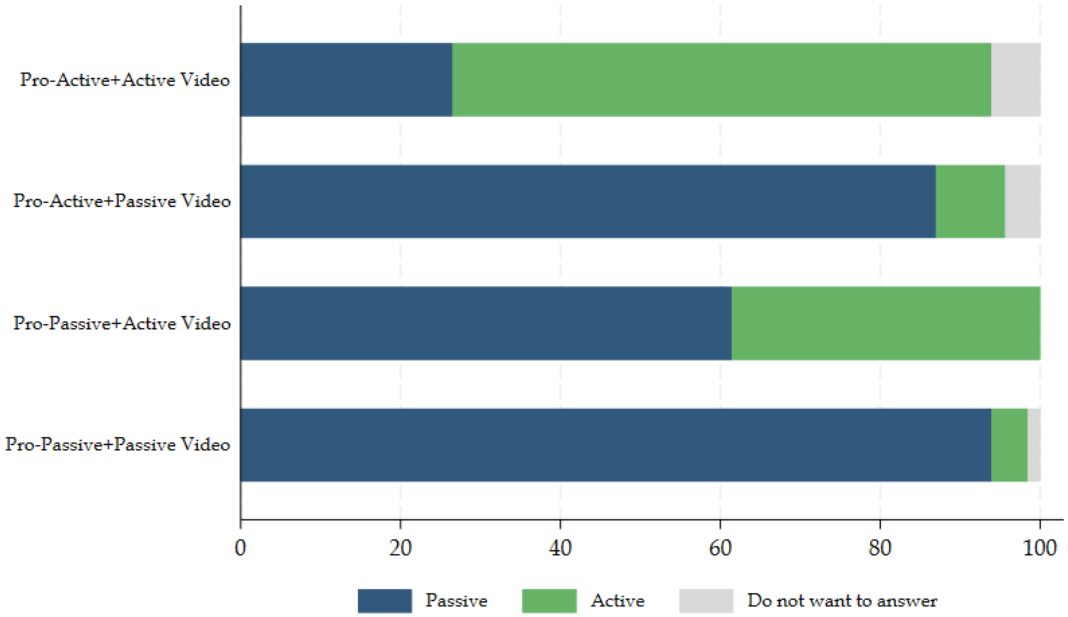


Figure 5: **Choice of Fund: Full Sample**

This figure shows by the four treatment groups the fractions of subjects choosing an index fund, an actively managed fund, or answering "Do not want to answer" in the post-video portfolio choice question.

(a) High Literacy Sub-Sample



(b) Low Literacy Sub-Sample

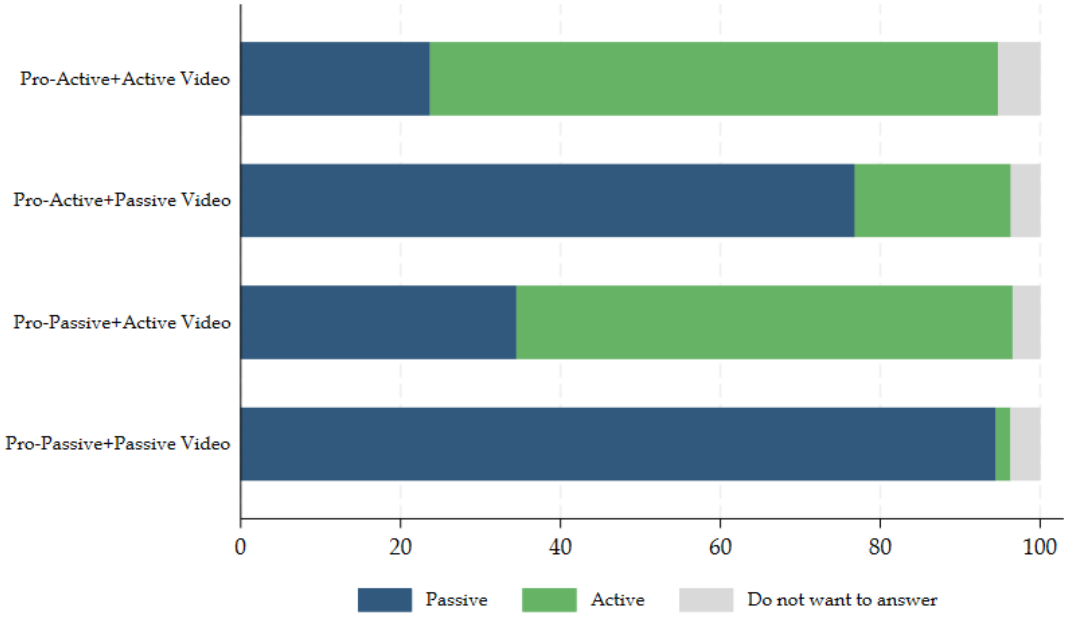


Figure 6: **Choice of Fund: by Financial Literacy**

Panels (a) and (b) show in sub-samples of high- and low financial literacy by the four treatment groups the fractions of subjects choosing an index fund, an actively managed fund, or answering "Do not want to answer" in the portfolio choice question post-video. The high-literacy sub-sample contains subjects who correctly answered at least 6 of the financial knowledge questions. The low-literacy sub-sample contains those who answered 5 or fewer questions correctly.

Table 1: Structure and Size of Treatment Arms

Panel A outlines the structure of the main investment strategy treatment arms and the sub-treatments related to advisor compensation in our financial advice videos. A check mark indicates that the video includes a certain content, whereas a cross mark indicates its absence. Panel B reports the numbers of participants in each of the main 2-by-2 treatment cells and each sub-treatment cell.

Panel A: Video Structure		**Section 1**		**Section 2**	**Section 3**	**Section 4**
		Self-intro	Compen-sation	Basics of strategies	Recommend one strategy	Reasons for recommendation
Active Video	Flat Fee	✓	Flat	✓	Active	✓
	Commission	✓	Commission	✓	Active	✓
	Skip Fee	✓	×	✓*	Active	✓
Passive Video	Flat Fee	✓	Flat	✓	Passive	✓
	Commission	✓	Commission	✓	Passive	✓
	Skip Fee	✓	×	✓*	Passive	✓

Panel B: Size of Treatment Cells

	Total	Active Video	Index Video
Pro-Active Prior	**253**	**125**	**128**
Commission	59	30	29
Flat	69	35	34
Skip fee	125	60	65
Pro-Index Prior	**248**	**128**	**120**
Commission	64	32	32
Flat	59	31	28
Skip fee	125	65	60

* Some "skip fee" videos also omit section 2 (basics of strategies). Our analysis shows skipping section 2 has no effect, so we have merged these treatments with the rest of the "skip fee" group.

Table 2: Descriptive Statistics

This table reports the summary statistics of participants' answers to the pre- and post-video questionnaires. The pre-video ranking question on investment strategies is about ranking the seven randomly ordered potential components of an investment strategy in the order of importance. 1 indicates the least important, and 7 indicates the most important. *Knowledge Score* is the number of correct answers out of the 8 financial literacy questions. *Self-Assessed Financial Knowledge* is on a scale of 1 (not knowledgeable) to 7 (very knowledgeable). *Self-Ranked Pct. Financial Knowledge* is a subject's rank of their investment knowledge as a percentile among individual investors in the U.S. and is on a scale of 0 (bottom) to 1 (top). Post-video perception of advice includes rating questions about the quality of the advice and the advisor on a scale of 1 (lowest) to 9 (highest). *Choosing Index Fund* equals one if a participant chooses an index fund in the post-video portfolio choice question.

Summary Statistics	N	mean	s.d.	min	p25	p50	p75	max
Pre-video ranking question on investment strategies								
Diversification	501	5.07	1.84	1	4	5	7	7
Picking Good Stocks	501	4.81	1.70	1	4	5	6	7
Picking Good Fund Managers	501	4.35	1.89	1	3	4	6	7
Minimizing Risk	501	4.33	1.77	1	3	4	6	7
Minimizing Fees	501	4.05	1.84	1	2	4	6	7
Timing the Market	501	3.29	1.84	1	2	3	5	7
Selling Poorly Performed Funds	501	2.10	1.45	1	1	2	3	7
Pre-video knowledge score and confidence								
Knowledge Score	501	4.91	2.08	0	3	5	6	8
Self-Assessed Financial Knowledge	500	3.74	1.56	1	3	4	5	7
Self-Ranked Pct. Financial Knowledge	436	0.44	0.23	0	0.25	0.45	0.61	0.98
Post-video perception of advice								
Agree with Recommendation	500	6.44	1.71	1	5	7	7	9
Advice Convincing	501	6.45	1.78	1	5	7	7	9
Advisor Likable	501	6.59	1.64	1	6	7	8	9
Advisor Competent	498	6.92	1.45	1	6	7	8	9
Advisor Convincing	501	6.44	1.76	1	5	7	7	9
Will Return	499	5.47	1.94	1	4	5	7	9
Post-video portfolio choice								
Choosing Index Fund	484	0.64	0.48	0	0	1	1	1

Table 3: Pearson Correlations

This table shows the Pearson correlation coefficients between *Knowledge Score*, *Self-Assessed Financial Knolwedge* and the pre-video rankings of components of investment strategies. p-values are reported in parentheses.

	Knowledge Score	Self-Assessed Knowledge	Diversification	Picking Good Stocks	Picking Good Fund Managers	Minimizing Risk	Minimizing Fees	Timing the Market
Knowledge Score	1.000							
	-							
Self-Assessed Financial Knowledge	0.444	1.000						
	(0.000)	-						
Diversification	0.340	0.189	1.000					
	(0.000)	(0.000)	-					
Picking Good Stocks	-0.069	-0.025	-0.288	1.000				
	(0.122)	(0.605)	(0.000)	-				
Picking Good Fund Managers	0.079	-0.032	-0.105	-0.084	1.000			
	(0.077)	(0.503)	(0.018)	(0.060)	-			
Minimizing Risk	-0.087	-0.024	-0.200	-0.247	-0.232	1.000		
	(0.051)	(0.616)	(0.000)	(0.000)	(0.000)	-		
Minimizing Fees	0.040	0.039	-0.064	-0.335	-0.265	0.081	1.000	
	(0.375)	(0.423)	(0.156)	(0.000)	(0.000)	(0.071)	-	
Timing the Market	-0.108	-0.081	-0.198	0.107	-0.199	-0.283	-0.370	1.000
	(0.016)	(0.091)	(0.000)	(0.017)	(0.000)	(0.000)	(0.000)	-
Selling Poorly Performed Funds	-0.261	-0.087	-0.220	-0.106	-0.199	-0.117	-0.081	-0.072
	(0.000)	(0.069)	(0.000)	(0.017)	(0.000)	(0.009)	(0.072)	(0.108)

Table 4: Knowledge Questions Consistency

Panel A: Knowledge Questions

Q1: Imagine you invested $1,000 in a stock two years ago. The stock's price declined 40% the first year and rose 40% the next year. As a result, you have: Lost money / Made money / Just broken even / Do not know / Do not want to answer.

Q2: Let's say you have 200 dollars in a savings account. The account earns 10 percent interest per year. How much would you have in the account at the end of two years? $210 / $220 / $240 / $242 / $264 / Do not know / Do not want to answer.

Q3: Assume a friend inherits $10,000 today and his sibling inherits $10,000 3 years from now. Who is richer because of the inheritance? My friend / His sibling / They are equally rich / Do not know / Do not want to answer.

Q4: Considering a long time period (for example 30 years), which asset has historically generated the highest return? Savings accounts / Bonds / Stocks / Do not know / Do not want to answer.

Q5: Do you think that the following statement is true or false? "Buying a single company stock usually provides a safer return than a stock mutual fund." True / False / Do not know / Do not want to answer.

Q6: If the interest rate rises, what should happen to bond prices? They should Rise / Fall / Stay the same / None of the above / Do not know / Do not want to answer.

Q7: If a mutual fund charges management fees of 2% per year this means that: As an investor you receive only 98% of the returns of the fund every year / 2% of the current value of your investment in the fund is paid in management fees every year / Do not know / Do not want to answer.

Q8: Which of the following statements is correct? If somebody buys the stock of firm B in the stock market: He owns a part of firm B / He has lent money to firm B / He is liable for firm B's debts / None of the above / Do not know / Do not want to answer.

Panel B: Summary Statistics of the Correctness of Knowledge Questions

	N	Mean	Level	Frac. "I do not know"
Q1 (percentage changes)	501	0.65	Medium	2.79%
Q2 (compound interest)	501	0.63	Medium	1.20%
Q3 (time value of money)	501	0.65	Medium	8.78%
Q4 (long horizon returns)	501	0.52	Hard	17.17%
Q5 (risk diversification)	501	0.71	Medium	23.55%
Q6 (interest rate and bond price)	501	0.34	Hard	34.53%
Q7 (mutual fund fees)	501	0.60	Medium	21.56%
Q8 (meaning of owning stocks)	501	0.80	Easy	7.39%

Panel C: Consistency

	Question Level	Sub-sample right %	Whole sample right %
For people who answered the two hard questions right			
Q8 (meaning of owning stocks)	Easy	87.82%	80.04%
Q5 (risk diversification)	Medium	83.33%	71.06%
Q7 (mutual fund fees)	Medium	60.08%	60.08%
Q1 (percentage changes)	Medium	75.64%	65.27%
Q2 (compound interest)	Medium	71.15%	62.67%
Q3 (time value of money)	Medium	71.47%	65.47%
For people who answered at least three of the medium level questions right			
Q8 (meaning of owning stocks)	Easy	89.14%	80.04%
For people who answered the easy questions right but at least three medium level questions wrong			
Q4 (long horizon returns)	Hard	31.46%	52.30%
Q6 (interest rate and bond price)	Hard	20.22%	34.13%

Table 5: Balance Table

This table reports results of the balance tests on subject characteristics and demographics between the groups watching the active and passive videos. Columns (1) and (2) report the means (standard deviations) for each group, respectively. Column 3 reports the p-values from two-sample t-tests on the differences of means between active and passive video treatment groups. *Knowledge Score* is the number of correct answers out of the 8 financial literacy questions. *Self-Assessed Financial Knowledge* is the participant's self-rating on a scale of 1 (not knowledgeable) to 7 (very knowledgeable). *Self-Ranked Pct. Financial Knowledge* is a subject's self-rank of their investment knowledge as a percentile among individual investors in the U.S. and is on a scale of 0 (bottom) to 1 (top). *Use Financial Advisor* equals one if the participant indicates they obtain financial advice from an advisor, financial planner, or accountant. *Willingness to Take Investment Risk, Trust Financial Institutions,* and *Trust People* are participants' answers ranging from 1 (low) to 7 (high). *Pro-Active* equals one if the prior *Pro-Passive Score* is zero or below.

	(1) Active Video	(2) Passive Video	(3) p-value (1)-(2)
Gender (1=Male)	0.50	0.56	0.16
	(0.50)	(0.50)	
Age	38.25	39.84	0.15
	(11.78)	(12.82)	
Marital Status (1=Married)	0.27	0.30	0.53
	(0.45)	(0.46)	
Country of Birth (1=US)	0.83	0.85	0.52
	(0.38)	(0.36)	
Citizenship (1=US)	0.92	0.94	0.24
	(0.28)	(0.23)	
Have a Full-Time Job	0.45	0.45	0.88
	(0.50)	(0.50)	
Unemployed	0.08	0.06	0.34
	(0.28)	(0.24)	
Income under 35k	0.43	0.43	0.92
	(0.50)	(0.50)	
Save at Least 10% of Income	0.36	0.35	0.91
	(0.48)	(0.48)	
Have Retirement Account	0.53	0.60	0.13
	(0.50)	(0.49)	
Invest in Stocks	0.32	0.29	0.41
	(0.47)	(0.45)	
College Degree	0.81	0.83	0.56
	(0.40)	(0.38)	
Knowledge Score (0-8)	4.88	4.94	0.76
	(2.08)	(2.10)	
Self-Assessed Financial Knowledge (1-7)	3.76	3.72	0.75
	(1.62)	(1.50)	
Self-Ranked Pct. Financial Knowledge (0-1)	0.45	0.43	0.34
	(0.23)	(0.24)	
Use Financial Advisor	0.21	0.22	0.82
	(0.41)	(0.41)	
Willingness to Take Investment Risk (1-7)	4.09	4.04	0.72
	(1.44)	(1.46)	
Trust Financial Institutions (1-7)	3.74	3.64	0.43
	(1.47)	(1.55)	
Trust People (1-7)	3.54	3.48	0.69
	(1.65)	(1.62)	
Prior Belief (1=Pro-Active)	0.49	0.52	0.62
	(0.50)	(0.50)	
Observations	253	248	501

Table 6: Assessments of Advice

The dependent variable is the subject's rating of how much they agree with the recommendation of the video on a scale of 1 to 9. *Contradict* equals 1 if the recommendation in the video contradicts a subject's prior belief. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *High Literacy* equals 1 if the subject correctly answered at least 6 of the financial knowledge questions and 0 if they answered 5 or fewer questions correctly. *High Lit* and *Low Lit* indicate the sub-samples where *High Literacy* equals one and zero, respectively. Control variables, whose coefficients are omitted, include knowledge score, self-assessed financial knowledge, whether the subject has a retirement account, invests in stocks, uses a financial advisor, rating of how much they trust financial institutions, gender, age, college education, and employment status. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Agree with Recommendation					
	9-Point Likert scale: 1(Strongly Disagree) ∼ 9(Strongly Agree)					
	Full Sample				High Literacy	Low Literacy
Contradict	-0.641***					
	(0.149)					
Passive Video		0.639***				
		(0.149)				
Pro-Active, Passive Video			-0.252	-0.370*	-0.177	0.062
			(0.216)	(0.210)	(0.346)	(0.231)
Pro-Passive, Passive Video			0.335	0.262	0.898***	0.320
			(0.219)	(0.218)	(0.331)	(0.242)
Pro-Passive, Active Video			-0.610***	-0.573***	-1.075***	-0.231
			(0.219)	(0.213)	(0.371)	(0.253)
High Literacy × *Passive Video*			-0.175	0.033		
			(0.191)	(0.287)		
High Literacy × *Active Video*			-0.799***	-0.750***		
			(0.228)	(0.282)		
Constant	6.765***	6.122***	6.807***	4.751***	6.282***	6.629***
	(0.098)	(0.115)	(0.154)	(0.928)	(0.267)	(0.161)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	No	No	No	Yes	No	No
Observations	500	500	500	493	231	269
R-squared	0.051	0.051	0.115	0.184	0.171	0.046

Table 7: Role of Confidence in Advice Evaluation

The dependent variable is the subject's rating of how much they agree with the recommendation of the video on a scale of 1 to 9. *Contradict* equals 1 if the recommendation in the video contradicts a subject's prior belief. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Confidence* is the residual after regressing the *Self-Assessed Financial Knowledge* on the *Knowledge Score* and normalized to have a standard deviation of one. *High Literacy* equals 1 if the subject correctly answered at least 6 of the financial knowledge questions and 0 if they answered 5 or fewer questions correctly. *High Lit* and *Low Lit* indicate the sub-samples where *High Literacy* equals one and zero, respectively. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Agree with Recommendation					
	Likert scale: 1(Strongly Disagree) ∼ 9(Strongly Agree)					
Sample	Full	High Lit	Low Lit	Full	High Lit	Low Lit
Contradict	-0.644***	-1.198***	-0.213			
	(0.148)	(0.234)	(0.171)			
Contradict × *Confidence*	-0.138	-0.506**	0.074			
	(0.150)	-0.247	(0.164)			
Pro-Active, Passive Video				-0.019	-0.258	-0.027
				(0.199)	(0.351)	(0.225)
Pro-Active, Passive Video × *Confid.*				0.005	-0.470	0.178
				(0.184)	(0.342)	(0.209)
Pro-Passive, Passive Video				0.550***	0.899***	0.331
				(0.196)	(0.335)	(0.243)
Pro-Passive, Passive Video × *Confid.*				0.011	0.131	-0.065
				(0.212)	(0.335)	(0.280)
Pro-Passive, Active Video				-0.720***	-1.020***	-0.177
				(0.222)	(0.366)	(0.248)
Pro-Passive, Active Video × *Confid.*				-0.255	-0.194	-0.136
				(0.222)	(0.373)	(0.231)
Confidence	0.183*	0.073	0.259*	0.178	-0.013	0.289*
	(0.107)	(0.173)	(0.135)	(0.139)	(0.241)	(0.167)
Constant	6.777***	6.798***	6.789***	6.508***	6.279***	6.651***
	(0.100)	(0.160)	(0.121)	(0.147)	(0.271)	(0.161)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	499	231	268	499	231	268
R-squared	0.055	0.141	0.085	0.093	0.186	0.101

Table 8: Advisor Likability and Trust

The dependent variable in columns 1-3 is the rating of the advisor's likability, and in columns 4-6 is the likelihood that the subject would want to return to the advisor. Both variables are from responses to post-video survey questions, on a scale of 1 to 9. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero, and 0 otherwise. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero, and 0 otherwise. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *High Literacy* equals 1 if the subject correctly answered at least 6 of the financial knowledge questions and 0 if they answered 5 or fewer questions correctly. *High Lit* and *Low Lit* indicate the sub-samples where *High Literacy* equals one and zero, respectively. Control variables, whose coefficients are omitted, include knowledge score, self-assessed financial knowledge, whether the subject has a retirement account, invests in stocks, uses a financial advisor, rating of how much they trust financial institutions, gender, age, college education, and employment status. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Advisor Likable			*Will Return*		
	Likert scale: 1(Not at All/Never) ∼ 9(Extremely/Certainly)					
Sample	Full	High Lit	Low Lit	Full	High Lit	Low Lit
Pro-Active, Passive Video	0.223	-0.177	0.119	-0.299	-0.237	-0.073
	(0.213)	(0.305)	(0.244)	(0.267)	(0.411)	(0.297)
Pro-Passive, Passive Video	0.320	0.046	0.114	0.070	0.144	-0.003
	(0.228)	(0.282)	(0.266)	(0.286)	(0.379)	(0.335)
Pro-Passive, Active Video	-0.105	0.102	-0.501	-0.394	-0.681*	-0.336
	(0.222)	(0.304)	(0.339)	(0.244)	(0.398)	(0.319)
High Literacy × Passive Video	-0.372			-0.413		
	(0.285)			(0.343)		
High Literacy × Active Video	0.012			-0.719**		
	(0.295)			(0.334)		
Constant	3.701***	6.429***	6.771***	4.534***	5.276***	5.906***
	(0.886)	(0.224)	(0.186)	(1.131)	(0.307)	(0.208)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	No	No	Yes	No	No
Observations	494	231	270	492	229	270
R-squared	0.171	0.085	0.108	0.134	0.039	0.020

Table 9: Shifts in *Pro-Passive Scores*

This table shows the effects of the treatments on changes in beliefs. The dependent variable is the change in a subject's *Pro-Passive Score* from before to after the video treatment. *Video Direction* equals 1 for the passive video and -1 for the active video. *Confidence* is the residual after regressing the *Self-Assessed Financial Knowledge* on the *Knowledge Score* and normalized to have a standard deviation of one. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *High Lit* and *Low Lit* indicate the sub-samples where participants correctly answered at least 6 of the financial knowledge questions and where they answered 5 or fewer questions correctly. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Change in Pro-Passive Score							
	Full				High Lit		Low Lit	
Video Direction	1.341***	1.343***						
	(0.104)	(0.104)						
Video Direction × *Confidence*		-0.205*						
		(0.112)						
Pro-Active, Passive Video			3.122***	3.088***	3.178***	3.046***	3.030***	2.982***
			(0.262)	(0.260)	(0.376)	(0.364)	(0.352)	(0.349)
Pro-Active, Passive Video × *Confidence*				-0.511**		-1.000***		-0.363
				(0.243)		(0.369)		(0.301)
Pro-Passive, Passive Video			0.553**	0.504**	0.818***	0.798***	0.566	0.424
			(0.229)	(0.226)	(0.286)	(0.284)	(0.345)	(0.341)
Pro-Passive, Passive Video × *Confidence*				-0.605***		-0.244		-0.950***
				(0.227)		(0.319)		(0.301)
Pro-Passive, Active Video			-1.587***	-1.675***	-0.574	-0.646*	-2.570***	-2.621***
			(0.278)	(0.277)	(0.370)	(0.389)	(0.396)	(0.399)
Pro-Passive, Active Video × *Confidence*				-0.017		-0.214		-0.138
				(0.270)		(0.426)		(0.339)
Confidence		0.127		0.413***		0.422*		0.439**
		(0.111)		(0.151)		(0.237)		(0.183)
Constant	0.559***	0.553***	0.021	0.053	-0.397*	-0.378	0.275	0.313
	(0.104)	(0.104)	(0.178)	(0.175)	(0.240)	(0.236)	(0.245)	(0.240)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	493	492	493	492	229	229	264	263
R-squared	0.255	0.264	0.415	0.429	0.372	0.394	0.475	0.492

Table 10: Posterior *Pro-Passive Scores*

This table shows the effects of the treatments on posterior beliefs. The dependent variable is a subject's *Pro-Passive Score* after the video treatment. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *Confidence* is the residual after regressing the *Self-Assessed Financial Knowledge* on the *Knowledge Score* and normalized to have a standard deviation of one. *High Lit* and *Low Lit* indicate the sub-samples where participants correctly answered at least 6 of the financial knowledge questions and where they answered 5 or fewer questions correctly. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Posterior Pro-Passive Score					
	Full		High Lit		Low Lit	
Pro-Active, Passive Video	2.755***	2.717***	2.977***	2.810***	2.569***	2.548***
	(0.241)	(0.238)	(0.403)	(0.385)	(0.303)	(0.302)
Pro-Active, Passive Video × *Confidence*		-0.695***		-1.397***		-0.372
		(0.228)		(0.361)		(0.273)
Pro-Passive, Passive Video	4.045***	3.994***	4.444***	4.413***	3.792***	3.693***
	(0.199)	(0.196)	(0.296)	(0.283)	(0.276)	(0.280)
Pro-Passive, Passive Video × *Confidence*		-0.641***		-0.711**		-0.674**
		(0.205)		(0.309)		(0.275)
Pro-Passive, Active Video	1.797***	1.728***	2.925***	2.850***	0.573	0.536
	(0.263)	(0.261)	(0.370)	(0.366)	(0.363)	(0.369)
Pro-Passive, Active Video × *Confidence*		-0.153		-0.552		-0.165
		(0.269)		(0.389)		(0.324)
Confidence		0.453***		0.716***		0.311*
		(0.143)		(0.233)		(0.164)
Constant	-1.168***	-1.133***	-1.553***	-1.519***	-0.902***	-0.875***
	(0.159)	(0.154)	(0.255)	(0.241)	(0.198)	(0.193)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	493	492	229	229	264	263
R-squared	0.377	0.394	0.451	0.485	0.381	0.392

Table 11: Beliefs about Beating the Market

The dependent variable is the post-video assessment of "It is possible to always beat the market" (1=Strongly Disagree, 7=Strongly Agree). *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *Confidence* is the residual after regressing the *Self-Assessed Financial Knowledge* on the *Knowledge Score* and normalized to have a standard deviation of one. *High Lit* and *Low Lit* indicate the sub-samples where participants correctly answered at least 6 of the financial knowledge questions and where they answered 5 or fewer questions correctly. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Posterior "Always Possible to Beat the Market"					
	7-Point Likert scale: 1(Strongly Disagree) ∼ 7(Strongly Agree)					
	Full Sample		High Lit		Low Lit	
Pro-Active, Passive Video	-0.887***	-0.884***	-1.125***	-1.071**	-0.692**	-0.623**
	(0.239)	(0.239)	(0.412)	(0.415)	(0.295)	(0.291)
Pro-Active, Passive Video × *Confidence*		-0.201		0.203		-0.427
		(0.212)		(0.356)		(0.267)
Pro-Passive, Passive Video	-1.393***	-1.386***	-1.705***	-1.725***	-1.198***	-1.162***
	(0.239)	(0.240)	(0.357)	(0.360)	(0.324)	(0.323)
Pro-Passive, Passive Video × *Confidence*		-0.011		-0.249		0.182
		(0.242)		(0.363)		(0.329)
Pro-Passive, Active Video	-0.885***	-0.932***	-1.485***	-1.682***	-0.253	-0.322
	(0.256)	(0.257)	(0.373)	(0.370)	(0.358)	(0.358)
Pro-Passive, Active Video × *Confidence*		-0.005		0.416		-0.189
		(0.244)		(0.337)		(0.337)
Confidence		0.162		0.237		0.122
		(0.144)		(0.223)		(0.198)
Constant	4.798***	4.796***	5.111***	5.128***	4.566***	4.560***
	(0.169)	(0.168)	(0.264)	(0.265)	(0.218)	(0.217)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	453	452	225	225	228	227
R-squared	0.073	0.078	0.102	0.134	0.067	0.083

Table 12: Post-Video Portfolio Choice

This table shows the effects of the treatments on subjects' selection of a fund portfolio at the end of the experiment. The dependent variable is an indicator that equals 1 if the subject chooses a passive fund and 0 if they choose an actively managed fund. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *Confidence* is the residual after regressing the *Self-Assessed Financial Knowledge* on the *Knowledge Score* and normalized to have a standard deviation of one. *High Lit* and *Low Lit* indicate the sub-samples where participants correctly answered at least 6 of the financial knowledge questions and where they answered 5 or fewer questions correctly. Robust standard errors are reported in parentheses.

	Choose Index Fund					
	Full Sample		High Lit		Low Lit	
Pro-Active, Passive Video	0.576***	0.578***	0.628***	0.624***	0.559***	0.570***
	(0.052)	(0.052)	(0.082)	(0.081)	(0.067)	(0.066)
Pro-Active, Passive Video × *Confidence*		-0.037		-0.198**		0.034
		(0.049)		(0.084)		(0.056)
Pro-Passive, Passive Video	0.705***	0.703***	0.668***	0.677***	0.731***	0.733***
	(0.044)	(0.044)	(0.073)	(0.071)	(0.055)	(0.055)
Pro-Passive, Passive Video × *Confidence*		-0.009		-0.189**		0.083*
		(0.045)		(0.082)		(0.045)
Pro-Passive, Active Video	0.237***	0.230***	0.335***	0.379***	0.093	0.083
	(0.061)	(0.061)	(0.091)	(0.088)	(0.082)	(0.079)
Pro-Passive, Active Video × *Confidence*		0.040		-0.283***		0.201***
		(0.061)		(0.097)		(0.066)
Confidence		-0.021		0.137*		-0.089**
		(0.039)		(0.073)		(0.040)
Constant	0.262***	0.262***	0.282***	0.276***	0.249***	0.246***
	(0.040)	(0.041)	(0.068)	(0.066)	(0.050)	(0.049)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	484	483	225	225	259	258
R-squared	0.332	0.339	0.314	0.356	0.382	0.418

Table 13: Effects of Perceived Conflict of Interest

The dependent variable in columns 1-3 measures the subject's agreement with the recommendation on a scale of 1-9 and in columns 4-6 measures the change in the four-point *Pro-Passive Score* from before to after the video. *Flat Fee* equals 1 if the advisor in the video explains that they are compensated with a flat fee which does not depend on the amount of business generated. *Commission* equals 1 if the advisor says they are compensated by sales commissions. The baseline reference sub-treatment group merges the skip-fee and skip-fee-and-basics groups, both of which do not mention the advisors' incentives. *Video Direction* equals +1 if the subject watched the passive advice video -1 if they watched the active advice video. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. Differences in coefficients and their standard errors are calculated using the delta method. *High Lit* and *Low Lit* indicate the sub-samples where *High Literacy* equals one and zero, respectively. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Agree with Recommendation			*Change in Pro-Passive Score*		
	Full	High Lit	Low Lit	Full	High Lit	Low Lit
Flat Fee (A)	0.295	0.136	0.509***	0.440*	-0.065	0.964**
	(0.183)	(0.305)	(0.191)	(0.266)	(0.359)	(0.384)
Commission (B)	-0.240	-0.277	-0.064	0.018	-0.077	0.160
	(0.192)	(0.314)	(0.240)	(0.252)	(0.335)	(0.374)
(A)-(B)	0.535***	0.413	0.574**			
	(0.206)	(0.323)	(0.240)			
Video Direction				1.388***	1.132***	1.554***
				(0.145)	(0.204)	(0.206)
Video Direction $\times$ *Flat Fee (C)*				0.261	0.077	0.544
				(0.263)	(0.321)	(0.390)
Video Direction $\times$ *Commission (D)*				-0.451*	-0.380	-0.398
				(0.244)	(0.314)	(0.362)
(C)-(D)				0.712**	0.456	0.941**
				(0.293)	(0.345)	(0.446)
Pro-Active, Passive Video	-0.063	-0.062	0.002			
	(0.192)	(0.339)	(0.213)			
Pro-Passive, Passive Video	0.645***	1.287***	0.287			
	(0.200)	(0.344)	(0.235)			
Pro-Passive, Active Video	-0.641***	-0.798**	-0.083			
	(0.211)	(0.360)	(0.236)			
Constant	6.470***	6.295***	6.508***	0.445***	0.361*	0.486**
	(0.166)	(0.308)	(0.180)	(0.150)	(0.218)	(0.209)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	500	231	269	493	229	264
R-squared	0.099	0.177	0.070	0.269	0.247	0.330

Internet Appendix of

"Financial Narratives and Investor Beliefs: Experimental Evidence on Active vs. Passive Advice"

Appendix A: Full Video Scripts

Section 1

[self-intro]

Good morning! My name is Cynthia Johnson (Thomas Jenkins) and I've been a financial adviser for eight years, and I'm a certified financial planner, which is the most widely recognized and demanding set of requirements for technical knowledge and ethical standards in the industry.

[fee] - flat

My investment advisory services extend to a broad range of products with different fees, so it's important to provide you with information you need to make well-informed investment decisions. Part of this information is how I am paid. My company charges a flat fee for all of its financial advisory services, and I am compensated on either a meeting-by-meeting or yearly basis. This means, my compensation does not depend on the amount of business I generate, or the specific funds I recommend to my clients, and I have no financial incentive to recommend a particular product to my clients. For example, if you want to invest $10,000, the up-front costs would be $300 per visit to cover all financial advisory services. In addition, you only pay the management fee of the funds that applies to all investors.

[fee] - commission

My investment advisory services extend to a broad range of products with different fees, so it's important to provide you with information you need to make well-informed investment decisions. Part of this information is how I am paid. My company works with a number of select mutual fund families from which we receive compensation. We are paid a commission based on the amount of investments we generate for the mutual fund firm and on the fees that the customers pay. For example, if you want to invest $10,000, the up-front cost would be 3 percent or $300, a fraction of which goes to my firm for advising investors to put their money into this fund.

Section 2

[basics of strategies]

(The transition slide between section 1 and section 2 shows: "Introduction to Investment Strategies".)
In general, you should know there are two types of mutual funds. The first set is called index funds, which are funds that track the market or part of the market, hence the name. That means they hold a maximally diversified portfolio of stocks across all the firms in the market, and they aim to meet average market returns. These funds have an average fee of about 0.2 percent per year since they require little intervention from the fund's manager. The second set of mutual funds is called actively managed funds. These funds are run by portfolio managers who pick specific companies they invest in based on their market research and investment philosophy. This means they try to set up a balanced portfolio which aims to beat average market returns. These funds have an average fee of about 1.6 percent per year to cover the costs of the managers and market research.

Section 3

[recommend one strategy] - Passive Investment Strategy

(The transition slide between section 2 and section 3 shows: "Which Strategy to Choose?")
The investment strategy that I recommend to all the clients I work with is to build a well-diversified portfolio of stocks, bonds, and mutual funds. I focus on funds with low fees and turnover. This approach will allow you to capture a larger percentage of the total returns and minimize exposure to any one investment. The aim is to meet the average return of the market and not to be exposed to the ups and downs of any one stock or sector. So how do you implement the strategy? Optimally, diversify your investments with index funds.

[recommend one strategy] - Active Investment Strategy

(The transition slide between section 2 and section 3 shows: "Which Strategy to Choose?")
The investment strategy that I recommend to all the clients I work with is to build a well-balanced portfolio of stocks, bonds, and mutual funds. I focus on funds that are managed by experienced portfolio managers with a great track record. This approach will allow you to generate the highest returns on your investments and minimize exposure to the movements of the market. The aim is to beat the market and not just to mimic the ups and downs of average market returns. So how do you implement the strategy? Focus your investments on actively managed funds.

Section 4

[reasons for the recommendation] - Passive Investment Strategy

(The transition slide between section 3 and section 4 shows: "Why Index Funds?")
What are the benefits of this strategy? Savvy investors say: "it's not timing the market, it's time in the market". These investors know that no one has a crystal ball, and that not even the best managers can predict the future. So they seek to reduce their risk exposure to any one stock or sector by diversifying, rather than trying to predict the market and picking individual stocks or sectors. Also, they benefit from profitable upswings in the market by keeping their money invested when most other investors are pulling out of the market. In fact, research highlights the importance of picking diversified funds since on average well-diversified portfolios consistently deliver higher returns in the long run. Let me give you the numbers. When you look at short or long-time horizons, more than half of U.S. index funds performed above the median or middle performance of their respective categories. What this means is that by investing in funds that aim to meet the average return on the market, you're likely to have a better than average mutual fund. In addition, index funds cost less than actively managed funds, since diversification is a simple yet effective strategy that doesn't require a manager picking stocks and timing the market. This way you benefit from the long-term growth of the overall market while more of the returns go to you instead of the fund manager. Over time, even a small difference in costs can make a huge difference in your overall portfolio. Let's look at an example. Over the 20-year time period ending in 2009, the average returns of index funds and actively managed funds were close to the same while the average yearly fee was under 0.5 percent for index funds and around 1.5 percent for actively managed funds. Why should you pay so much attention to fees? While it may seem that a small difference in fees shouldn't matter, even a one percent difference in fees makes a huge difference in the long run. The data is clear. If you want your investment to have the strongest performance in the long run, you need to invest in low-cost well-diversified index funds. In a nutshell, if you want to build wealth by investing, make sure you work with advisers who recommend low-cost well-diversified index funds. Thank you for your time, and good luck investing.

[reasons for the recommendation] - Active Investment Strategy

(The transition slide between section 3 and section 4 shows: "Why Actively Managed Funds?")
What are the benefits of this strategy? Savvy investors say: "The wise man puts all his eggs in one basket and watches the basket." These investors know that no one builds wealth with plain vanilla funds and that even large or popular stocks can vary greatly in their returns from year to year. So they seek to reduce their exposure to underperforming stocks and to market movements in down periods rather than just sitting through them. Also, they take advantage of the opportunities that arise in boom periods by focusing on sectors that have the most promise for high returns. In fact, research highlights the importance of picking the right fund, since there are many funds that actually underperform the market, while others consistently outperform the market over long periods of time. Let me give you the numbers. When you look at the U.S. mutual fund industry over the last 3 years, for example, data shows that over 80 percent of large-cap value funds outperform their index after fees. So, by actively picking stocks in trying to time the market, these funds to better than their benchmark. When you invest in an actively managed fund, what you pay for is the unique advantages of detailed market research, experience, and the skill of the portfolio managers. Actively managed funds also have the flexibility and tools to react to the movements of the market, allowing them to seize opportunities in the moment as they arise. Over time, even a small difference in returns can make a huge difference in your portfolio. Let's look at an example. Over the 20-year period ending in 2007, every one of the 20 top performing funds was actively managed. Why should you pay so much attention to returns? Well, it might seem that small difference in returns shouldn't matter. In fact, even a one percent difference in returns makes a huge difference in the long run. The data is clear: if you want your investments to have superior performance you need to invest in high performing well managed funds. In a nutshell, if you want to build wealth by investing, make sure you work with advisers who recommend high-performing well-managed mutual funds. Thank you for your time and good luck investing.

Appendix B: Alternative Belief Measures

In addition to the main 4-point belief score defined in Section 2.2 which we use throughout the paper, we also create an *"Intensity Score"* of beliefs, which is a more granular measure. The calculation still sets the initial value at zero for each participant. Based on the ranking answers which range from 1 (the least important) to 7 (the most important), we apply the adding and subtracting rules as follows. Given the ranking of *Diversification* being X, we add X-4 to the score. For example, if the person ranks *Diversification* as the second most important component so that X equals 6, we add 2 to the his or her current value of intensity score. We repeat this step with the ranking of *Minimizing Fees*. Next, if the ranking answer to *Picking Good Stocks* is Y, we add 4-Y to the score. For example, if the person ranks *Picking Good Stocks* as the third most important component so that Y equals 5, we add -1 to the current value of intensity score. We repeat this with the ranking of *Timing the Market*. In the end, the largest possible value for intensity score is 10, which means the person is very pro-passive in the pre-video ranking answers. The smallest possible value is -10, which means the person is very pro-active.

Figure IA.1 plots the distribution of the *Pro-Passive Intensity Score*, and shows that our classification of the subjects into the two prior types based on the 4-point score discussed above naturally separates the two modes in the distribution of the intensity score.

Since the revealed correlations between the components could be affected by noise in people's beliefs, we consider two alternative ways of categorizing the belief components. The first alternative simply follows the ex ante classification and counts *Diversification*, *Minimizing Fees*, and *Minimizing Risk* as passive components, and *Picking Stocks*, *Timing the Market*, and *Picking Fund Managers* as active components, resulting in a 6-point score. The second alternative considers the fact that *Diversification* tends to be ranked highly by both pro-passive and pro-active investors, and replaces it with *Minimizing Risk* in the 4-point score calculation. Our results are robust under these alternative measures. We present the results Appendix D and discuss them briefly in Section 4.

Appendix C: Comparison of Financial Literacy Levels of Experiment Participants with Earlier Studies

The correctness rates of some questions in our sample are comparable to those in literature whose surveys were fielded in the U.S.. For example, the 2012 NFCS [1] reported that only 28% of their respondents answered the "interest rate and bond price" question (same to our Q6) correctly, close to the 34% in our results. We classify this question into the *Hard* level among our eight questions, while it was also the literacy question that the least people could correctly answer in the 2012 NFCS (FINRA Foundation 2013). Similarly, the "long horizon returns" question has a correct answer rate of 52% in our sample, while in van Rooij, Lusardi, and Alessie (2011)[2] the number is 47.2% for the same question.[3]

Discrepancies do exist for some correct rates between our sample and that in van Rooij, Lusardi, and Alessie (2011). For example, the "meaning of owning a stock" question has only a 62.2% correct rate in van Rooij, Lusardi, and Alessie (2011), but more than 79% of our participants answered it right. Nevertheless, the ordinal ranks of the questions' difficulty level are similar and comparable. The only exception is the "risk diversification" question. In our sample, about 70% of people answered the "risk diversification" question (Q5) correctly. But in van Rooij, Lusardi, and Alessie (2011), the number is only 48.2%. In sum, our consistency analysis on the answers of financial knowledge questions suggests that, by simply adding up the number of right answers across the eight knowledge questions for each participant, we get a reasonably good measure of the participant's knowledge level of finance.

1. The 2012 National Financial Capability Study (NFCS) is a survey online from July to October 2012 among a nationally-representative sample of 25,509 American Adults. It is a project of the FINRA Investor Education Foundation (FINRA Foundation). See https://www.usfinancialcapability.org.

2. They fielded the questions in the 2005–2006 De Nederlandsche Bank's Household Survey (DHS). The DHS contains a nationally-representative sample of over 2,000 Dutch households and is an online survey.

3. Notice that there are minor differences in the wording between our Q5 and the "risk diversification question" in van Rooij, Lusardi and Alessie (2007). Our wording is: "Considering a long time period **(for example 30 years)**, which asset **has historically generated** the highest return?" The wording in van Rooij, Lusardi, and Alessie (2011) is: "Considering a long time period **(for example 10 or 20 years)**, which asset **normally gives** the highest return?"

Appendix D: Additional Tables and Figures

Figure IA.1: **Alternative Belief Measure: Pro-Passive Intensity Score**
This figure plots the distribution of the pre-video *Pro-Passive Intensity Score*, an alternative belief measure described in Appendix B and ranging from -10 to 10. Blue represents subjects classified as "pro-passive". Green represents subjects classified as "pro-active".

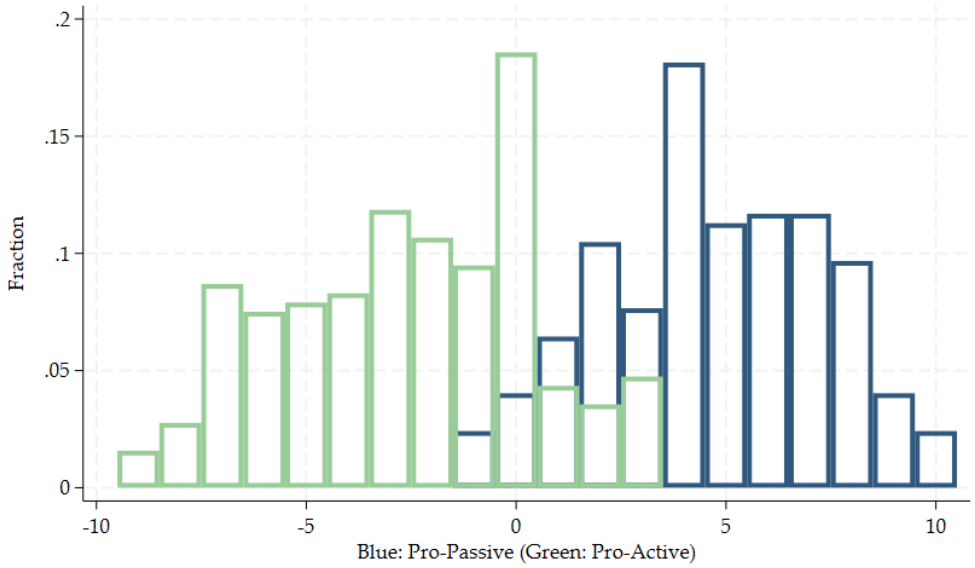


Table IA.1: Financial Literacy Measure by Education Level

This table reports the summary statistics of the *Knowledge Score* by education level. *Knowledge Score* is the number of correct answers out of the 8 financial literacy questions.

Knowledge Score	N	mean	s.d.	min	p25	p50	p75	max
By Education:								
High school or less	16	3.06	2.17	0	1.5	2.5	4.5	7
Some college	76	3.66	1.97	0	2	3	5.5	8
College degree	138	4.51	2.30	0	3	4.5	6	8
Some graduate work	76	5.24	1.61	0	4	5	6	8
Graduate degree	195	5.71	1.70	0	5	6	7	8

Table IA.2: Correlations between Financial Literacy and Other Control Variables

This table reports the Pearson correlation coefficients between *Knowledge Score* and other participant characteristics. *Knowledge Score* is the number of correct answers out of the 8 financial literacy questions.

	Knowledge Score	Have Retirement Account	Invest in Stocks	Use Financial Advisor	Trust Financial Institutions	Gender (1=Male)	ln (Age)	College Degree	Unemployed
Knowledge Score	1.000								
	-								
Have Retirement Account	0.2964	1.000							
	(0.000)	-							
Invest in Stocks	0.3696	0.2557	1.000						
	(0.000)	(0.000)	-						
Use Financial Advisor	0.0611	0.1475	0.2394	1.000					
	(0.174)	(0.001)	(0.000)	-					
Trust Financial Institutions	0.0364	0.0541	0.0795	0.1016	1.000				
	(0.417)	(0.227)	(0.076)	(0.024)	-				
Gender (1=Male)	0.1322	-0.1061	0.074	-0.0528	0.0212	1.000			
	(0.003)	(0.018)	(0.098)	(0.240)	(0.636)	-			
ln (Age)	0.1051	0.0958	0.0966	0.1447	0.085	0.0937	1.000		
	(0.019)	(0.032)	(0.031)	(0.001)	(0.057)	(0.036)	-		
College Degree	0.3089	0.216	0.1595	0.1003	-0.0324	-0.1481	-0.0522	1.000	
	(0.000)	(0.000)	(0.000)	(0.025)	(0.469)	(0.001)	(0.244)	-	
Unemployed	-0.0811	-0.1608	-0.1178	-0.0499	0.0111	-0.0322	0.062	-0.2072	1.000
	(0.070)	(0.000)	(0.008)	(0.268)	(0.805)	(0.472)	(0.167)	(0.000)	-

Table IA.3: Determinants for Prior Beliefs

This table reports the regression coefficients showing the relationships between the prior *Pro-Passive Score* and various participant characteristics. *Knowledge Score* is the number of correct answers out of the 8 financial literacy questions. *Self-Assessed Financial Knowledge* is the participant's self-rating on a scale of 1 (not knowledgeable) to 7 (very knowledgeable). *Use Financial Advisor* equals one if the participant indicates they obtain financial advice from an advisor, financial planner, or accountant. *Trust Financial Institutions* is how much the participant agrees with the statement that financial institutions are trustworthy, ranging from 1 (low) to 7 (high).

	(1)	(2)	(3)
	Prior Pro-Passive Score		
Knowledge Score (0-8)	0.211***	0.153***	0.107*
	(0.051)	(0.055)	(0.056)
Self-Assessed Financial Knowledge (1-7)	0.000	-0.015	-0.000
	(0.069)	(0.071)	(0.073)
Have Retirement Account		0.766***	0.631***
		(0.208)	(0.214)
Invest in Stocks		-0.007	0.052
		(0.237)	(0.237)
Use Financial Advisor		0.404*	0.270
		(0.241)	(0.245)
Trust Financial Institutions (1-7)		-0.089	-0.076
		(0.064)	(0.064)
Gender (1=Male)			-0.185
			(0.204)
ln (Age)			0.432
			(0.321)
College Degree			0.951***
			(0.261)
Unemployed			0.559
			(0.343)
Constant	-0.620**	-0.446	-2.515**
	(0.280)	(0.371)	(1.182)
Observations	500	496	494
R-squared	0.041	0.078	0.107

Table IA.4: Balance Table Conditional on *Pro-Active* Beliefs

This table reports the results of balance tests on subject characteristics and demographics between the groups watching the active and passive videos, conditional on people having *Pro-Active* prior beliefs. p-values are from two-sample t-tests on the differences of mean values between the active and passive video treatment groups.

	(1) Active Video	(2) Passive Video	(3) p-value (1)-(2)
Gender (1=Male)	0.44	0.62	0.00***
	(0.50)	(0.49)	
Age	37.60	38.37	0.61
	(11.34)	(12.08)	
Marital Status (1=Married)	0.27	0.26	0.80
	(0.45)	(0.44)	
Country of Birth (1=US)	0.79	0.82	0.50
	(0.41)	(0.38)	
Citizenship (1=US)	0.89	0.93	0.27
	(0.32)	(0.26)	
Have a Full-Time Job	0.43	0.39	0.46
	(0.50)	(0.49)	
Unemployed	0.06	0.09	0.37
	(0.25)	(0.29)	
Income under 35k	0.45	0.53	0.18
	(0.50)	(0.50)	
Save at Least 10% of Income	0.33	0.38	0.44
	(0.47)	(0.49)	
Have Retirement Account	0.47	0.45	0.67
	(0.50)	(0.50)	
Invest in Stocks	0.26	0.23	0.69
	(0.44)	(0.43)	
College Degree	0.76	0.76	0.97
	(0.43)	(0.43)	
Self-Assessed Financial Knowledge (1-7)	3.54	3.64	0.60
	(1.63)	(1.51)	
Self-Ranked Pct. Financial Knowledge (0-1)	0.40	0.41	0.61
	(0.24)	(0.24)	
Willingness to Take Investment Risk (1-7)	4.05	4.13	0.67
	(1.33)	(1.52)	
Knowledge Score (0-8)	4.59	4.55	0.88
	(1.99)	(2.05)	
Use Financial Advisor	0.18	0.21	0.58
	(0.38)	(0.41)	
Trust Financial Institutions (1-7)	3.80	3.78	0.92
	(1.48)	(1.59)	
Trust People (1-7)	3.56	3.51	0.80
	(1.58)	(1.61)	
Observations	125	128	253

Table IA.5: Balance Table Conditional on *Pro-Passive* Beliefs

This table reports the results of balance tests on subject characteristics and demographics between the groups watching the active and passive videos, conditional on people having *Pro-Passive* prior beliefs. p-values are from two-sample t-tests on the differences of mean values between the active and passive video treatment groups.

	(1) Active Video	(2) Passive Video	(3) p-value (1)-(2)
Gender (1=Male)	0.55	0.50	0.39
	(0.50)	(0.50)	
Age	38.87	41.41	0.12
	(12.21)	(13.44)	
Marital Status (1=Married)	0.27	0.34	0.25
	(0.45)	(0.48)	
Country of Birth (1=US)	0.87	0.88	0.81
	(0.34)	(0.32)	
Citizenship (1=US)	0.94	0.96	0.60
	(0.23)	(0.20)	
Have a Full-Time Job	0.46	0.53	0.32
	(0.50)	(0.50)	
Unemployed	0.10	0.03	0.01**
	(0.30)	(0.16)	
Income under 35k	0.42	0.31	0.10*
	(0.49)	(0.47)	
Save at Least 10% of Income	0.38	0.32	0.34
	(0.49)	(0.47)	
Have Retirement Account	0.59	0.76	0.00***
	(0.49)	(0.43)	
Invest in Stocks	0.39	0.35	0.51
	(0.49)	(0.48)	
College Degree	0.85	0.90	0.25
	(0.36)	(0.30)	
Self-Assessed Financial Knowledge (1-7)	3.98	3.80	0.35
	(1.59)	(1.48)	
Self-Ranked Pct. Financial Knowledge (0-1)	0.51	0.45	0.05*
	(0.21)	(0.23)	
Willingness to Take Investment Risk (1-7)	4.13	3.95	0.35
	(1.54)	(1.40)	
Knowledge Score (0-8)	5.16	5.35	0.49
	(2.13)	(2.08)	
Use Financial Advisor	0.23	0.23	0.86
	(0.43)	(0.42)	
Trust Financial Institutions (1-7)	3.69	3.48	0.28
	(1.46)	(1.49)	
Trust People (1-7)	3.52	3.45	0.76
	(1.71)	(1.63)	
Observations	128	120	248

Table IA.6: Effects of Strong Beliefs

The dependent variable is the subject's rating of how convincing the advice was on a scale of 1 to 9. *Contradict* equals 1 if the recommendation in the video contradicts a subject's prior belief. *Belief Score Mag.* $= 4$ equals 1 if the pre-treatment *Pro-Passive Score* is 4 or -4, which are the most extreme values. *Belief Score Mag.* ≥ 3 equals 1 if the pre-treatment *Pro-Passive Score* is greater than or equal to 3 or less than or equal to -3. *Full Score in Passive/Active* equals 1 if a participant ranks both passive components in the top three or ranks both active components in the top three in the pre-video ranking question on investment strategies. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)
	Agree with Recommendation		
	1(Strongly Disagree) $\sim$ *9(Strongly Agree)*		
Contradict	-0.497***	-0.403**	-0.391*
	(0.161)	(0.192)	(0.200)
Contradict $\times$ *Belief Score Mag.* $= 4$	-1.359***		
	(0.380)		
Contradict $\times$ *Belief Score Mag.* ≥ 3		-0.702**	
		(0.303)	
Contradict $\times$ *Full Score in Passive/Active*			-0.579*
			(0.299)
Belief Score Mag. $= 4$	1.108***		
	(0.245)		
Belief Score Mag. ≥ 3		0.428**	
		(0.201)	
Full Score in Passive/Active			0.354*
			(0.198)
Constant	6.653***	6.626***	6.618***
	(0.105)	(0.123)	(0.134)
Observations	500	500	500
R-squared	0.071	0.061	0.058

Table IA.7: Assessments of Advice

The dependent variable is the subject's rating of how convincing the advice was on a scale of 1 to 9. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *Contradict* equals 1 if the recommendation in the video contradicts a subject's prior belief. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *High Literacy* equals 1 if the subject correctly answered at least 6 of the financial knowledge questions and 0 if they answered 5 or fewer questions correctly. *High Lit* and *Low Lit* indicate the sub-samples where *High Literacy* equals one and zero, respectively. Control variables, whose coefficients are omitted, include knowledge score, self-assessed financial knowledge, whether the subject has a retirement account, invests in stocks, uses a financial advisor, rating of how much they trust financial institutions, gender, age, college education, and employment status. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Advice Convincing					
	Likert scale: 1(Not a All) ∼ 9(Extremely)					
	Full Sample				High Lit	Low Lit
Passive Video	0.653***					
	(0.156)					
Contradict		-0.487***				
		(0.158)				
Pro-Active, Passive Video			-0.011	-0.020	-0.050	0.251
			(0.237)	(0.230)	(0.383)	(0.261)
Pro-Passive, Passive Video			0.443*	0.414*	0.871**	0.346
			(0.245)	(0.249)	(0.353)	(0.272)
Pro-Passive, Active Video			-0.479**	-0.374	-0.804**	-0.253
			(0.232)	(0.228)	(0.389)	(0.286)
High Literacy × Passive Video			-0.471**	-0.048		
			(0.206)	(0.297)		
High Literacy × Active Video			-0.879***	-0.581*		
			(0.238)	(0.311)		
Constant	6.128***	6.700***	6.784***	4.295***	6.087***	6.676***
	(0.121)	(0.110)	(0.183)	(0.948)	(0.288)	(0.205)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	No	No	No	Yes	No	No
Observations	501	501	501	494	231	270
R-squared	0.037	0.023	0.096	0.182	0.113	0.028

Table IA.8: Robustness of Belief Shift Result

This table shows the robustness of the main results in Table 9 under alternative sample selection and measures. Panel A columns 1-3 exclude the subjects with a prior *Pro-Passive Score* of zero and columns 4-6 examine the change in a subject's *Pro-Passive Intensity Score*. Panel B examine changes in alternative belief score constructions using a 4-point or 6-point scheme. Constructions of the alternative measures and their motivations are described in Appendix C. *Pro-Active* equals 1 if the subject's pre-video four-point score was less than or equal to zero. *Pro-Passive* equals 1 if the subject's pre-video four-point score was greater than zero. *Passive Video (Active Video)* indicates if the subject watched the video recommending the passive (active) strategy. *High Lit* and *Low Lit* indicate the sub-samples where *High Literacy* equals one and zero, respectively. Robust standard errors are reported in parentheses. Coefficients significant at the 10%, 5%, and 1% levels are marked with *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Change in Pro-Passive Belief					
Panel A.	*Excl. Zero Prior*			Δ *Intensity Score*		
Sample	Full	High Lit	Low Lit	Full	High Lit	Low Lit
Pro-Active, Passive Video	3.332***	3.439***	2.726***	6.874***	6.658***	6.218***
	(0.363)	(0.440)	(0.414)	(0.634)	(0.788)	(0.713)
Pro-Passive, Passive Video	0.552	0.790***	-0.034	2.102***	2.218***	1.413**
	(0.349)	(0.279)	(0.389)	(0.607)	(0.618)	(0.666)
Pro-Passive, Active Video	-2.005***	-0.589	-3.143***	-2.997***	-1.195	-4.584***
	(0.303)	(0.366)	(0.437)	(0.564)	(0.725)	(0.814)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
High Literacy $\times$ Video Types	Yes	No	No	Yes	No	No
Observations	422	199	223	493	229	264
R-squared	0.446	0.372	0.515	0.423	0.406	0.455
Panel B.	Δ *Alt. 6-Point Score*			Δ *Alt. 4-Point Score*		
Pro-Active, Passive Video	4.667***	4.362***	4.226***	3.419***	3.033***	3.097***
	(0.391)	(0.449)	(0.439)	(0.347)	(0.385)	(0.398)
Pro-Passive, Passive Video	2.254***	1.978***	1.944***	1.438***	1.028***	1.184***
	(0.397)	(0.357)	(0.454)	(0.345)	(0.285)	(0.399)
Pro-Passive, Active Video	-1.466***	-0.274	-2.389***	-1.237***	-0.407	-1.904***
	(0.342)	(0.450)	(0.492)	(0.291)	(0.360)	(0.439)
Advisor F.E.	Yes	Yes	Yes	Yes	Yes	Yes
High Literacy $\times$ Video Types	Yes	No	No	Yes	No	No
Observations	501	231	270	501	231	270
R-squared	0.410	0.394	0.445	0.349	0.334	0.374

Response to Editor

Thank you for the opportunity to revise and resubmit the paper. You highlighted several important points.

1. *I understand the concerns of Referee 3 about laboratory experiments with respect to artificial settings at low stakes and limitations in external validity. However, I also see significant advantages of your laboratory setting, as it allows clear causal statements and helps to identify the mechanisms of the results. My view is that all methodologies have some shortcomings and flaws and therefore it is important to analyze important questions using different methodologies (e.g., theory, structural approaches, observational studies, field studies, lab experiments, surveys). You should provide a broader perspective on the advantages and disadvantages of your research approach.*

    - Add 1-2 paragraphs about the pros and cons of different research approaches. Can be included in "Related Literature" or under a separate title "Pros and Cons of Lab Experiments". I think this should be in the introduction?
    - The paragraphs should emphasize the strengths of our approach: (1) addressed gap in literature: Prior research has focused on the pandering behavior of advisors, but little is known about how advisees respond when they receive advice that conflicts with their priors. We are also first to explicitly measure belief changes in response to advice. (2) We actually think the lab setting is necessary for such question. In more realistic contexts, there are significant constraints on what types of advice can be legally given, especially when the advice contradicts clients' priors. Financial firms are often reluctant to challenge client beliefs, and randomizing the nature of advice in the field could raise compliance concerns. These constraints underscore the need for a lab experiment, where we can safely and systematically study belief updating in response to varied advice. (3) We also want to emphasize that our lab experiment is substantially more realistic than online experiments on platforms such as MTurks or Prolific. Participants receive advice in a format that is similar to watching online videos. The videos are realistic and the language is carefully crafted based on actual languages advisors tend to use.
    - acknowledge limitations: no data on actual portfolios of these individuals; cannot track long-term portfolio outcomes

2. *Although I do not think it is necessary to re-run any of your surveys and experiments, you should*

discuss the concerns raised by Referee 3 in the revised version. This will help the readers to understand the limitations of your methodology.

- Thank you. We have added a detailed discussion as described above. See pages xxx.

3. *I agree with Referee 9 that it would be interesting to see whether there are differences in the impact of advice by demographic characteristics (e.g., gender, age, race). For example, women may be more responsive to advice delivered by female advisors. Your setting may be well suited to study this question. Addressing this question would further enrich the contribution of your paper.*

    - Do these tests and comment on heterogeneity by demographics and homophily effects. We won't have room to add these results in the main tables. We can include these discussions as a separate section - Section 7, after the conflict of interest section? Also, may be there's a difference if we split the sample by investors vs not, or already have an advisor vs. not.

4. *It would be helpful if you could shed more light on the representativeness of your sample. It appears that your participants are significantly more financially sophisticated than the overall population. For example, you could compare the responses to your knowledge questions to the responses to the corresponding questions in other studies (e.g., Lusardi and Mitchell (2007) etc.). Also, several characteristics of your sample (Table 5) are quite different from the overall population (e.g., 82% have a college degree, 28% are married, and 43% have income under $35K).*

    - We can add a Panel A to Table 2 to report the demographics of our sample. These demographics will be compared to those of the broader Boston and U.S. population in 2012, which we can describe in Section 1.1 right after "subject recruitment." Highlight that while the sample has more highly educated individuals, there's still a spread. We will revisit this comparison in Section 2.3 when we compare the financial literacy of our sample with the literature. Again point out that the lower end of the distribution is similar to the literature. The balance table will seem redundant (also focused on demographics), and we can move that to the appendix.

5. *More financially sophisticated participants seem to be more aligned with the passive strategy (e.g., Table 3). Could this potentially explain some of your asymmetric results?*

- Participants' priors reflect how their beliefs had already been shaped by their information environment, so a straightforward interpretation is that sophisticated individuals may have already been more exposed to and influenced by the passive narrative. For those who hadn't, we capture a similar effect in the lab. Thus, our results generally support the 'alignment' of financial sophistication with the passive narrative. This is an economically meaningful result and not mechanical.
- A more subtle question is whether the alignment may reflect some measurement errors thus mechanically generating asymmetric treatment effects among the above two groups. For example, more financially sophisticated participants may have been more familiar with passive strategies, which could influence their pre-video survey responses. Consider the case the true type distributions of sophisticated and unsophisticated may be the same, but more sophisticated report themselves as pro-passive. This may affect our results, though it may actually bias our results toward finding greater response to the active advice. The reason is that the "hidden" pro-active types among them should actually find the active advice video to be more convincing. Therefore, the pre-video alignment cannot fully explain our findings.
- ...
- We have added the discussion above on pages XX.

6. *Could survey participants react more to the financial advice since it was provided at MIT and Harvard? The advice could be seen as an endorsement by these top universities. You may want to add a caveat here.*

    - We cannot rule out the possibility that participants attributed greater credibility to the advice because the experiment was conducted at MIT and Harvard, though the same is true with other credible sources, such as certified financial advisors. If this is the case, then the contrast between the high- and low-literacy individuals would be even more revealing. Specifically, though all participants are aware of the university affiliations, the financially literate individuals are able to critically evaluate and, in some cases, reject that advice. In contrast, financially less literate individuals may be more susceptible because they rely more on perceived credibility - which can stem from either the advisor's job title or the university that runs the experiment - rather than

content. We have added this discussion both in footnote XX (in experiment set-up) and on page xx when we discuss the different reactions by high- and low-literacy participants.

7. *Can you include your Confidence measure in Tables 3 and IA.2?*

   - These are Pearson correlation tables. It is a good idea to include the confidence measure in these.
   - We have updated these tables to show the correlations with the confidence measure. The measure is orthogonal to knowledge score by construction . . . comment on other correlations.

Response to R3 ("This paper executes a lab experiment")

Main Comments:

1. *The first set of issues relates to the paper's marginal contribution to the literature. Over the last 10 years, the literature on financial advice and investment decisions has largely moved on to study real-world field settings in which stakes are high and financial-advice treatments are based on the actual advice individual investors obtain at banks or brokerage houses rather than based on a more simplistic pre-recorded video. For this reason, the bar in terms of the contribution of a stylized lab experiment is quite high. For instance, providing careful causal tests of channels that would be hard to disentangle and assess with field data or providing evidence of completely new economic channels and their drivers that others could later test in the field. Unfortunately, this paper and its experimental design/scope do not and cannot reach this bar. For instance, the paper by Agnew et al. (2018) in Management Science already documents in an experiment that advisors' features matter to build trust and support on investors' side and drive investors' willingness to take the advice. The authors cite this work and argue that the main difference is that they focus on the content of two advising strategies rather than on advisors' features but if advisors provide advice in which they believe, the content of their advice would just be one additional feature of advisors that matter for the willingness of investors to follow advice on top of those that Agnew et al. (2018) have already documented several years ago in a non-top journal. This paper does not even exploit the experimental setting to study the agreement and take up of individual investors of alternative detailed sets of components of investment strategies but only proposes a broad comparison between active and passive investment strategies, which limits the relevance of its contribution. This paper studies subjects' assessment of the advice they receive based on whether it conforms to their priors but earlier work, such as Calcagno and Monticone (2015), shows that low-literacy investors are less likely to seek financial advice but, conditional on seeking it, are more likely to fully delegate their portfolios to advisors. For this reason, whether low-literacy investors agree or disagree with advisors, as studied in this paper, and whether they incorporate advice in a hypothetical choice in the lab seems to be irrelevant to their willingness to fully implement any advice they get in the field through full delegation. Moreover, using field data, Stolper (2018) already studies how, above and beyond concerns about conflicts of interest, confidence in one's financial knowledge affects investors' willingness to follow financial advice irrespective of investors'*

actual financial literacy. These are just a few examples of how the depth of this literature narrows the contribution of this paper and its viability for a top finance journal contribution.

- Thank you for your detailed reading of our paper. One of our central research questions is how individuals respond to financial advice that contradicts their prior beliefs, an issue that requires exogenous variation in the advice content. Because observed advice is often catered to advisees' existing beliefs, lab experiment is essential for this purpose. While we have explored the possibility of conducting such a study in the field, including discussions with financial advisory firms, we found that firms are reluctant to participate in experiments that involve randomizing the content of advice, due to compliance and reputation concerns. In the absence of significant regulatory changes, a lab setting remains the most viable way to cleanly identify the causal impact of advice that may conflict with pre-existing beliefs. This aligns with your helpful observation that experiments are especially valuable when they allow for careful testing of mechanisms that would be difficult to isolate using field data.
- None of the cited papers study how consumers update beliefs after receiving financial advice. We can emphasize how clever this design is: The active-passive spectrum is a great setting to measure belief updating. The two strategies are "horizontally differentiated" with no consensus quality difference, thus we do not have to offer strictly inferior advice to experiment participants. They also represent opposite beliefs, so we can measure both the direction and the magnitude of belief shifts.
- Agnew et al. focuses on the presentation of the advice, for example, advisors' tone, friendliness, or the perceived personalization of the advice. They conduct the experiment in Australia. The two papers are truly complementary - they focus on the superficial factors, while we focus on the content of the advice.
- Calcagno and Monticone is not an experiment. Using a survey of Italian bank customers, they estimate a model of advice seeking. They find that financially literate individuals are more likely to consult advisors and benefit from their input, while less literate individuals either delegate decisions or avoid investing in risky assets altogether. However, the notion of "complete delegation" may oversimplify actual behavior. It remains important to understand how less financially literate investors interpret and respond to the content of financial advice—an area the

existing literature has largely overlooked.

- Stolper (2018) investigates how households respond to standardized financial advice where the potential for conflicted advice is minimized. Using data from over 6,000 German households advised on retirement and insurance needs, the study finds that most households either ignore the advice or implement it only partially. Financially literate consumers are particularly unlikely to follow the advice, even when it is unbiased. These findings reinforce the evidence in Bhattacharya et al. (2012). However, the reasons for low take-up remain ambiguous; i.e., advice may be dismissed because it contradicts investors' priors or is perceived as low quality. Without a quasi-experimental or randomized design, these factors are difficult to disentangle. Our paper addresses this gap.

2. *The second set of issues relates to the experimental design and problems with the interpretation of the main results. First, the fact that subjects tend to rate the quality of the advice they receive higher if it conforms with their prior views about investment strategies is an important result but also one that could be hard-wired in this specific setting. This is because subjects are asked in the same experimental session and just a few minutes apart to first rank the seven potential components of investment strategies that map into passive vs. active strategies and then watch a video with arguments in favor of passive vs. active strategies to assess their quality. Rating the advice inconsistently relative to the previous answers would mean admitting that the subject was wrong in the previous answers, which is something most subjects would not do irrespective of their actual views and beliefs due to cognitive dissonance. This means that the experiment cannot disentangle if subjects simply provide consistent answers before and after the video to not admit they were wrong or if subjects do value the quality of advice differently based on whether it is consistent with their prior views, which is the interpretation proposed by the authors. The only convincing way to support the latter argument would be measuring subjects' views at a different time and in a different context than during the experiment, for instance, conducting surveys well before the experiment and asking about many topics to reduce the salience of investment strategies or based on observational investment data to measure subjects' views before the experiment by revealed preferences.*

   Second, the asymmetric reaction to advice that conforms to priors or not by subjects with high vs. low financial literacy is portrayed as an important result already from the abstract but the estimates

reported in Table 6, columns 5-6 are not convincing evidence in support of this result/interpretation. Even if smaller in size, the estimated coefficients for low-literacy subjects go in the same direction as those for high-literacy subjects and because of the very small samples statistical power is quite low in these specifications, which do not include controls to potentially increase the precision of the estimates. Even formally, would t-tests for whether the corresponding coefficients in column 5 and 6 are equal reject the null? Probably yes for the coefficient on pro-passive subjects who watch the active strategy video but for the pro-passive subjects who watch the passive strategy video? There is no systematic difference by literacy for pro-active subjects who watched the passive video.

- In addition, we intentionally avoided the terms active and passive investment strategies when soliciting pre-treatment beliefs, so the participants did not know what the purpose of the experiment was or what beliefs were being studied. Thus, when people answer the question about whether they agree with the advice, it is not apparent whether the advice confirms or contradicts what they answered earlier. They needed to evaluate the advice against components of their existing beliefs in order to answer the question. They were then asked immediately to re-rank the different components of investment strategies. Thus, if people simply want to appear consistent, they should report the same beliefs from before to after the video treatments, and we should not observe any belief updating. We have added these discussions to pages XXX (section 2.1 about pre-video beliefs), explaining that the questions are intended to include components that reflect either strategy and some are intentionally less related. We also deliberately avoided the terms "active" and "passive" to avoid direct labeling, so that the participants won't explicitly classify the advice as for or against priors and will need to carefully evaluate the advice to answer the post-video questions, such as whether they agree with the advice.
- The question of "agreeing with the advice" is asked in several different ways. We obtain similar results when using the answer to "how convincing is the advice?" This is reported in Table IA.7.
- We can estimate t-stats for the differences between high and low literacy. In Table 6, column 6, the coefficients for low literacy are much smaller. Even if the 2nd and 3rd rows are significantly different, the difference from high-literacy will still be large and significant.

3. *The third set of issues relates to the external validity of the results. The bar in terms of external validity for a hypothetical stylized investment decision in the lab is very high at this stage of the literature*

given that by now we have more than 10 years of studies asking similar questions with plausible identification strategies using actual high-stakes investment decisions in the real world. Even if this paper's hypothetical investment decision is incentivized, we are still at a level of abstraction of many features of real-world investment choices that places it quite far from replicating the high-stakes setting of a retirement investment decision by individuals in a real-world setting. I understand that the authors did what they could here given the lab experiment setup but, for instance, subjects know that if they really won the $3,000 in the form of the chosen portfolio they could always just sell it immediately and either cash it out or reinvest with a different allocation and fund choice. For the other variables the authors measure, i.e. subjects' ranking of the quality of advice and their views about a set of concepts underlying investment strategies, absent actual investment choices it is impossible to know how much these variables really matter or if individual investors even use them at all when making true investment decisions in the real world. Many subjects might delegate all their choices fully to advisors or family members, or pick default options in the retirement context without even caring to make an active decision. In addition, ranking the quality of advice higher or lower does not necessarily translate into a higher or lower likelihood of seeking and/or following advice. The paper considers quality rankings but has nothing to say about this mapping, which is what we need to know to understand if quality assessments matter for investment decisions.

- We want to emphasize that the incentivized portfolio choice follows a well-established approach in experimental research on financial decision-making. Participants were informed that i) the portfolio prize was only granted after the end of the experiment period, and ii) transferring the portfolio into their name would require an additional one-month processing period. As a result, the average participant expected a 3-4 month wait time before they can receive the portfolio, this creates an incentive for them to maximize expected portfolio performance even if they plan to sell it immediately. We have added these details to pages xx in Section 5.
- While there have been advances in studies using real-world data, they address different questions from our study, and the presence of those studies does not mean that the question we ask in this paper has already been answered. In terms of the question of whether assessment of financial advice affects advice following and investment decisions, our study directly connects these pieces. We find that financial advice influences beliefs and that people then act consistently according

to their beliefs. This pushes beyond the current studies, precisely because, as the referee notes, many real-world studies find that the advice-to-action link breaks down. However, numerous frictions (inertia, distractions, etc.) confound this relationship and make it difficult to isolate whether the advice is inherently ineffective or simply obstructed by these other barriers. We have added the above discussion to page xx in Section 5.

Small Comments:

1. *I don't follow why the paper calls this experiment a "randomized controlled trial (RCT) that is akin to a lab-in-the-field" experiment" on page 3. This seems like a standard lab experiment to me where subjects sit in a lab and all the treatments and choices happen in the lab. What is the field component of this experiment?*

    - We have revised the language. The reason we said 'lab-in-the-field' was that we recruited participants from real companies.

2. *I'm a bit more concerned about subjects' self-selection in the study than the authors are on page 8. If participants are more likely to have strong views about alternative investment strategies than the general population, the result on rating higher the advice that confirms their own priors might not be externally valid.*

    - Self-selection could actually bias the results in either direction. As you note, participants may have stronger views on investment strategies than the general population, but it is also plausible that those who signed up are more interested in receiving financial advice. As noted earlier, our sample is representative of the Boston population. Among them, our results show a wide range of responses to financial advice that challenges prior beliefs, with important heterogeneity by financial literacy and confidence. It is this heterogeneity, rather than the absolute level of receptiveness, that sheds light on the underlying economic mechanisms and forms the core contributions of our paper. maybe this is something we can clarify in the conclusion.

3. *The video-based advice lacks any interaction components, Q&A, and personal touches that live financial advice can provide and that are likely important to affect individual investors' views about the quality of advice and willingness to implement the advice. The authors cannot do much about*

this point and they say explicitly that the advice they study is closer to what investors can get from social media or online sources but perhaps more discussion about the external validity of the results to settings in which the advisor has more ways to persuade investors would help.

- Video-based advice allows our study to focus on the content of the advice while holding other factors constant. Of course, many aspects of advice delivery beyond content can influence receptiveness. This is exactly why our study complements existing and future work on the relative importance of non-content-based interactions. We have added this point on page xxx. Interestingly, a recent *InvestmentNews* article (link) suggests that since Covid, clients place more emphasis on measurable results than on soft relationship dynamics.

4. *In Table 3, it seems surprising that Minimizing Risk's ranking of importance is negatively correlated with all other strategies, including Diversification. You take a data-driven approach to construct the passive vs. active strategy supporting profiles but do some of the results in Table 3 raise doubts that at least a part of the subjects did not fully understand the questions they were asked or they do not really have any coherent investment strategy in mind?*

   - In designing the prior-belief question, we intentionally included 'neutral' aspects that do not directly align with either investment strategy, for two reasons. First, this helped hide the specific beliefs that were being measured and the purpose of the experiment. Second, as you noted, we wanted to let the correlations in participants' responses reveal which elements they themselves associated with active or passive strategies.
   - 'Minimizing Risk' was intended as a somewhat orthogonal component. We left the type of risk unspecified, because investors may not have a clear sense of systematic risk and idiosyncratic risk. While academics associate diversification with (idiosyncratic) risk reduction, retail investors could think of risk reduction as reducing market exposure, which could indicate a belief for active management. Consistent with this ambiguity, our data suggests 'minimizing risk' is not strongly aligned with either the pro-active or the pro-passive belief.

5. *If you added both subjects' confidence in their knowledge and the actual measure of their knowledge as covariates in the same OLS regressions you would already only exploit the variation in each variable that is orthogonal to the other. Why a separate step to residualize confidence and rescale it?*

- The two approaches should be similar, though we chose to orthogonalize the confidence measure to avoid co-linearity. can show a table where we include both the true literacy and the self-assessed literacy.

6. *In this setting in which both the dependent variable and independent variables are not continuous, interpreting the estimated magnitudes from OLS regressions is hard. Like any experiment the focus in anyway on directional results but if the authors want to give relevance to the estimated magnitudes they should consider alternative specifications as their main specifications in the analysis.*

    - Thanks for this point. Since both our Likert scale and our belief scores include nine points, the categories are relatively fine-grained, and OLS may offer a reasonable approximation. That said, we recognize that the distances between categories are not equal. For this reason, we should focus on directional, rather than quantitative, interpretations of our results. We have revised the paper to avoid making magnitude-based statements about magnitudes. As a robustness check, we estimated ordered Logit models for the main results in Tables XX and obtain similar results... (may need the ordered logit result to answer R9's first point about magnitudes)

Response to R9 ("Using randomized controlled trials (RCT)")

1. *While the directions of many results are not surprising, RCTs do have the advantage of providing a more precise quantification of the effect. Maybe more discussion on the economic magnitude of the effects can be added to the introduction.*

    - Thank you for this suggestion.

2. *Backman, Balakina, Hackethal, Hanspal and Lammer (2023) show that retail investors seek financial advice among their family and friends, which is broadly consistent with this paper's findings related to prior alignment and incentives.*

    - Thank you for this suggestion.

3. *A clarification question: can the winning portfolio be sold immediately? If so, then its exact composition may not be relevant. The composition is more relevant if the winner is asked to hold on to the portfolio for at least a while.*

    - We have added this clarification both to the introduction and to Section 5.

4. *The trials were conducted over a 6-month period in 2012. I wonder if the time varying stock market condition during this period may affect the individual outcomes. Maybe month FE or some subperiod analyses are useful (if there is enough statistical power).*

    - Will try this test.

5. *Another interesting question that the authors' data could shed some lights on is related to the impact of gender alignment, or in group vs. out group bias. Does an individual rate the advice better and more likely update belief, if it is given by an advisor of the same gender? Is there an asymmetry between male and female advisors?*

    - Will try this test.

6. *The main text of the paper can be made a bit shorter to focus on the key empirical findings. For example, Tables 3-5 can be relegated to the appendix if needed.*

    - Thank you for this suggestion.