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Individual Judgment and Trust Formation: An Experimental Investigation of Online Financial Advice.

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Financial Advice**

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Abstract

We explore how individuals assess the quality of financial advice they are given and how they form judgments about the trustworthiness and expertise of their advisers. Using an incentivized discrete choice experiment, we demonstrate how clients' opinions of adviser quality can be manipulated over time by using a simple and easily replicated confirmation strategy. Our results show how clients use external signals, such as professional credentials, to guide their choices when the quality of advice is unclear. Our results indicate that improvements to regulation and monitoring of financial adviser qualifications are warranted.

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1. Introduction

Given the growing responsibility individuals have for their finances and the documented lack of financial literacy of many, academics are searching for ways to improve consumer financial decision-making. Enlisting the services of a financial adviser could be a solution, but the theoretical and empirical literature suggests that agency problems and poor advice abound. In addition, the average consumer's ability to determine which adviser to trust is still unclear. If advice is to improve decisions, then it is critical that consumers go to advisers who deliver high quality and unbiased recommendations.

Our research has two main goals. First, we ask why a consumer might continue to trust an adviser who begins to make poor recommendations. Second, we ask how external signals influence decision-making. We use an incentivized discrete choice experiment in our analysis and, to the best of our knowledge, ours is the first study in this field to use this approach. Our paper demonstrates how trust in an adviser can be manipulated over time by using a simple and easily replicated confirmation strategy, and that adviser certifications can influence opinions about advice quality.

2. Background

Research shows that the complicated relationships between consumers and financial advisers are still not well understood.¹ Hackethal, Haliassos, and Jappelli (2012) suggest that, at least in theory, financial advisers should ameliorate the disadvantages of weak consumer financial literacy. But Hackethal and Inderst (2012) find that financial advice can be used to exploit a consumer's lack of financial literacy and inexperience, and Inderst and Ottaviani (2009, 2012a) warn that agency problems are likely to emerge.

Other research provides similarly mixed evidence. In favor of financial advice, Bhattacharya, Hackethal, Kaelser, Loos and Meyer (2012) find that those who follow unbiased computer-generated advice enjoy an improvement in portfolio efficiency. Finke (2013) shows that prior consultation with a financial planner is positively related to higher net worth and retirement wealth, and makes the use of tax-preferred savings vehicles more likely. On the negative side, broker-sold funds and portfolios constructed by brokers in the U.S. underperform

¹ See Mitchell and Smetters (2013) for a collection of recent research into financial advice on retirement topics. Holden (2013) and Collins (2010, 2012) explore who uses financial advice in their studies. Other possible solutions being studied include financial education, regulation, communication methods, retirement plan design and behavioral interventions (for example, Benartzi and Thaler 2004; Carroll, Choi, Laibson, Madrian and Metrick 2009; Choi, Laibson, Madrian and Metrick 2004; Hershfield, Goldstein, Sharpe, Fox, Yeykelis, Carstensen and Bailenson 2011; Lusardi, Keller and Keller 2008; Fernandes, Lynch and Netmeyer forthcoming; Goldstein, Johnson and Sharpe 2008; Madrian and Shea 2001).

benchmarks (Bergstresser, Chalmers, and Tufano 2009; Chalmers and Reuter 2012) and advisers do not undo behavioral biases and misconceptions of their clients (Bergstresser et al 2009; Mullainathan, Noeth and Schoar 2012). In addition, advisers encourage clients to trade excessively and purchase unsuitable products, and experienced clients who do not monitor their advisers are susceptible to manipulation (Hackethal et al. 2012). Finally, Anagol, Cole and Sarkar (2013) find advisers recommend unsuitable products and cater to uninformed consumers. These studies raise the question of why people seek financial advice, and more puzzlingly, why they continue to follow advice of dubious value.

The theoretical and empirical evidence shows that consumers need to carefully select and monitor their advisers. However, research into how consumers make this decision is limited. Moreover, research suggests individuals focus on numerous more or less salient factors when selecting a financial adviser, including perceived expertise (Holden 2013) and trustworthiness (Lachance and Tang 2012; Georganakos and Inderst 2011). This research raises the questions of how individuals use these factors to choose advisers, how they form impressions of the adviser's ability, and how suitable that ability is to the client's on-going needs.

Research in organizational behavior, such as that by Feng and MacGeorge (2006), Harvey and Fischer (1997), and Nadler, Ellis and Bar (2003), suggests that individuals are less likely to discount advice from perceived experts or advisers with experience. Holden (2013) confirms these findings in the context of the financial adviser/client relationship. Similarly, trust is an important driver of analyst selection and advice use. Industry surveys conducted by the Certified Financial Planner Board of Standards (2004) and State Street Global Advisors (2007) rank trustworthiness as the most important factor in choosing an adviser. This finding is supported by academic research (Lachance and Tang 2012). Furthermore, Georganakos and Inderst (2011) and Hackethal, Inderst, and Meyer (2012) show that clients with limited financial capability are more likely to follow advice if they trust their adviser. Hence, if we want to understand the adviser/client relationship we must understand trust formation.

Earned trust depends on many factors, including the consumer's capability, the accuracy and quality of information provided, and a belief that adviser and consumer incentives are aligned (Yaniv and Kleinberger 2000; Sniezek and Van Swol 2001). However, there also is evidence that the trust of many consumers is easily won, albeit not always deserved. For example, administrative data obtained by Hackethal et al. (2012) and field studies conducted by Mullainathan et al. (2012) and the Australian Securities and Investment Commission (ASIC) (2012) show that clients often continue to trust advisers who give poor-quality and/or self-interested advice. Indeed, Mullainathan et al. (2012) report that a large majority of the auditors

surveyed in their study said they would use the advisers they met during the research for investment advice, even though the auditors knew that they had often received biased advice. Similarly, over 80% of the consumers recruited to report on meetings with financial advisers for the ASIC field experiment said they trusted the adviser they met, despite the fact that according to objective ratings, only 5% of these consumers received good advice. The ASIC (2012) report blames the complexity of the financial decisions for some of the clients' lack of discernment.

It is not surprising that advisers may deliberately use strategies to build client trust. For example, to establish credibility and not alienate potential clients, an adviser may initially cater to a client by supporting the client's existing strategy, only diverging from that strategy after trust has been established (Anagol, Cole and Sarkar (2013); Mullainathan et al. 2012). Similarly, Gennaioli, Shleifer and Vishny (forthcoming) present a model that predicts money managers will pander to investor's beliefs to build trust when those investors hold biased expectations. The reason being that those managers that generate the most trust can charge their clients the highest fees.

3. Research Approach

Our approach focuses on studying whether a catering strategy by advisers can build trust even in an artificial, video advice setting. We also study whether attributes that might correlate with expertise (e.g., a certification) influence decisions.

3.1 General Overview

To answer our research questions, we designed and implemented an incentivized online choice experiment, which we embedded in a larger survey.² We began the survey by screening potential participants to ensure a representative sample, and then progressed through four parts.

The first part measured general financial knowledge on inflation, interest rates, and diversification from Lusardi and Mitchell (2011); numeracy skills (Lipkus, Samsa and Rimer 2001); and questions to elicit knowledge and understanding of the four advice topics related to the choice experiment. This part concluded with questions concerning knowledge of financial products and experience, and participants' attitudes towards financial advisers.

² To view one example of just the choice experiment, go to <http://survey.confirmit.com/wix5/p2552279525.aspx>. A full set of screenshots from the survey including the wording of all questions and instructions is available in Online Appendix A (http://cepar.edu.au/media/126938/online_appendices_a_thru_d_individual_judgment_and_trust_formatio_n.pdf)

The second survey component was the choice experiment, after which we asked participants to rate the advisers assigned to them on several personal and professional traits, such as trustworthiness, competence, attractiveness, understanding, professionalism, genuineness, and persuasiveness. The third component comprised questions on demographics (e.g., marital status, household size and number of dependents, education, labor market status, income, gross assets, and debts/liabilities) and personal characteristics, including personality traits and risk attitudes.

The final component of the survey was a debriefing during which we reminded participants that the experimental task involved only very simplified versions of actual financial situations, and encouraged participants to go to a professional financial adviser when making personal financial decisions. The debriefing explained the correct recommendations for the four advice topics. The survey concluded with four questions to test whether participants understood the debriefing, and an invitation to provide open-ended feedback on the whole survey. The feedback was strongly positive.

We maximized incentive compatibility in the choice task and debriefing by offering monetary prizes. We offered participants an incentive to choose the correct recommendation for each advice topic, and another incentive to choose correct answers during the debriefing at the end of the survey. The incentive in each case was one entry in a \$A50 draw for each correct answer. In addition, the panel provider paid participants who completed the survey around \$A4. We also included two sets of instructional manipulation checks (IMCs), designed to measure whether participants paid attention to the survey (Oppenheimer, Meyvis and Davidenko 2009).

3.2 Basic Design of the Discrete Choice Experiment

The experimental task began with a short introductory video. To present this video we pretested narrators from among several actors and chose the one perceived to be the most unbiased and trustworthy. We also pretested the key aspects of the experimental design including the actors playing the financial advisers, the adviser names, the advice topics and the adviser credentials (see Online Appendix B).

The narrator welcomed participants to the study, explained the task, the setting, and the associated questions, and made several important statements stipulated by the Institutional Review Board (IRB) at William and Mary. The narrator said:

Over the next few minutes, you will hear recommendations from two different financial advisers relating to four financial scenarios, some of which you may have already experienced. For each scenario, we will ask you which advice you would be

most likely to follow if you were in this situation. Following that, we have a few questions for you to complete in an online survey.

After the introduction, participants were given a separate page that explained how they could increase the payment they received for completing the survey by answering the experimental questions correctly. We then assigned participants to a sequence of four choice sets, each containing one correct and one incorrect recommendation on a financial topic, and asked participants to choose the advice or recommendation they would most likely follow.

Each choice set began with another short introduction by the narrator on the particular topic. Figure 1 shows a screen shot of one choice task screen with two advisers side by side. Participants first viewed the video of the adviser on the left (adviser 1) and then looked at the video of the adviser on the right (adviser 2). After watching both videos, participants could review them as many times as they wished before making their choice.

FIGURE 1 HERE

We alternated the sequence of topics, attributes of the advisers, and whether the good (i.e., correct) or bad (incorrect) advice for a specific topic was given by the adviser on the left or on the right. To perform this manipulation we used an experimental design that insures identification of probabilistic discrete choice models that underlie discrete choice experiments (DCEs). The experiment was a within- and between-subject design. The attributes of the advisers were gender (male or female), age (younger or older), and display, or lack of, professional credentials. A text label, “Certified Financial Planner”, which is the valid professional credential for financial advisers in Australia, appearing near the adviser’s name served as the adviser’s credential. The text display appeared for several seconds while a specific adviser’s video was playing.

We hired a production studio and professional actors to represent the advisers. We used extensive pretests and manipulation checks to ensure that the actors we employed were seen to vary only on the manipulated factors and not on other characteristics or personality traits. While filming the videos, we ensured actors delivered each piece of advice in a consistent tone and that they used generally similar gestures and expressions. Advisers wore similar clothes, make up and jewelry and the director positioned each actor the same way in a generic office. We reshot videos until every actor delivered each piece of advice with precisely the same wording. The pretest results for the actors are discussed in Online Appendix B, Section B1. Figure 2 shows the four actors.

FIGURE 2 HERE

Table 1 presents the format for our test. We use a foldover design to keep the total number of treatment groups manageable in this between-subject manipulation; foldover designs pair each of the eight possible adviser-types with their “mirror image” (i.e., the opposite level for each attribute, such as a younger woman adviser with a certification paired with an older male adviser without a certification). This design involved eight orthogonal pairs, and is optimally efficient under the assumption that a conditional multinomial logit choice model with an additive indirect utility function underlies participant choices (Street, Burgess and Louviere 2005; Street and Burgess 2007).

A complete experiment involving all 16 possible quality sequences, eight adviser pairs, and four advice order sequences would require 512 treatments (experimental cells). This experimental design represents a complex survey programming problem that would require a very large number of participants. To reduce the complexity, we used a fractional factorial design to produce 256 between-subject treatment groups comprised of eight advice quality sequences, eight adviser pairs and four advice order sequences. We randomly assigned approximately five participants to each of the 256 treatments; the total sample involved 1,274 participants. All participants made choices on all four advice topics (within-subjects). We assigned a pair of advisers to each participant. This pairing remained constant throughout the choice tasks. Panel A of Table 1 provides an overview of the characteristics of the pairs.

TABLE 1 HERE

In Table 1, Panel B shows the topic order. There are 24 (=4!) possible orders of the four advice topics, from which we chose four sequences using a Latin square design. In terms of advice quality, in three quarters of the treatments each adviser gave a combination of both good and bad advice across the four topics.

In Table 1, Panel C shows how the sequence of advice quality varied in the experiment. We note that each participant’s quality sequence was determined by one of the eight rows in Table 1. For quality sequence 1 (row 1), the first adviser provides only bad advice and the second adviser gives only good advice. In the next quality sequence 2 (row 2), a participant receives bad advice on the first two topics and good advice on the last two topics from adviser 1, with mirroring advice from adviser 2.

Due to the complexity of this experiment, we provide an example of how we generated a treatment from the three panels in Table 1: We first selected a pair of advisers from the second row of Panel A. Reading across this row, we see that our first adviser was a younger male with a professional certification. The foldover design shows that the second adviser was an older female with no professional certification displayed. Next, we selected the topic order. We chose the

Sequence 1 column from Panel B. By reading down this column, we see that the first advice topic presented by the two advisers was debt, the second was diversification, the third was fees, and the final topic was retirement plan consolidation. Finally, we combined this information with one of the rows from Panel C that gives the quality of the advice given by both advisers. Choosing quality sequence three, we see that our first adviser provided bad advice on the first topic, paying down existing debt, and the second adviser provided good advice. The second topic presented in sequence 1 (Panel B) is diversification. Panel C shows that the first adviser gave good advice on the second topic and the second adviser gave bad advice. The third choice relates to index fund fees; the first adviser again gave bad advice and the second adviser gave good advice. For the last choice, which relates to consolidation of retirement accounts, the first adviser gave good advice and the second gave bad advice.

3.3 Selection of Adviser Attributes and Names

We base the selection of our three attributes on a survey of marketing materials created by Australian firms that provide financial adviser services, and through our review of prior research related to advice use. The promotional material for advisers revealed that women are often portrayed as advisers in Australia, which motivated our interest in gender effects. In addition, organizational behavior studies examining advice discounting suggested that individuals might be more responsive to advice from older people who have more life experiences or who are perceived to be experts (Feng and MacGeorge 2006, Harvey and Fischer 1997, Nadler et al. 2003). So, age as a signal of life experience and credentials as a signal of expertise emerged as natural options to test these ideas. Because of the associated policy implications and current debates over their use in several countries, credentials are particularly appealing as an attribute. For example, if we can show that consumers use credentials as signals of adviser quality, then these designations can be used as a tool to help them choose advisers. We used the Certified Financial Planner (CFP) designation in our experiment, which is the gold standard in Australia. To confirm that participants recognized the name and considered it a good signal, we pretested adviser credentials. We showed participants 11 credentials, both real and fake, and asked them to select the credential that would indicate an adviser who would be the most likely to provide good advice and the credential for an adviser who would be the most likely to provide bad advice. We used Best-Worst Scaling to compute a score for each credential on a Most Minus Least scale. Pretest results (See Table 2) indicated that participants perceived the CFP as the highest quality designation. Although the pretest supported the use of this designation, it also uncovered a potential downside of credentials; i.e., the gold standard credential was recognized as the best

certification, but the two next most popular credentials (Master Financial Planner = 236; and Qualified Financial Planner with High Designation = 45) were fake, yet preferred over other real credentials. So consumers have difficulty discriminating one credential from another, especially when there are many credentials to evaluate.

Finally, as suggested by recent behavioral finance literature, we also pretested adviser names used in the experiment to ensure that they were approximately equally “liked” and trusted (Kumar, Niessen-Ruenzi and Spalt 2013). (See Online Appendix B, Section B3.) This testing produced four adviser names: Michael Adams (younger male), Claire Harris (younger female), David Forbes (older male), and Elizabeth Turner (older female). Figure 2, above, shows the four advisers.

3.4 Selection of Financial Topics and Advice Content

For our selection process, we identify straightforward financial issues that are commonly confronted by individuals around the world, and that are also associated with common mistakes. We also want to ensure that each topic has only one correct answer. This goal was a challenge, because sound financial advice depends on an individual’s specific situation and characteristics.

The first topic, choosing a low-fee index fund, is an enduring puzzle in consumer finance, where index funds that are essentially commodities often have a wide range of fees (Elton, Gruber and Busse 2004; Hortacsu and Syverson 2004). Even relatively well-educated investors often fail to account for fees when comparing funds (Choi, Laibson and Madrian 2010).

Other research shows that the second topic, diversification, is widely misunderstood (Agnew, Bateman and Thorp 2013; Lusardi and Mitchell 2011). For example, the percentage of survey participants who knew that a well-diversified fund was less risky than a single stock in the U.S., Germany, the Netherlands and Australia was 34%, 32%, 33%, and 37%, respectively (Lusardi and Mitchell 2013; Agnew et al. 2013). Mistakes related to these two topics are common in practice. For example, the U.S. Department of Labor, in its final rule related to investment advice for participants in individual account plans, lists payment of inefficiently high investment fees and inadequate diversification as two of five distinct errors U.S. residents make in retirement. (Department of Labor, 2011). The third topic, paying down credit card debt, is a concern to regulators in several economies, such as the United States and Australia, where cardholders commonly incur unnecessary fees and interest charges (Agarwal, Chomsisengphet, Mahony and Stroebel 2014, Bagnall, Chong and Smith 2011; Social Research Centre and ANZ 2011; FINRA, 2013).

The fourth topic, consolidation of retirement accounts, is an important issue in economies with automatic enrolment in retirement plans. In Australia, employer contributions to retirement accounts are mandatory for most workers. Employees often have multiple accounts, particularly if they are employed part-time. Members with several accounts pay redundant administrative fees and insurance premiums. Even worse, when account holders leave firms, many retirement accounts are left behind. There are around 3.4 million lost accounts amounting to around \$A17 billion in unclaimed savings in Australia; in the U.S. missing 401(k)s, which are called “zombie accounts,” are also a multi-billion dollar amount (Pechter 2013).

Scripting ensured that each actor delivered both an introduction to the topics and good and bad advice in exactly the same way. Table 3 outlines the scripts for the good and bad advice.

TABLE 3 HERE

We pretested these topics to confirm that a majority of people could indeed discern good and bad advice on them. (See Online Appendix B, Section B4.) Pretesting (See Table 4) also showed that recognizing good advice was easier than discounting bad advice. For example, in the index fund fee topic, almost half the participants incorrectly labeled the bad advice as correct, but only about one third incorrectly labeled the good advice incorrect for the same topic. When we compare figures in the two incorrect columns, we see that this pattern is not limited to the fee topic. The pretest results indicate that many people are not completely secure in their opinions and may be open to misleading, persuasive arguments, particularly on the more difficult topics of fees and diversification.

TABLE 4 HERE

3.5 Theoretical and Empirical Basis for Trust Formation

There are two possibly interrelated explanations for why clients tend to continue to trust advisers, despite being given poor quality advice. One is the complexity of many financial problems (ASIC 2012), which makes the evaluation of advice quality difficult. The second is that in trying to build a strong relationship, some advisers tend to cater to clients’ prior opinions (Mullainathan et al. 2012).

A recent theoretical study (Fryer, Harms and Jackson 2013) proposes a general model of Bayesian updating with limited memory that can be applied in an advice setting to help understand the effects of both complexity and catering. The Fryer et al. (2013) model broadly explains why initially supporting the client’s existing financial practices or views can be an effective strategy for advisers to build client relationships and trust, especially when providing advice on difficult topics. Two features are important: that the client receives both clear and ambiguous signals of adviser quality and that the client must update their probability of adviser

quality at each signal rather than waiting to update their prior probability until a complete sequence of signals has arrived.

To apply the model, we assume that a client begins with a neutral expectation of the adviser and holds a favorable opinion of their own portfolio. An adviser first chooses to give a clear signal to the client that they are a good quality adviser by confirming a client's current financial choices. This causes the client to update their prior probability in favor of the adviser. Once the adviser has confirmed the client's views, and prompted a higher posterior probability of quality in the client, he or she can then follow with advice on a complex topic that a client does not understand, creating an ambiguous signal. According to the model, if the client must update their probability of adviser quality at each step, the ambiguous signal will be interpreted in line with the client's prior probability. As a result, clients continue to think favorably of an adviser who has first confirmed the client's views even if the adviser then gives a biased recommendation on a complicated or ambiguous topic. Using this approach, over time a client's final recommended financial strategy could be very different from the starting point confirmed by the adviser, and despite receiving biased advice, a client could remain more convinced than ever that an adviser is trustworthy. This outcome is noted by Mullainathan et al. (2012), who observe that the final strategies recommended to their auditors differed a lot from those advisers confirmed at the start of a meeting.

Key aspects of the Fryer et al. (2013) model are consistent with features of our experiment. First, during the experiment, as participants receive advice on each topic they must form, then update, a prior probability over which of the two advisers can be trusted, is competent, and should be followed. Second, the choice experiment structure forces clients to update their prior probability of adviser quality as each topic is presented, because participants must make an explicit choice in each of the four video pairs and cannot be equivocal. Third, according to the pretest, the signal quality varies from topic to topic. Participants received clear signals on the easy topics of consolidation and debt, but ambiguous signals on hard topics such as fees and diversification. And at the end of the choice task we collected participants' posterior evaluation of the qualities of each adviser.

3.6 Model Predictions

To collect the participant's later views of adviser qualities, after they had made their four choices, we asked participants to compare the two advisers on trustworthiness, competence, attractiveness, understanding, professionalism, genuineness, and persuasiveness. Participants could rate either one adviser as highest on each of these qualities, or rate both advisers the same.

This exercise gave an ordered pair of ratings for each participant for each adviser quality: one indicates either agreement with the statement that the left (1,0) or right (0,1) adviser MOST displays this quality or that both advisers are the same in this quality (1,1).

To expose the effect of clear or ambiguous signals sequences on adviser quality and their relationship with good (G) and bad (B) advice, we separated topics into hard (H) or ambiguous (index fund fees and stock diversification topics) and easy (E) or clear (debt repayment and account consolidation topics) according to pretest findings. Our experimental design involved eight sequences of good and bad advice: GGGG, GGBB, GBGB, and GBBG and their opposites for the matching adviser (Table 1, Panel C). We focused on interactions of these quality sequences with two new clarity sequences of hard (H) and easy (E) topics, EHHE and HEEH. Table 1, Panel B, displays the breakdown.

We test several predictions based on the Fryer et al. (2013) model on the interaction of these two sequences. For example, the quality of the first advice given in the clarity sequence EHHE should provide a clear signal to almost all participants on the adviser type, as this first topic was easy to understand. Conditioning on other attributes, good (bad) advice given on this first easy topic should lead to an updated probability of adviser quality where the client views the adviser as more (less) trustworthy and competent. According to the Bayesian updating process in Fryer et al. (2013), when an ambiguous (H) signal follows, participants who form a hold a prior probability that favors the adviser in the first choice set will update that probability in the same direction after an ambiguous signal on a hard topic by treating the ambiguous signal as good advice, and those who form an unfavorable prior probability of adviser quality will do the opposite. Similar predictions emerge from the other clarity sequence HEEH. In this case, the participants' opinions of the advisers are largely formed by the quality of the advice given in the second and third topics.

4. Results

4.1 Sample

We recruited a sample from the Pureprofile online panel that comprises over 600,000 Australian members. We screened participants, whom we (recruited by an initial email invitation from Pureprofile) to match the population age distribution and ensure equal proportions of men and women. We excluded people who had participated in the pretesting. As noted, a total of 1,274 participants over 18 years of age completed the video survey. Table 5 provides summary statistics for the sample and the 2011 Census of the Australian population. Our sample matches

the population well, except for a larger proportion of university (college) graduates and a smaller proportion of people over age 75.

TABLE 5 HERE

To understand the impact of different aspects of financial literacy, knowledge, and numeracy, we construct indexes to summarize their key features. To test for their impact on participants' choices we also construct indexes for risk tolerance, conscientiousness, and impulsiveness. Table 6 defines each measure. Table 7 reports summary statistics on each from the sample.

TABLES 6 AND 7 HERE

At the aggregate level, participants chose good over bad advice 83% of the time. Consistent with our pretests, participants found that debt repayment is the easiest topic, and chose good advice more than 90% of the time. Choosing an index fund manager on the basis of fees was much more difficult, as was deciding the best stock diversification strategy. Although each adviser gave equal numbers of good and bad recommendations, the advice offered by the young female adviser was chosen a little more often, and the older male's advice chosen least often. Although differences are small, this finding is at odds with common stereotypes of financial advisers as middle-aged men, but fits with patterns we saw in ads for financial planning services, which often feature young women. However, participants were slightly more likely to choose the advice delivered when the CFP label accompanied the adviser's name.

4.2 Evaluation of Adviser Characteristics

Participants showed some similarity with predictions of the Fryer et al. (2013) updating process. If the first signal they received was good (bad) advice that confirmed (contradicted) their pre-existing views on an easy topic, then the favorable (unfavorable) opinion of the adviser that resulted was not changed by bad (good) advice on a hard topic. Further, for the same number of good/bad and clear/ambiguous signals, we find that sequence matters. Participants who received a clear bad signal in the first choice set rated advisers worse than participants who got a clear good signal first, even though they otherwise received similar information.

This effect is illustrated in Figure 3, where the dependent variable in the logit model underlying each panel is a binary variable where one indicates that a participant rated the adviser as MOST displaying the relevant quality (trustworthy, competent, attractive, professional) or

being at least as good as the other adviser, and a zero indicates they were worse.³ We regress this indicator variable on adviser attributes (indicators for being female, older, or not certified), participant's characteristics, interactions between the adviser attributes and participants characteristics. Thus, we control for respondents choosing advisers like them, the quality sequence viewed by the participant (BG combination) and the interaction between the quality sequence. We use an indicator variable equal to one when the participant clarity sequence is HEEH, and zero for EHHE.

Each panel of the figure shows the predictive marginal effects on adviser ratings of each quality sequence (BG combination) in the experiment, conditioning on the two clarity sequences (HE combination). The striped boxes graph the 95% confidence interval around the predictive margins of the quality sequence shown on the horizontal axis, when the clarity sequence was EHHE, and the black box graphs the same for the clarity sequence HEEH. Dashed outlines highlight two significantly different marginal effects based on a chi-square test of equality.

Participants were likely to rate advisers who gave a clear good signal in the first pair, followed by bad advice on two ambiguous topics (GBBG/EHHE), as just as trustworthy, competent, and professional as advisers who gave only good advice (GGGG/EHHE). By contrast, if an adviser began with bad advice on an easy topic (BGGB/EHHE), participants rated them less trustworthy than all advisers (except for those giving only bad advice) despite that adviser having given good advice half the time. Comparing effects in the dashed boxes shows that participants penalized bad advice on ambiguous topics much less than bad advice on easy topics.

Comparing the height of the four striped boxes on the left-hand side of the graphs with the consistently higher striped boxes on the right-hand side, we find that participants rated trustworthiness, professionalism, and competence higher for advisers whose first advice was the easy-good combination than they did for advisers who began with the easy-bad combination, regardless of the rest of the sequence. The exception was attractiveness ratings. In most respects, the clarity and quality sequence was irrelevant to attractiveness ratings, although advisers who gave only bad advice were rated much less attractive than were those who gave at least some good advice.

Clients formed bad opinions of advisers who contradicted the client's prejudices of what good advice should be, but they were persuaded to trust advisers who gave bad advice only on difficult topics, especially if that advice confirmed the client's initial views. Mullainathan et al.

³ We estimate this (and later) equations using built-in STATA routines (with robust standard errors). Here, we show the results for four of the seven characteristics tested in the survey. The full set of marginal effects confirm the conclusions and are reported in Online Appendix C.

(2012) and ASIC (2012) conjecture that this analysis suggests that the interaction between catering and complexity may be a key to understanding the tendency of clients to return to advisers who offer poor advice.^{4,5}

4.3 Effect of Credentials on Advice Choices

So far we have looked at the effect of advice quality in trust formation but other signals can influence a client's opinion of an adviser, including qualification and personal characteristics. In real-world settings advice quality, credentials, and experience are likely to be correlated and it is difficult to disentangle the separate effects. In this experimental setting we isolate and measure the independent influence of three potential quality signals (gender, age, and professional credentials) on the discrimination of participants. The balanced experimental design combined with random assignment of participants and carefully vetted advice topics ensures that we can accurately assess the marginal effect of each signal. For obvious reasons, regulators or professional associations cannot stipulate the age and gender of financial advisers, but they can control displays of credentials. Need for regulation depends on whether and to what extent clients notice qualifications or credentials even when they are not correlated with quality.

Table 8 reports the marginal effects from our estimation of a conditional logit model of the probability of choosing the advice presented by the first (left) adviser in the first choice set, or "initial meeting", offered to participants controlling for advice quality. The dependent variable in the estimated model is a binary indicator where one indicates that the adviser on the left was chosen by the respondent regardless of whether that adviser gave good or bad advice. The adviser on the left is also the first adviser to present video advice to the respondent during each scenario of the experiment. Explanatory variables are the adviser characteristics, the quality of the advice, the advice topics, and the participant characteristics. The estimated models include all interactions between each adviser characteristics (gender, age, and certification) and the participant's characteristics. We compute marginal effects by averaging individual marginal effects over all sample members, and calculate the standard errors by using the delta method.

Participants avoided choosing advice from the left adviser more often than not when that advice was of poor quality. This result is shown by the large and significant marginal effect on the bad advice indicator. Participants also discounted advice from advisers not identified as a Certified Financial Planner. The size of this effect is likely to be larger than the five per cent

⁴ Details and results related to the effect of participants' characteristics in the conditional logit are available on request.

⁵ In further analysis, we find some evidence of learning by participants over the course of the survey (See Online Appendix D).

increase in the probability of choosing the left adviser estimated here in complex real-world settings where clients will find good advice harder to discern. It shows that when a good adviser who fails to display a credential is competing with advisers who do, it can create a substantial disadvantage.

An even larger effect is associated with adviser age. Even after controlling for advice quality, we find that participants tended to discount advice from older advisers, and further, that they seem to prefer females more strongly. (We note that the result for females was economically but not statistically significant.) Perhaps participants view older advisers as less ‘up to date’ than are younger advisers, and therefore lacking expertise. Although this result seems to be at odds with the hypothesis that people look for experience in an adviser, it does match our survey of advertisements for financial planning firms, which often feature younger (female) advisers.

5. Conclusion

Our findings show how individuals’ perceived trust in their advisers can be manipulated over time, and that professional credentials independently influence perceptions of advice quality. Our results have several important public policy implications, especially in light of growing international evidence that advisers often give poor quality advice to clients that is not in a client’s best interests. The concern should be even greater for individuals with low financial literacy, because theoretical research shows that such individuals are more likely to be given poor recommendations. Further compounding this problem is the empirical evidence suggesting that this vulnerable group also is less likely to question the advice they are given, and more likely to follow it completely, than are others with greater financial literacy. This research underpins our policy recommendations.

An immediate implication of our findings is that consumers need more help to choose advisers. Our results show that individuals struggle to judge the quality of advice on complicated but common issues. One way to help individuals choose a high-quality adviser is to provide adviser certification. Our results show that the display of credentials influences choices independently of advice quality. This finding can be good or bad, depending on how the certification is obtained. There is cause for concern if the certification is not obtained through a rigorous certification process, or if it is deliberately misleading.

In the U.S. there are too many certifications of uncertain quality, resulting in documented consumer confusion and the possibility that certifications are misleading instead of being a true signal of adviser quality. If the U.S. or countries in situations like the U.S. would endorse just one qualification that required rigorous and repeated examinations and regular training on relevant

issues, then certification could be an effective signal. Advisers who hold this certification could also be regulated and frequently reviewed in a timely fashion to ensure consistent quality.

The hurdles for certification should be challenging. In the U.S., other fields such as health and law have well-known and challenging examinations. The advantage of such hard exams is to weed out poor performers. Unfortunately, hurdles for financial certifications in the U.S. and Australia are much lower, raising obvious questions as to why the implications of poor financial planning are not treated as seriously as poor health choices or following bad legal advice. Assuming this assertion is true, there is a compelling case for ensuring well-trained financial advisers.

Remuneration strategies also should be designed to align adviser and client incentives. Guidance from Inderst and Ottaviani's (2012b) discussion of the empirical and theoretical literature on this topic should be strongly considered when recommending and implementing methods.

Any advisers who have an endorsed certification should be required to uphold the strictest standard of care for consumers. While certifications in some cases can ensure that advisers are knowledgeable and current on the newest developments in finance, it does not guarantee that they will provide advice that is in their client's best interest. For example, in the U.S., financial planners can serve as both broker-dealers and investment advisers to the same client. These two job functions carry substantial differences in required standards of care, as explained in Bromberg and Cackly (2012). Unfortunately, research suggests that consumers generally are unaware of the important distinction between the two (Hung and Yoong 2013, Hung, Clancy, Dominitz, Talley, Berrebi and Suvankulov 2008, Infogroup 2010). So in the U.S. (and elsewhere, where appropriate) the fiduciary standard should be implemented across the board for all types of advisers. By doing so, adviser responsibilities to clients when making recommendations would be more clearly understood by everyone involved.

By implementing some or all of these measures, individuals with low levels of financial literacy can be better protected and their likelihood of selecting a good adviser increased. In the meantime, consumers should consider seeking second opinions when the financial decision under consideration is high stakes and complicated to understand. In addition, consumers should educate themselves about the regulated standards of care that advisers must provide, methods of adviser remuneration and the meaning of different certifications for supervision and required training and testing. (The U.S. Financial Industry Regulatory Authority (FINRA) provides consumers with a web-based tool to evaluate the over 100 credentials in the market.)

Unfortunately, this last recommendation costs time and effort by consumers, many of whom have low financial literacy.

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Table 1. Experimental design

Panel A. Design of advisers pairs seen						
Pair	Adviser 1 (Shown on left)			Adviser 2 (Shown on right-mirror image)		
	Gender	Age	Certification	Gender	Age	Certification
1	Male	Young	No	Female	Old	Yes
2	Male	Young	Yes	Female	Old	No
3	Male	Old	Yes	Female	Young	No
4	Male	Old	No	Female	Young	Yes
5	Female	Old	No	Male	Young	Yes
6	Female	Old	Yes	Male	Young	No
7	Female	Young	No	Male	Old	Yes
8	Female	Young	Yes	Male	Old	No

Panel B. Sequence of advice topics				
Topic Order	Sequence 1 Clarity: EHHE	Sequence 2 Clarity: HEEH	Sequence 3 Clarity: EHHE	Sequence 4 Clarity: HEEH
1 st topic	Debt	Diversification	Consolidation	Fees
2 nd topic	Diversification	Debt	Fees	Consolidation
3 rd topic	Fees	Consolidation	Diversification	Debt
4 th topic	Consolidation	Fees	Debt	Diversification

Panel C. Design of the sequence of advice quality								
Quality Sequence	Advice from adviser 1 (shown on left)				Advice from adviser 2 (shown on the right - mirror image)			
	1 st topic	2 nd topic	3 rd topic	4 th topic	1 st topic	2 nd topic	3 rd topic	4 th topic
1	B	B	B	B	G	G	G	G
2	B	B	G	G	G	G	B	B
3	B	G	B	G	G	B	G	B
4	B	G	G	B	G	B	B	G
5	G	B	B	G	B	G	G	B
6	G	B	G	B	B	G	B	G
7	G	G	B	B	B	B	G	G
8	G	G	G	G	B	B	B	B

Table 1, Panel A shows the combination of adviser attributes using a foldover design for each possible adviser. Each participant to the survey viewed only one of the eight rows. Thus, they saw the same two advisers for the entire experiment and each adviser stayed on the same side of the screen throughout the experiment. Table 1, Panel B shows sequence of advice topics for each treatment in the experiment. Each participant viewed one of the four columns, interacted with the rows in Panel C. Table 1, Panel C shows the eight sequences of advice quality for each treatment in the experiment. Each participant viewed one of the eight rows. G stands for good advice, while B stands for bad advice.

Table 2. Results of comparisons of financial adviser credentials

Qualifications	Most	Least	Most- Least
Certified Financial Planner (CFP)	438	133	305
Certified Financial Analyst (CFA)	231	209	22
Certified Practicing Accountant (CPA)	331	320	11
Certified Investment Management Analyst (CIMA)	184	227	-43
<i>Qualified Financial Analyst (QFAn)</i>	92	283	-191
<i>Qualified Financial Planner with High Designation (QFPHD)</i>	277	232	45
<i>Accredited Financial Expert (AFE)</i>	154	276	-122
<i>Commissioned Financial Practitioner (CFPr)</i>	108	330	-222
<i>Master Financial Planner (MFP)</i>	363	127	236
<i>Bachelor of Financial Practice (BFP)</i>	242	283	-41
<i>Accredited Financial advisor (AFA)</i>	220	220	0

Table 2 shows the relative rankings of the real and fictional credentials from pretesting 240 randomly selected online panel members. The real credentials for the Australian setting appear in normal typeface and the fictional credentials appear in italics. Full details of the pretesting are in Online Appendix B. We asked participants to consider sets of five financial adviser qualifications and told them that some sets were real and some fake. The participants selected the qualifications that would be held by an adviser who would most likely give good advice and the adviser who would most likely give bad advice.

Table 3. Financial advice scripts

Financial Topic & Narrator Introduction	Advice
<p>Paying Down Debt In this scenario, you have accumulated some large outstanding credit card debt with a high associated interest rate. Recently, you have inherited some money unexpectedly and would like to know what to do with it. The next 2 financial advisers will recommend what you should do.</p>	<p>Good Advice: I understand that you have some large credit card debt but recently inherited money. It is important to think about your overall financial position when making a decision about what to do. <i>It is easy to simply save this big sum of money in a savings account to achieve a savings goal, but the interest gained is far smaller than the high interest expense of not paying down your credit card debt. Therefore, I recommend you pay off your credit card debt to eliminate the high interest charges.</i></p> <hr/> <p>Bad Advice: I understand that you have some large credit card debt but recently inherited money. It is important to think about your overall financial position when making a decision about what to do. <i>It is hard to save big sums of money so it is important to think about your special savings goals when making this decision. Therefore, I recommend you ignore your credit card debt for now and put your inheritance in a separate savings account.</i></p>
<p>Consolidating Retirement Accounts In this scenario, suppose you have just changed jobs and started a new superannuation account. Currently, you already have two other superannuation accounts from past jobs. The next 2 financial advisers will recommend what you should do about it.</p>	<p>Good Advice: I see that you have three superannuation accounts with different super funds. Did you know that people are typically charged regular fixed administration fees on all of these superannuation accounts? <i>As a result, I recommend that you roll all of these accounts together so you are not paying extra fees.</i></p> <hr/> <p>Bad Advice: I see that you have three superannuation accounts with different super funds. Did you know that people are typically charged regular fixed administration fees on all of these superannuation accounts? <i>Despite that, I recommend that you not roll all of these accounts together so you are diversified across different superannuation funds.</i></p>

Table 3 Continued

Financial Topic & Narrator Introduction	Advice
Choosing a Low-Fee Index Fund In this scenario, you are thinking about investing in a managed share index fund. The next 2 financial advisers will recommend what you should do about it.	Good Advice: I understand you need help regarding your choice of share index fund. Did you know that all share index funds invest with the aim of matching the overall share market return? These various share index funds provide an almost identical product <i>so why pay a fund manager more than the others for the same thing. Therefore, I recommend that you choose the share index fund with the lowest management fees.</i> Bad Advice: I understand you need help regarding your choice of share index fund. Did you know that all share index funds invest with the aim of matching the overall share market return? These various share index funds provide an almost identical product <i>but some fund managers have better reputations than others and you get what you pay for. Therefore, I recommend that you avoid the share index funds with low management fees.</i>
Diversifying a Stock Portfolio In this scenario, you are thinking about investing in the share market. The next 2 financial advisers will recommend what you should do about it.	Good Advice: I understand you need help regarding how to invest your superannuation money. Did you know money invested in shares can go up and down? <i>It is good to try to balance out the shares that go up with the shares that go down. Therefore, I recommend that you spread your money across a variety of shares in different types of companies and industries.</i> Bad Advice: I understand you need help regarding how to invest your superannuation money. Did you know money invested in shares can go up and down? <i>That is why it is good to invest in something you know and can easily monitor. Therefore, I recommend that you invest your money in one blue chip company.</i>

Table 3 provides the actors' scripts for the four advice topics.

Table 4. Rates of correct and incorrect labeling of advice topics in pretesting

Advice Topic	Presentation Order	Good Advice Shown		Bad Advice Shown	
		Correct	Incorrect	Correct	Incorrect
Index fund fees	good shown first	67%	33%	53%	48%
	bad shown first	66%	34%	62%	38%
Debt repayment	good shown first	92%	8%	83%	18%
	bad shown first	91%	9%	80%	20%
Stock Diversification	good shown first	80%	20%	68%	33%
	bad shown first	78%	22%	63%	38%
Account consolidation	good shown first	94%	6%	70%	30%
	bad shown first	92%	8%	69%	31%

Table 4 reports our consolidated results of pretesting of financial advice topics on 240 randomly selected online panel members. The individuals who completed the pretest were excluded by the panel provider from the main experiment sample. (Full details of the pretest are in Online Appendix B.) We presented participants with the financial scenarios used in the full experiment, followed by two separate pieces of financial advice. After each piece of advice, they selected whether they thought the advice was good or bad. The percentages indicate whether the participant correctly identified the quality of the advice or not. We varied the order in which we presented the advice.

Table 5. Demographics, survey sample and Australian population (18 – 79 years)

	Survey Participant Sample	18-79 yrs Australian Population		Survey Participant Sample	18-79 yrs Australian Population
Gender			Marital Status		
Male	50%	49%	Never Married	25%	30%
Female	50%	51%	Divorced/Separated	8%	13%
Age			Widowed	3%	3%
18-24 years	9%	10%	Married or long term relationship	64%	54%
25-29 years	11%	10%	Personal Income		
30-34 years	12%	10%	\$1-\$20,799 (i.e. less than \$399 a week)	22%	25%
35-39 years	12%	10%	\$20,800-\$51,999 (i.e. \$400-\$999 a week)	34%	32%
40-44 years	12%	10%	\$52,000-\$103,999 (i.e. \$1,000-\$1,999 a week)	30%	23%
45-49 years	10%	10%	\$104,000 (i.e. \$2,000 a week) or more	6%	7%
50-54 years	10%	10%	Negative or Nil Income	8%	6%
55-59 years	7%	9%	Not Stated	0%	7%
60-64 years	6%	8%			
65-69 years	7%	6%			
70-79 years ^a	3%	8%			
Work Status			Highest level of Education		
Employed	68%	63%	High School or Less	24%	40%
Unemployed	4%	3%	Vocational/Technical certificate	22%	20%
Not in the labor force	15%	29%	Tertiary diploma	12%	9%
Retired	13%	not broken out	Bachelor degree	25%	15%
Not stated	0%	5%	Graduate certificate, diploma or degree	16%	6%
			Not Stated	0%	10%

Table 5 shows the percentages of our survey sample of 1,274 participants categorized by demographic category and compared with the Australian census data for 2011. We filter the sample to match population age and gender proportions.

Source: Survey results and Australian Bureau of Statistic.

^a Survey sample includes all participants over the age of 70 years.

Table 6. Variable definitions

Variable Name	Description
<i>Adviser characteristics</i>	
Female	Indicator variable that equals one if the adviser was female, zero for male.
Older	Indicator variable that equals one if the adviser was older, zero for younger.
Not certified	Indicator variable that equals one if adviser's name was displayed, zero when "Certified Financial Planner" was also displayed.
<i>Advice</i>	
Correct advice shown first	Indicator variable that equals one if the correct advice was shown before the incorrect advice, zero otherwise.
Topic: Account consolidation	Indicator variable that equals one if the topic was account consolidation, zero otherwise.
Topic: Stock diversification	Indicator variable that equals one if the topic was stock diversification, zero otherwise.
Topic: Index fund fee	Indicator variable that equals one if the topic was index fund management fees, zero otherwise.
Topic: Debt repayment	Reference category for advice topic.
<i>Participant characteristics</i>	
Passed IMC 1	Indicator variable that equals one if the participant answered the first instructional manipulation check correctly, zero otherwise.
Passed IMC 2	Indicator variable that equals one if the participant answered the second instructional manipulation check correctly, zero otherwise.
Participant female	An indicator variable that equals one if the participant is a female, zero otherwise.
Participant age	An polychotomous variable that equals one if the participant is 18-24 years and rising by one in five-year steps.
Financial literacy	An indicator variable that equals one if the participant's correct percentage on four financial literacy questions is above the sample median, zero otherwise. Questions test simple interest, inflation, diversification, and compound interest.
Numeracy	An indicator variable that equals one if the participant's correct percentage on three numeracy questions is above the sample median, zero otherwise. Questions test fractions, percentages and probabilities.
Product knowledge	An indicator variable that equals one if the participant's correct percentage on four financial product questions is above the sample median, zero otherwise. Questions test topics used in advice experiment: debt, index funds, account consolidation, diversification.
Conscientiousness	An indicator variable that equals one if the participant's conscientiousness is above the sample median, zero otherwise. Participants rated themselves as organized, responsible, hardworking and careless (reverse coded) on a four-point scale. Ratings are averaged.
Impulsiveness	An indicator variable that equals one if the participant's impulsiveness is above the sample median, zero otherwise. Participants rated themselves as buying too much, buying impulsively, buying without planning, and/or buying unnecessarily on a five point scale. Ratings are averaged.
Past correct decisions	Continuous variable measuring the percentage of times the participant reported having acted competently in past financial decisions, as measured by eight examples relating to diversification, debt management, consolidation and investment management fees.
Risk Tolerance	Continuous variable measuring participants' Likert scale ratings on five of Finametrica risk survey questions: risk tolerance compared to others; willingness to take risk in financial decisions (job, investments, overall); and confidence in their ability to make good financial decisions. We rescale ratings with zero indicating very low and one indicating very high tolerance then summed.

Table 6 provides descriptions of the variables used in the analysis.

Table 7. Summary of survey responses

Variable	
<hr/> <hr/>	
<i>Good advice chosen</i>	<i>% of total choices</i>
All topics	83
Topic: Account consolidation	90
Topic: Stock diversification	81
Topic: Index fund fee	68
Topic: Debt repayment	93
<i>Advisor Chosen</i>	
Younger male	25
Older male	24
Younger female	26
Older female	25
Certified planner	51
<hr/>	
<i>Participant characteristics</i>	<i>% of participants</i>
Passed IMC 1	89
Passed IMC 2	93
	<i>Median score</i>
High Financial literacy	0.75
High Numeracy	0.67
High Product knowledge	0.50
High Conscientiousness	3.40
High Impulsiveness	2.50
Past correct decisions	0.63
Risk Tolerance	2.34
<hr/> <hr/>	

Table 7 provides a summary of participant's survey responses and scores related to financial literacy and personality traits.

Table 8. Marginal effects from logit estimation of left adviser choices

<i>Adviser characteristics</i>	
Female (=1)	0.027 (0.020)
Older (=1)	-0.063*** (0.020)
Not certified (=1)	-0.045** (0.020)
<i>Advice</i>	
Wrong advice (=1)	-0.627*** (0.020)
Topic: Account consolidation (=1)	0.033 (0.040)
Topic: Stock diversification (=1)	-0.019 (0.037)
Topic: Index fund fee (=1)	-0.055 (0.040)
<i>Participant characteristics</i>	
Passed IMC 1 (=1)	0.001 (0.046)
Passed IMC 2 (=1)	-0.022 (0.050)
Participant female (=1)	0.004 (0.022)
Participant age (5 yrs groups)	0.006 (0.004)
High financial literacy (above median =1)	-.043* (0.024)
High product knowledge (above median =1)	0.021 (0.023)
High numeracy (above median =1)	0.006 (0.021)
High conscientiousness (above median =1)	0.013 (0.022)
High impulsiveness (above median =1)	0.019 (0.022)
Past correct decisions (percentage of 8 decisions)	-0.076 (0.078)
Risk tolerance (Finametrica score)	0.031 (0.020)
Sample Size	1274
Pseudo R ²	0.439

Table 8 shows the estimated marginal effects of adviser, advice, and respondent characteristics on the probability of choosing the first, i.e. the adviser appearing on the left. The model includes main effects (19 coefficients) and a complete set of interactions between adviser characteristics (female, older, not certified) and respondent characteristics (11x3 coefficients). The reference category for the topic is debt repayment. Variables are defined in Table 6. Robust standard errors in brackets. *p<0.1; **p<0.05; ***p<0.01.

Figure 1. Screen shot from online experimental task



You can replay a video by simply clicking on either image above

Whose advice would you be most likely to follow?

Financial Advisor A

Financial Advisor B

Figure 1 displays a screen shot from the experimental task. For each advice topic, participants viewed the same two advisers side by side as above. When a picture is selected a video plays of the selected adviser providing a recommendation related to the topic.

Figure 2. Pictures of advisers



Figure 2 displays pictures of the four advisers used in the experiments. The actors and their names were carefully selected through pretesting.

Figure 3. Marginal effects of advice sequence on ratings for left and right adviser qualities

The basis in each panel in figure 3 is a logit model with a binary variable. A rating of one indicates that the participant rated the adviser as MOST displaying the relevant quality (trustworthy, competent, attractive, professional) or being at least as good as the other adviser, and a zero indicates they were worse. We regressed these ratings on adviser attributes (indicators for being female, older or not certified), the 'quality' sequence viewed by the participant (BG combination), and the interaction between the quality sequence and an indicator variable equal to one when the participant clarity sequence was HEEH and zero for EHHE. Each panel of the figure shows the predictive marginal effects on adviser ratings of each quality sequence (BG combination) in the experiment, conditioning on the two 'clarity' sequences (HE combination). The striped box graphs the 95% confidence interval around the predictive margins of the quality sequence shown on the horizontal axis, when the clarity sequence was EHHE, and the black box graphs the same for the clarity sequence HEEH. Dashed outlines highlight two significantly different marginal effects based on a chi-square test of equality.

Figure 3. Marginal effects of advice sequence on ratings for left and right adviser qualities

