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The Burden of Disclosure: Increased Compliance With Distrusted Advice

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Professionals often face conflicts of interest that give them an incentive to provide biased advice, and disclosure (informing advisees about the conflict) is frequently proposed as a solution to the problem. We present 6 experiments that reveal a previously unrecognized perverse effect of disclosure: Although disclosure can decrease advisees' trust in the advice, it can also increase pressure to comply with that advice if advisees feel obliged to satisfy their advisors' personal interests. Hence, disclosure can burden those it is ostensibly intended to protect. Beyond demonstrating the effect, we show that this increased pressure to comply with advice is reduced if (a) the disclosure is provided by an external source rather than from the advisor, (b) the disclosure is not common knowledge between the advisor and advisee, (c) the advisee has an opportunity to change his/her mind later, or (d) the advisee is able to make the decision in private.

Keywords: conflicts of interest, disclosure, advice, ethics, reluctant altruism

Suppose that a financial advisor informs her client that, under disclosure rules, she is required to disclose a conflict of interest: She will receive a bonus if the client invests in the fund she is recommending. How should the client respond to this information? Is the client more or less likely to trust the recommendation? This article addresses these questions, focusing specifically on a dilemma that disclosure can cause for advisees: It causes them to trust advice less but feel increased pressure to follow it. Thus, in a pattern that we refer to as the *burden of disclosure*, instead of protecting advisees, disclosure can burden those it is intended to help.

A conflict of interest (COI) is a conflict between an individual's professional role and his or her personal interests. COIs are ubiquitous and can occur among professionals as disparate as real estate agents who benefit from a quick sale, lawyers who benefit from pursuing a case, doctors who receive money from pharmaceutical companies, and credit raters who have financial ties to the firms they rate. While COIs are often portrayed in the media as an issue of corruption, many instances of bias arising from COIs are unconscious and unintentional (Dana & Loewenstein, 2003). Even when advisors wish to provide unbiased advice, they are often unaware of the existence or extent of their own biases.

Not surprisingly, given the role of COIs in recent business scandals and in the rising cost of medical care, great efforts have been made to deal with them, including efforts to eliminate them, for example, by splitting accounting firms into separate auditing and consulting companies; and to "manage" them, as is common practice at many academic medical centers. Across interventions, however, there is one striking constant: Disclosure. Whether in medicine, business, government, or academia, virtually all policies intended to mitigate the negative effects of COIs include (or are limited to) disclosure. For example, the American Medical Association (2009) has stated in its code of ethics that physicians are required to disclose when referring patients to facilities that they have ownership interest in, and a new independence rule from the Securities and Exchange Commission requires client firms to disclose the amount of non-audit fees paid to their auditors so that investors are warned of a potential compromise of the auditor's independence.

Disclosure provides information that, at least in theory, enables advisees to make informed decisions. "By creating minimum disclosure requirements, regulators reduce the information gap between informed and uninformed" (Healy & Palepu, 2001, p. 412). Disclosure can also be attractive to advisors, as it involves minimal disruption to the status quo. In addition, through "moral licensing" (Cain, Loewenstein, & Moore, 2011; Monin & Miller, 2001), disclosure can free advisors from the perceived need to reconcile personal interests and professionalism, leading them to offer more biased advice than they might otherwise give (Cain, Loewenstein, & Moore, 2005).

Problems also exist on the advisee side of the relationship. Due to anchoring effects and insufficient discounting (Strack & Mussweiler, 1997; Tversky & Kahneman, 1974), even clearly biased advice will often affect the recipient's judgment. Advisees may also discount too heavily, and the large variance in discounting

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poses a problem. Discounting for biased advice is the intended point of disclosure, but research suggests that advisees discount insufficiently and often erratically (Cain et al., 2005; Morris & Larrick, 1995). Furthermore, within the medical context, while many patients are ready to acknowledge that doctors generally might be affected by COIs, few can imagine that their own doctor would be affected (Gibbons et al., 1998). The act of disclosure prompts advisees to think differently, and in some cases more positively, about their advisor. For example, a client may conclude that her financial advisor has expert knowledge about the particular fund that she disclosed she has invested in, and patients may take disclosure from their doctor as a signal of expertise, enhanced knowledge, or professional standing (Pearson, Kleinman, Rusinak, & Levinson, 2006).

For disclosure to have the desired protective effect, advisees must first be able to comprehend and correctly adjust for the biasing influence, and second, be able to act on the information given to them; both of these are surprisingly difficult. Hence, advisees can end up in a worse position for having been warned of the COI.

The Burden of Disclosure

The burden of disclosure refers to the observation that disclosure can have two contradictory effects for advisees: It can make them trust the advice less, but at the same time, it can increase the pressure on them to comply with the distrusted advice.

Decreased Trust

Decreased trust in advice with disclosure is neither surprising nor necessarily incorrect. Common sense suggests that, having been alerted to a COI, recipients of advice may feel less satisfied with, and less trustful of, the advice they receive. Disclosure introduces uncertainty about whether the advice is given with the recipient's best interests in mind or is influenced by the advisor's self-interests—doubts that would be unlikely to occur if, absent disclosure, the advisee was unaware of the conflict. Trust is central to research on advice-taking (Gino, 2008; Gino & Schweitzer, 2008) and has been defined, variously, as a behavior, an attitude, a belief, an expectation, a confidence, and an interpersonal variable (Dirks & Ferrin, 2002; Kramer, 1999; Lewicki & Bunker, 1996; McAllister, 1995; Schoorman, Mayer, & Davis, 2007). Kramer (1999) and Dirks and Ferrin (2002) have noted that it is problematic to operationalize trust as a behavior because behaviors that are associated with trust, such as cooperation, are equally likely to arise from other causes (such as the benefits of cooperation). This is a key point in our studies, in which increased compliance can occur despite *diminished* trust (i.e., without private acceptance; Kelman, 1958). We measure trust in our experiments simply by asking advisees if they believed their advisor had their best interests at heart.

Increased Pressure to Comply: The Panhandler Effect

Disclosure can have another unintended consequence that has not, to the best of our knowledge, been identified in prior literature addressing the topic: Disclosure can pressure advisees to follow advice despite diminished trust. Advisees may feel pressured to comply with advice due to what we call a *panhandler effect*—a desire to satisfy the advisor's personal interests once those interests become common knowledge. Working against its function as a warning, disclosure can become, in effect, a favor request from the advisor, putting social pressure on the advisee to give in to the advisor's interests.

Central to most COIs is the reality that an advisor will gain if the advisee takes an action that is not in the advisee's own interest. This means that a failure to take such an action will deprive the advisor of this gain. Research on *reluctant altruism* (Broberg, Ellingsen, & Johannesson, 2007; Dana, Cain, & Dawes, 2006; DellaVigna, List, & Malmendier, 2012; Lazear, Malmendier, & Weber, 2012) identifies situations in which people feel pressured to behave generously but would have preferred to have avoided those situations altogether. This is illustrated by the classic behavior of crossing the street to avoid a beggar. We may succumb to the beggar's requests when confronted, yet we may also attempt to avoid the interaction. The problem with disclosure of a COI is that it makes both parties mutually aware of the relationship between the advisee's behavior and the advisor's gain. Although disclosure of a COI is intended to communicate the idea that "I personally gain if you do X rather than Y," the advisee may instead interpret the disclosure as indicating "Please do X because it will benefit me." This implicit request can pressure the advisee to relent to the advice, in the same way as people relent to requests for charity (Andreoni & Rao, 2011). Particularly when the COI is common knowledge, as is obviously the case when the disclosure comes directly from the advisor, the presence of the advisor makes it especially difficult to turn down that request because both parties know that the request has been made (Dana et al., 2006; Zajonc, Wolosin, Wolosin, & Loh, 1970) and both parties immediately discover whether or not the request has been fulfilled.

Advisees may feel pressure to signal to their advisors that they are cooperative, generous, or a reciprocator (or, at least, that they are not uncooperative). This is especially true in face-to-face interactions. Milgram's (1974) famous study of obedience provided early support for the notion that face-to-face requests put more compliance pressure on people than instructions or requests that come from afar. Early research on negotiations also examined how persuasive face-to-face interactions can be (Morley & Stephenson, 1977), perhaps because these interactions are laden with social cues (Guadagno & Cialdini, 2002; Matheson & Zanna, 1989). We hypothesize that allowing advisees to make decisions in private, or giving advisees the opportunity to change their minds, will decrease the pressure to comply with the advisor's recommendation. The advisor's needs may still be present, but they seem less pressing from a distance.

Die-Roll Experiments

We examine the impact of disclosure in six experiments in which participants faced real choices between two lotteries (die-rolls). Advisees (choosers) received advice from advisors with a conflict that was, or was not, disclosed. The specific lotteries we used are a good proxy for advice-giving, because the objects of choice are complex, probabilistic, and mimic situations that range from financial to medical advice, in which even biased advice can, by chance, lead to positive outcomes.

In most real world cases of advice-provision, advisors have better information than advisees, and, as already discussed, in some cases disclosure can lead advisees to increase their estimation of advisors' expertise (Pearson et al., 2006). This effect is not the focus of our studies. To focus on the panhandler effect, in our first five experiments, advisees were given the same complete information regarding the lotteries that advisors had. Therefore, while the lotteries are somewhat complex, our advisors are not relative experts, but can only offer an additional insight into the decision. Because of the full information about the lottery, our first five experiments make it clear that advisees are making a "mistake" when choosing the suboptimal lottery. Experiment six then examines the generality of the panhandler effect in the more common case in which there is a difference in expertise.

Experiment 1: Disclosure's Effect on Advisors and Advisees

Method

Participants. Two hundred forty participants (120 advisors) were recruited to board a mobile data truck parked in Pittsburgh, Pennsylvania, via posters announcing a chance to win a variety of prizes. A cross-section of the public who were over 18 years of age participated (45% male, 63% Caucasian; mean age = 44.7 years, $SD = 16.1$).

Design and procedure. Participants were randomly assigned to one of two roles: "advisor" or "chooser" (advisee). Advisors were directed onto the data truck and were given instructions and a communication (advice) form to complete, which contained information on the prizes associated with two lotteries (die-roll A and die-roll B). Die-roll A offered more attractive prizes than die-roll B—preferred by 98% of people in a pre-test (see Table 1).

Table 1
Experiment 1: Prizes Associated With the Die-Rolls as Seen by Advisors and Choosers

Die-roll A	Die-roll B
1. $20 Amazon.com voucher (can only be redeemed online)	1. Milky Way bar
2. $5 options gift card (can be redeemed online or at the following stores: Gap, Banana Republic, Old Navy)	2. $5 Barnes and Noble voucher (can only be redeemed online)
3. Snickers bar	3. Mr. Goodbar
4. Can of Sam's cola (Wal-Mart brand)	4. Can of Coke
5. $5 gift card for Dunkin Donuts	5. $5 gift card for Starbucks
6. Toblerone bar (Swiss chocolate)	6. $5 Gap gift card (can be redeemed online or at Gap store)

Note. We pilot-tested these prizes with a nonoverlapping sample of participants ($N = 49$). In the pilot study, there were no advisors, and participants were simply asked which of the two die-rolls they preferred. After they made their choice, we told participants, "Assume you have won $100 for taking part in a study and you can spend any of this amount to buy all of die-roll A or die-roll B. How much would you be willing to pay for each die-roll?" Nearly all (98%) of participants preferred the prizes associated with die-roll A over die-roll B and were willing to pay more for die-roll A ($M = \$30.02$, $SD = 26.33$) compared to die-roll B ($M = \$10.53$, $SD = 12.49$), paired $t(48) = 5.16$, $p < .001$.

On the communication form, advisors circled which die-roll they recommended (A or B) and wrote an explanation for their recommendation. Thus, advisors made their decision before meeting the chooser.

Choosers sat outside of the truck and were informed that they would be asked to choose between two die-roll lotteries (A or B) that awarded prizes depending on the number rolled (the actual prize information was not given to them at this point). Once the advisor had completed the communication form, he or she emerged from the data truck, to be paired with a chooser. We made sure the advisor was partnered with a stranger. The advisor then handed over the communication form containing the lottery (prize) information as well as the advisor's recommendation of which lottery to take. The choosers then decided, with the advisor observing their decision, which die-roll to take by circling their answer (A or B) on the bottom of the communication sheet.

After the chooser made the choice of die-roll in front of the advisor, the participant pairs were separated again, and they answered some questions about their experience. Choosers then rolled their chosen die, collected their prize, and left. Finally those advisors who were entitled to a prize (based on the chooser's decision) also rolled a die. Researchers were discreetly in earshot during the interaction to ensure that partners were not allowed to share prizes, a rule that was enforced by making sure that die-rolls were conducted separately and that choosers left before advisors (both advisors and choosers were aware of this procedure beforehand).

Conditions. In the no-conflict condition, advisors gave advice to choosers but were not subject to a COI; these advisors were rewarded (with their own choice of a die-roll) regardless of which die-roll their chooser picked. The remaining advisors were subject to a COI; they were rewarded with a die-roll themselves if and only if their chooser picked die-roll B (the less attractive option), in which case the advisor could pick either die-roll for him or herself. There were two conditions in which advisors were subject to such a COI defined by whether or not the conflict was disclosed to the chooser. In the disclosure condition, advisors were required to disclose their incentive by writing out word for word the following statement on the communication form: "First, I should let you know that I get a die-roll myself if you choose die B. I get nothing if you choose die A, so it is in my interest that you choose die B." In the no-disclosure condition, advisors were instructed not to mention their COI to the chooser. Aside from the disclosure, in all three conditions advisors were free to provide any justification for their recommendation.

Dependent measures.

Chooser's survey. After the chooser made his or her choice of die-roll in front of the advisor, and the participant pairs were separated, choosers answered questions, on a 5-point Likert scale, regarding the choice they had made—"How pleased are you with your choice?"; "How attractive are the prizes from the die-A [die-B] roll?"—and about their feelings on the situation and their partner, for example, "I liked my advisor," and "My advisor gave honest advice." Choosers also answered questions about their considerations when making their choice, including the main items of interest: trust and increased pressure to comply. We measured trust in the advice by asking choosers to indicate how strongly they agreed or disagreed with the statement, "My advisor prioritized my best interests." We measured the panhandler effect—that is, in-

creased pressure to comply with advice—by asking choosers how strongly they agreed or disagreed with the statements, "I wanted to help my advisor by following his/her advice," and "It was/would be uncomfortable to turn down my advisor's recommendation." The latter question is a more general measure of rejection discomfort than feeling pressure to help the advisor, but emphasizes reluctance in the altruism measured in the prior question.

Advisor's survey. Although not a primary focus of this article, we also asked advisors several questions to which they responded on a 5-point Likert scale. The questions consisted of "How attractive are the prizes from the die-A [die-B] roll?"; "I prioritized my partner's best interests"; "I prioritized my best interests"; "I gave honest advice"; "My partner felt uncomfortable to turn down my recommendation"; "My partner wanted to help me"; and, in the conflicted conditions, "I strongly recommended die B." In the conflicted conditions, if their chooser had picked die-roll B, advisors were also asked which die-roll they would like to take themselves.

Results

Un-conflicted condition.

Die-roll advice and choice. Die-roll A, on average, provides superior prizes; in the no-conflict condition ($n = 27$), advisors recommended it 93% of the time (only two advisors out of 27 recommended die-roll B), and nearly all choosers picked it (93%). Unsurprisingly, advisors thought die-roll A was significantly more attractive ($M = 4.04$, $SD = 0.65$) than die-roll B ($M = 3.37$, $SD = 0.69$), paired t for attractiveness of die-roll A versus die-roll B: $t(26) = 4.72$, $p < .001$. Choosers also thought die-roll A was more attractive than B ($M = 3.78$, $SD = 0.97$ vs. $M = 2.93$, $SD = 0.83$), $t(26) = 4.31$, $p < .001$. This advice and choice of die-roll was similar to preferences for die-rolls seen in our pre-test when there was no advisor.

Chooser's survey. The choosers in the no-conflict condition were significantly more likely to feel pleased with their choice ($M = 4.19$, $SD = 0.74$ vs. $M = 3.64$, $SD = 0.68$), $F(1, 115) = 12.77$, $p = .001$, $\eta_p^2 = .10$; more likely to trust the advice ($M = 3.74$, $SD = 0.76$ vs. $M = 3.17$, $SD = 0.93$), $F(1, 118) = 8.46$, $p = .004$, $\eta_p^2 = .07$; and more likely to feel their advisor was honest ($M = 4.30$, $SD = 0.67$ vs. $M = 3.80$, $SD = 0.70$), $F(1, 118) = 10.90$, $p = .001$, $\eta_p^2 = .09$, compared to choosers with conflicted advisors.

Focusing on advisors who recommended die-roll A along with choosers who picked die-roll A ($n = 38$ out of 120 advisor-chooser pairs), those choosers with un-conflicted advisors ($n = 24$ out of 27 choosers in this condition) were the most pleased ($M = 4.25$, $SD = 0.74$); they were both more pleased than choosers paired with conflicted (but undisclosed) advisors ($n = 11$ out of 52 choosers) ($M = 3.73$, $SD = 0.65$), $t(35) = 2.04$, $p = .049$, and to those with conflicted advisors who disclosed their COI ($n = 3$ out of 41 choosers) ($M = 3.33$, $SD = 0.58$), $t(35) = 2.13$, $p = .041$ (the small n in these latter conditions was because few conflicted advisors recommended die-roll A).

Conflicted conditions.

Die-roll advice. In the conflicted conditions ($n = 93$), the majority of advisors recommended the inferior die-roll B; with no-disclosure, 77% of advisors recommended it, and with disclosure, 88% recommended B; this difference was not statistically significant, $\chi^2(1, N = 93) = 1.82$, $p = .18$. It seems likely that advisors were aware that their advice was self-interested, since they reported thinking that die-roll A was significantly more attractive than die-roll B ($M = 3.86$, $SD = 0.72$ vs. $M = 3.61$, $SD = 0.74$), $t(92) = 2.64$, $p = .01$.

Die-roll choice. In the conflicted conditions ($n = 93$), the majority of choosers (57%) picked the inferior die-roll B. With no-disclosure of the COI from their advisor, 42% of choosers picked B, whereas with disclosure, this increased to 76%, $\chi^2(1, N = 93) = 10.37$, $p = .001$. Choosers picked the inferior die-roll despite stating that they thought die-roll A was more attractive ($M = 3.68$, $SD = 0.76$ vs. $M = 3.35$, $SD = 0.78$), $t(90) = 3.51$, $p = .001$.

Focusing on the advisors who recommended die-roll B ($n = 76$ out of 93 conflicted advisors), with no-disclosure, 53% of choosers complied with their advisor's recommendation and picked B. However, again, with disclosure, this increased to 81%, $\chi^2(1, N = 76) = 6.63$, $p = .01$.

Chooser's survey. Figure 1 shows the choosers' self-reported feelings for those choosers who had advisors who recommended inferior die-roll B in the conflicted conditions. When advisors recommended die-roll B ($n = 76$ out of 93 conflicted advisors),[1] choosers who received disclosure were significantly less pleased with their choice and were less likely to trust the advice (i.e., think the advisor gave their interests priority). At the same time, advisees who received disclosure sensed significantly increased pressure to help their advisor and were significantly more uncomfortable rejecting the recommendation. These latter two measures for pressure to comply were significantly correlated ($p < .01$) and loaded on one factor. Therefore, we computed an average z-score to create a new variable from the standardized responses (Cronbach's $\alpha = .59$) measuring the "pressure to comply," which demonstrated a significant increased burden felt by advisees who received disclosure. See Table 2 for means and statistics.

Furthermore, with disclosure, choosers were marginally less likely to like their advisors. There was no significant difference between conflicted conditions in how attractive choosers found die-roll A or B or how honest they thought their advisor was.

Increased pressure to comply: Mediation analysis. To examine whether an increased pressure to comply mediated the effect of disclosure on the chooser's choice of die-roll, we followed the steps recommended by Baron and Kenny (1986), adapted for binary dependent variables (MacKinnon & Dwyer, 1993). This analysis revealed that the "pressure to comply" variable mediated the relationship between disclosure and choice of die-roll (Sobel $z = 2.16$, $p = .03$); disclosure significantly affected the choice of die-roll ($\beta = 1.32$, $p = .01$) and the mediator ($\beta = 0.52$, $p = .007$) in simple logistic and ordinary least squares (OLS) regression models, respectively, and with both disclosure and the mediator in the model, the effect of disclosure was reduced ($\beta = 0.72$, $p = .23$), while the mediator significantly affected the die-roll choice ($\beta = 1.45$, $p = .001$).[2]

Advisor's survey. Among conflicted advisors who recommended die-roll B ($n = 76$ out of 93 conflicted advisors), there was

[1] Results for this sample, and for the full sample of 93 choosers (which follows the same pattern of results), are shown in Table 2.

[2] Mediation analysis was also conducted for each of the two items (helping advisor and rejection discomfort) separately, resulting in a similar

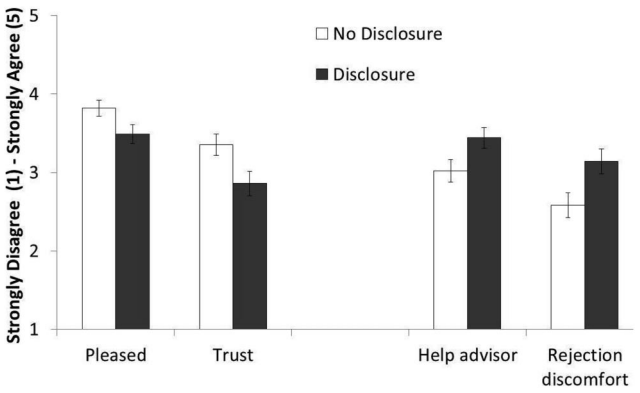

Figure 1. Experiment 1: Decreased trust and increased pressure with disclosure. Error bars represent the standard error of the mean.

no significant difference between disclosure and no-disclosure conditions in how strongly advisors said that they recommended die-roll B or how much they prioritized their partners or themselves with their advice. Advisors believed they gave more honest advice with disclosure ($M = 3.97$, $SD = 0.70$ vs. $M = 3.42$, $SD = 0.98$), $F(1, 74) = 7.67$, $p = .007$, $\eta_p^2 = .09$, but were also aware that their partner felt more uncomfortable turning down their recommendation ($M = 2.97$, $SD = 0.88$ vs. $M = 2.49$, $SD = 0.91$), $F(1, 73) = 5.48$, $p = .02$, $\eta_p^2 = .07$, and believed that their partner felt increased pressure to help them ($M = 3.64$, $SD = 0.99$ vs. $M = 3.21$, $SD = 0.73$), $F(1, 73) = 4.70$, $p = .03$, $\eta_p^2 = .06$, than with no-disclosure.

If the chooser picked B, then the advisor had a choice of which die-roll to take. Of the advisors whose choosers followed the recommendation to take die-roll B ($n = 50$ out of 93 conflicted advisors), 33% of the advisors chose the superior die-roll A in the no-disclosure condition. With disclosure, the fraction of advisors who chose A was significantly greater (62%), $\chi^2(1, N = 50) = 4.02$, $p = .045$.

Discussion

Disclosure resulted in more compliance with conflicted advice as a result of the choosers' feeling of increased pressure to comply. Disclosure created ambivalence in choosers; they were aware that the advisor had not prioritized their best interests, and they liked their advisors less than with no-disclosure, but they were much more likely to comply with the advice and be less satisfied with their choice. In particular, with disclosure, choosers indicated that they were more uncomfortable turning down the advisor's recommendation and felt greater pressure to help their advisor. This compliance was not genuinely altruistic, or even "warm-glow" in the classic sense (Andreoni, 1990); with disclosure, they did not report having enjoyed helping their advisor, they liked their advisor less, and were less pleased with their choice. Thus, it seems that advisees helped their advisors reluctantly, rather than out of a pure concern for the advisor's outcomes or even to feel good about themselves. It is also unlikely that choosers were rewarding their advisor's honesty since they did not report that advisors who disclosed were more honest than advisors who did not.

All advisors rated die-roll A as significantly more attractive than die-roll B. Although we did not see a statistically significant difference in the advice given with disclosure compared to no-disclosure (either on which die-roll to choose or how strongly advisors felt that advice was recommended), there were directional indications of moral licensing, with directionally more advisors in the disclosure condition recommending the inferior die-roll. Strikingly consistent with moral licensing were the differences between the disclosure and no-disclosure conditions in the choices of advisors who, because the chooser selected die-roll B, were able to choose a die- roll for themselves. Advisors whose conflict was not disclosed were far more likely to choose die-roll B, as if trying to persuade themselves that they had not misled the chooser, whereas the majority of advisors whose conflict was disclosed seemed to be comfortable selecting die-roll A, even though most recommended B. The advisor's choice of die-roll was elicited privately, so consistency of advice in the eyes of the chooser is not a plausible interpretation. It therefore seems likely that the disclosure reduced advisors' guilt about the bad advice they gave; the chooser had been warned about their conflict, so they felt free to indulge their own personal interests.

One limitation of this experiment is that the stakes are relatively small, so it is not very costly for choosers to succumb to social pressure and choose the inferior die-roll. Perhaps choosers would not sacrifice anything significant to help their advisors. Most research examining the impact of stakes in economic games (e.g., dictator games) in which players face similar pressures to assist finds that the outcomes do not change substantially when the stakes are increased, for example, 10-fold from $10 to $100 (Hoffman, McCabe, & Smith, 1996), or when conducted in poorer countries where the stakes offered are similar to several months' salary (Cameron, 1999; Slonim & Roth, 1998). However, some research examining the impact of stake magnitude on behavior in ultimatum games has found that higher stakes make a difference (Andersen, Ertac, Gneezy, Hoffman, & List, 2011), and specifically that proposers give a lower percentage of the pie to responders and responders accept this (unfair) offer more readily. An analogous pattern in our experiments would entail choosers being more likely to choose the superior die-roll as the stakes increase, even when facing a personal disclosure. Such a pattern could potentially challenge the generalizability of our findings to real-world contexts in which stakes are likely to be much larger.

While there are ethical concerns in running an experiment that pressures people to comply with suboptimal advice at the high level of stakes present in many real-world situations, we can increase the stakes somewhat to see if patterns of choice are altered. Since even the small stakes of the prior experiment seemed to put choosers in a bind (and attracted them to the experiment in the first place), we can conclude that small stakes matter for some participants. The next experiment more than doubles the magnitude of the financial stakes and also doubles the previous differ-

pattern of results (helping advisor showed full mediation and rejection discomfort partial mediation). The combined mediator is reported for parsimony and is due to the significant correlation between the two mediators. We also conducted bootstrapping mediation analysis (on the combined mediator) to construct bias-corrected 95% confidence intervals (CIs) based on 1,000 random samples with replacement from the full sample (MacKinnon, Fairchild, & Fritz, 2007; Preacher & Hayes, 2004; Shrout & Bolger, 2002), which gave an indirect effect of 0.82 and an interval excluding zero for the mediator (0.20, 1.65).

Table 2
Experiment 1: Results From the Choosers' Surveys

Self-reported feeling	No disclosure *M* (*SD*)	Disclosure *M* (*SD*)	*F* statistic	*p* value and effect size
Like advisor				
Restricted sample ($n = 76$)	4.03 (0.48)	3.72 (0.85)	$F(1, 74) = 3.76$	$p = .056$, $\eta_p^2 = .05$
Full sample ($n = 93$)	4.02 (0.54)	3.78 (0.82)	$F(1, 91) = 2.83$	$p < .10$, $\eta_p^2 = .03$
Pleased with choice				
Restricted sample ($n = 76$)	3.82 (0.64)	3.49 (0.70)	$F(1, 72) = 4.58$	$p = .04$, $\eta_p^2 = .06$
Full sample ($n = 93$)	3.80 (0.64)	3.45 (0.68)	$F(1, 88) = 6.32$	$p = .01$, $\eta_p^2 = .07$
Trust				
Restricted sample ($n = 76$)	3.35 (0.86)	2.86 (0.93)	$F(1, 74) = 5.64$	$p = .02$, $\eta_p^2 = .07$
Full sample ($n = 93$)	3.33 (0.86)	2.98 (0.99)	$F(1, 91) = 3.37$	$p = .07$, $\eta_p^2 = .04$
Help advisor				
Restricted sample ($n = 76$)	3.03 (0.89)	3.44 (0.81)	$F(1, 74) = 4.58$	$p = .04$, $\eta_p^2 = .06$
Full sample ($n = 93$)	3.02 (0.90)	3.46 (0.78)	$F(1, 91) = 6.32$	$p = .01$, $\eta_p^2 = .07$
Rejection discomfort				
Restricted sample ($n = 76$)	2.57 (1.01)	3.14 (0.96)	$F(1, 74) = 6.19$	$p = .02$, $\eta_p^2 = .08$
Full sample ($n = 93$)	2.44 (0.98)	3.17 (0.97)	$F(1, 91) = 12.78$	$p = .001$, $\eta_p^2 = .12$
Pressure to comply (combined measure)				
Restricted sample ($n = 76$)	−0.24 (0.92)	0.27 (0.66)	$F(1, 74) = 7.79$	$p = .007$, $\eta_p^2 = .10$
Full sample ($n = 93$)	−0.28 (0.90)	0.33 (0.65)	$F(1, 91) = 13.46$	$p < .001$, $\eta_p^2 = .13$

ence between the inferior and superior die-rolls. The top prize was a $50 Amazon voucher, and our sample this time consisted mainly of university students who presumably would value this prize highly.

Experiment 2: Higher Stakes

This experiment employed a similar design as Experiment 1, comparing personal disclosure to no-disclosure, but using lotteries of greater magnitude and a greater absolute difference between the die-rolls. This magnifies both the economic and psychological stakes for participants. We again predicted that participants would feel less trust in the advice with personal disclosure yet would also feel greater pressure to comply with the recommendation.

Method

Participants. One hundred twenty-four participants (62 advisors, 46% male, 86% students, 49% Caucasian, 31% Asian; mean age = 22.3 years, *SD* = 6.74) were recruited outside the University Center in Durham, North Carolina.

Design and procedure. Participants were again randomly assigned to two roles (advisor or chooser), and the procedure was similar to the previous experiment (but this time, tables were positioned both inside and outside the university center). As before, advisors and choosers were paired with strangers and did not meet one another until the advisor had decided on their recommendation and filled out the communication form. Die-roll A was of a larger magnitude (see Table 3); the value of die-roll A was approximately 2.5 times the value in the previous experiment, and there was a greater absolute difference between the two die-rolls: $30 versus the $15 difference in the prior experiment.

Conditions. All advisors were subject to a COI and were randomized into the personal disclosure condition or the no-disclosure condition. Again, personal disclosure consisted of advisors being required to disclose their incentive with the same written statement as in Experiment 1.

Results

Die-roll advice. The majority of advisors recommended the inferior die-roll B; with no- disclosure, 83% of advisors recommended die-roll B, and with disclosure, 88% recommended B; this difference was not statistically significant, $\chi^2(1, N = 62) = 0.22$, $p = .64$. Again, advisors gave knowingly biased advice, since they personally thought die-roll A was significantly more attractive than die-roll B ($M = 4.11$, $SD = 0.83$ vs. $M = 3.74$, $SD = 0.72$), $t(61) = 3.59$, $p = .001$.

Die-roll choice. With the higher stakes, we see an even greater difference in compliance between disclosure and no-disclosure conditions. With no-disclosure, only 30% of choosers picked the inferior die-roll B. This is less than in Experiment 1, in which 42% of choosers picked B with no-disclosure. This decrease is probably due to the increased difference in quality between the die-rolls and the higher reward with die-roll A. With higher stakes, disclosure increased compliance to 75%, $\chi^2(1, N = 62) = 12.59$, $p < .001$ (a level similar to that in Experiment 1, in which 76% of choosers picked B with disclosure). Not surprisingly, as before, choosers found die-roll A more attractive than B ($M = 4.07$, $SD =$

Table 3
Experiment 2: Prizes Associated With the Die-Rolls as Seen by Advisors and Choosers

Die A	Die B
1. $50 Amazon voucher (online)	1. Mr. Goodbar
2. $20 gift card for Starbucks	2. $20 Amazon voucher (online)
3. Snickers bar	3. $5 gift card for Dunkin' Donuts
4. Can of Coca-Cola	4. Can of Food Lion cola
5. $5 gift card for Dunkin' Donuts	5. $20 gift card for Starbucks
6. Musketeers bar	6. Milky Way bar

Note. A pilot test ($N = 49$) revealed that 94% of participants preferred to roll die-roll A over die-roll B and were willing to pay more for die-roll A ($M = \$49.53$, $SD = 28.18$) compared to die-roll B ($M = \$31.10$, $SD = 22.31$), paired $t(48) = 6.51$, $p < .001$.

0.54 vs. $M = 3.72$, $SD = 0.58$), $t(60) = 4.10$, $p < .001$. Focusing on just the advisors who recommended die-roll B ($n = 53$ out of 62 total advisors), with no-disclosure, only 36% of choosers complied with their advisor's recommendation and picked the inferior die-roll B; with disclosure, this increased to 82%, $\chi^2(1, N = 53) = 11.76$, $p = .001$.

Chooser's survey. When advisors recommended B (the inferior die-roll) ($n = 53$ out of 62 total advisors),[3] disclosure caused choosers to be less likely to trust the advice ($M = 2.48$, $SD = 0.98$ vs. $M = 3.12$, $SD = 0.93$), $F(1, 50) = 5.83$, $p = .02$, $\eta_p^2 = .10$ [full sample of 62 choosers: ($M = 2.74$, $SD = 1.15$ vs. $M = 3.27$, $SD = 0.91$), $F(1, 59) = 3.88$, $p = .05$, $\eta_p^2 = .06$]. At the same time, advisees who received disclosure felt increased pressure to help their advisor ($M = 3.54$, $SD = 1.04$ vs. $M = 2.84$, $SD = 1.21$), $F(1, 51) = 5.07$, $p = .03$, $\eta_p^2 = .09$ [full sample of 62 choosers: ($M = 3.53$, $SD = 1.05$ vs. $M = 2.93$, $SD = 1.20$), $F(1, 60) = 4.38$, $p = .04$, $\eta_p^2 = .07$], and were more uncomfortable rejecting the recommendation ($M = 3.39$, $SD = 1.03$ vs. $M = 2.44$, $SD = 1.04$), $F(1, 51) = 11.15$, $p = .002$, $\eta_p^2 = .18$ [full sample of 62 choosers: ($M = 3.19$, $SD = 1.15$ vs. $M = 2.53$, $SD = 1.04$), $F(1, 60) = 5.50$, $p = .02$, $\eta_p^2 = .08$]. Due to a significant correlation ($p < .01$) in the latter two measures, we again computed an average z-score (Cronbach's $\alpha = .77$) to create a combined variable "pressure to comply," which demonstrated a significant increased burden felt by advisees who received disclosure ($M = 0.34$, $SD = 0.84$ vs. $M = -0.38$, $SD = 0.83$), $F(1, 51) = 9.85$, $p = .003$, $\eta_p^2 = .16$ [full sample of 62 choosers: ($M = 0.26$, $SD = 0.87$ vs. $M = -0.28$, $SD = 0.80$), $F(1, 60) = 6.57$, $p = .01$, $\eta_p^2 = .10$].

There was no significant difference among conditions in how pleased choosers were with their choice of die-roll, how much they liked their advisor, how attractive choosers found die-roll A or B, or how honest they believed their advisor was.

Increased pressure to comply: Mediation analysis. Pressure to comply mediated the relationship between disclosure and choice of die-roll (Sobel $z = 2.28$, $p = .02$); disclosure significantly affected the choice of die-roll ($\beta = 2.10$, $p = .001$) and the mediator ($\beta = 0.72$, $p = .003$) in simple logistic and OLS regression models, respectively, and with both disclosure and the mediator in the model, the effect of disclosure was reduced ($\beta = 1.50$, $p = .06$), while the mediator significantly affected the die-roll choice ($\beta = 2.02$, $p = .001$).[4]

Advisor's questions. Advisors who recommended die-roll B ($n = 53$ out of 62 total advisors) indicated no significant difference between conditions on how strongly they said that they recommended die-roll B, nor on how attractive they found die-roll A and die-roll B. Advisors believed they gave more honest advice with disclosure ($M = 3.79$, $SD = 0.92$ vs. $M = 2.52$, $SD = 1.12$), $F(1, 51) = 20.38$, $p < .001$, $\eta_p^2 = .29$, and believed that their partner felt increased pressure to help them ($M = 3.71$, $SD = 1.01$ vs. $M = 2.52$, $SD = 0.71$), $F(1, 51) = 24.05$, $p < .001$, $\eta_p^2 = .32$, than with no-disclosure. There was no significant difference in advisors' perception of their partners' discomfort in turning down their recommendation.

Of the advisors who recommended die-roll B and had choosers who picked B ($n = 32$ out of 62 advisors), without disclosure, 44% of the advisors chose the superior die-roll A for themselves. With disclosure, the fraction of advisors who chose A was greater (65%), again showing some directional indication of moral licensing, but this time not significantly, $\chi^2(1, N = 32) = 1.16$, $p = .28$. In the next four studies, we refrain from reporting the results on advisors since they are not a primary focus of this article and do not depart substantially from the results reported in this experiment.[5]

Discussion

Increasing the stakes did not reduce the burden of disclosure. If anything, we observed a greater difference in compliance between the disclosure and no-disclosure conditions: Without disclosure, choosers were less likely to pick the inferior die-roll B since die-roll A was of greater value. With disclosure, choosers were as likely to comply and take die-roll B as they were with disclosure in Experiment 1. As found previously, disclosure decreased trust yet significantly increased pressure to comply with the advisor's recommendation.

The next experiment separates the informational and social components of disclosure. If the informational aspect of disclosure (revealing that the advisor has a COI) drives the decrease in trust, then disclosure will decrease trust regardless of whether it comes from the advisor or a third party. Also, if the personal/social component of disclosure drives the increased pressure to comply, then choosers will feel this more with personal disclosure (disclosure coming directly from the advisor) than with "external" disclosure (disclosure provided by a third party). External disclosure reduces the signal back to the advisor and reduces the strength of the motivation to be seen (or feeling pressure to be seen) as generous, cooperative, or obliging.

Experiment 3: External Disclosure

This experiment used a similar design to the previous experiments, but compared external disclosure to disclosure from the advisor. We predicted that, with external disclosure, advisees would feel less pressure to help their advisor. Since both forms of disclosure provide the same information regarding the advisor's COI, we did not predict any systematic differences in trust between personal and external disclosure.

One might argue that personal disclosures could seem more spontaneous and forthright, given that choosers who received disclosure were not explicitly informed that it was mandatory for advisors to disclose. However, this seems unlikely, since choosers in the previous experiments who received disclosure did not feel that their advisors were more honest than those who did not. In addition, a disclosure from a third party, rather than from the advisor, may make the advisor look especially adversarial and untrustworthy. These effects could augment the benefits of external disclosure that, we posit, arise from the reduced personal pressure incumbent in external disclosure. We return to this issue in Experiment 4, which helps to clarify some of the effects of external disclosure.

[3] Similar results were found when taking the whole sample (and are reported in square brackets in the text). For parsimony and relevance, in the next three experiments, we focus on presenting only the results from the sample where advisors recommend die-roll B.

[4] Mediation analysis on the separate items (helping advisor and rejection discomfort) revealed similar patterns of mediation. Bootstrap analysis for the combined mediator showed that the 95% bias-corrected confidence intervals for the size of the indirect effect (1.66) excluded zero (0.41, 3.69).

[5] Detailed results on advisors are available from the authors.

Method

Participants. One hundred forty-four new participants (72 advisors, approximately 53% male, 69% Caucasian; mean age = 42.1 years, $SD = 15.8$) were recruited onto the mobile data truck parked in a residential area in Pittsburgh, Pennsylvania.

Design and procedure. Participants were again randomly assigned to advisor or chooser. We essentially used the same lotteries as in Experiment 1, but die-roll A was made more attractive relative to die-roll B by switching the colas around (see Item 4 in Table 1) so that the generally preferred cola (Coke) was now also part of die-roll A.

Conditions. In this two-condition experiment, all advisors were subject to a COI, and there was always some form of disclosure. In one condition, disclosure occurred *personally*, exactly as in the previous experiments; in the other, it was provided *externally* in the choosers' instructions:

> Private information—In his or her instructions, your advisor has been informed that he/she will be rewarded (with a die-roll and resulting prize) only if you choose to roll die-B. Your advisor will not receive any reward if you choose die-A. You should not mention to your advisor that you know about this.

An important component of the external disclosure was that it was at least as salient to the chooser as was the personal disclosure of the other condition. The external disclosure was given to the chooser just before meeting his or her advisor as a note written on the back of the chooser's instructions. We asked choosers in this condition not to discuss the COI with the advisor to ensure a clean manipulation between external and personal disclosure—we specifically aimed to reduce the common knowledge between the advisor-chooser pair regarding the presence of a COI. All other procedures, including choosers having full information about prizes, were identical to the prior experiments.

Results

Die-roll advice. Again, the majority of advisors recommended the inferior die-roll B, and there was no statistical difference in advice between the two conditions; 81% of advisors in the external condition and 86% in the personal disclosure condition recommended B, $\chi^2(1, N = 72) = 0.40$, $p = .53$. Again, advisors thought die-roll A was significantly more attractive than die-roll B ($M = 4.03$, $SD = 0.69$ vs. $M = 3.26$, $SD = 0.77$), $t(71) = 7.37$, $p < .001$.

Die-roll choice. With personal disclosure, 75% of choosers picked B, similar to the equivalent condition in Experiment 1, but with external disclosure, 53% of choosers picked inferior die-roll B, $\chi^2(1, N = 72) = 3.85$, $p = .05$. Again, choosers found die-roll A more attractive than die-roll B ($M = 3.87$, $SD = 0.61$ vs. $M = 3.49$, $SD = 0.65$), $t(69) = 4.21$, $p < .001$.

Focusing on choosers paired with advisors who recommended inferior die-roll B ($n = 60$ out of 72 total advisors), with personal disclosure, 84% of choosers selected the inferior die-roll B, but with external disclosure, 52% of choosers chose the inferior die-roll, $\chi^2(1, N = 60) = 7.16$, $p = .007$.

Chooser's survey. Figure 2 summarizes choosers' self-reported feelings in the two conditions. Focusing on choosers paired with advisors who recommended B ($n = 60$ out of 72 total advisors),[6] although there was no significant difference in trust between the conditions, (M [Personal disclosure] = 2.97, $SD = 0.89$ vs. M [External disclosure] = 2.76, $SD = 0.91$), $F(1, 57) = 0.79$, $p = .38$, $\eta_p^2 = .01$, choosers who experienced personal disclosure from their advisors felt significantly increased pressure to help their advisor ($M = 3.77$, $SD = 1.12$ vs. $M = 3.07$, $SD = 1.00$), $F(1, 58) = 6.62$, $p = .01$, $\eta_p^2 = .10$, and were more uncomfortable turning down the recommendation ($M = 3.32$, $SD = 1.11$ vs. $M = 2.48$, $SD = 1.09$), $F(1, 58) = 8.75$, $p = .004$, $\eta_p^2 = .13$. Again, these two variables were significantly correlated ($p < .01$) and loaded onto one factor. We computed an average z-score for the "pressure to comply" (Cronbach's $\alpha = .77$), which was significantly higher for choosers receiving personal disclosure compared to external disclosure ($M = 0.33$, $SD = 0.88$ vs. $M = -0.35$, $SD = 0.80$), $F(1, 58) = 9.67$, $p = .003$, $\eta_p^2 = .14$.

There was no significant difference between the two conditions in how attractive choosers found die-roll A or B, how pleased they were with their choice, how much they liked their advisor, or how honest they believed their advisor was.

Increased pressure to comply: Mediation analysis. To test whether pressure to comply mediated the effect of personal disclosure on the chooser's choice of die-roll, we used the same procedures as in the previous experiments. A logistic regression for the chooser's choice and OLS regression for the mediator revealed a significant outcome for personal disclosure (for the choice of die-roll, $\beta = 1.58$, $p = .01$; for the mediator, $\beta = 0.68$, $p = .003$), and a final logistic regression showed that, when controlling for disclosure type, pressure to comply predicted the chooser's choice of die-roll ($\beta = 1.45$, $p = .002$), while the effect of personal disclosure on choice of die-roll decreased ($\beta = 0.99$, $p = .16$) (Sobel $z = 2.19$, $p = .03$).[7] Thus, pressure to comply fully mediated the effect of personal versus external disclosure on the chooser's choice of die-roll.

Discussion

This study supports the implication that decreased trust results from knowledge of the advisor's COI (which comes with both forms of disclosure), whereas the social component of increased pressure operates when the advisor, rather than a third party, discloses the COI. Since more compliance occurred with personal than with external disclosure, we can rule out any generosity concerns that come with the *information* regarding the advisor's financial welfare.

We asked choosers in the external disclosure condition not to discuss the COI with the advisor. Although this leads to a clean manipulation between external and personal disclosure, it may also introduce a demand effect in suggesting that the chooser should disregard the advisor's recommendation or trust it less. Although we do see a decrease in compliance with external disclosure, the equal levels of trust and honesty seen with personal and external disclosure diminish concerns that the external disclosure condition heightened distrust or skepticism toward the advisor.

[6] Similar results were found with the whole sample.

[7] Mediation analysis using the separate items (helping advisor and rejection discomfort) revealed similar patterns; both variables fully mediated the type of disclosure on the chooser's choice of die-roll. Bootstrap analysis (on the combined mediator) showed that the 95% bias-corrected confidence intervals for the size of the indirect effect (0.98) excluded zero (0.27, 2.98).

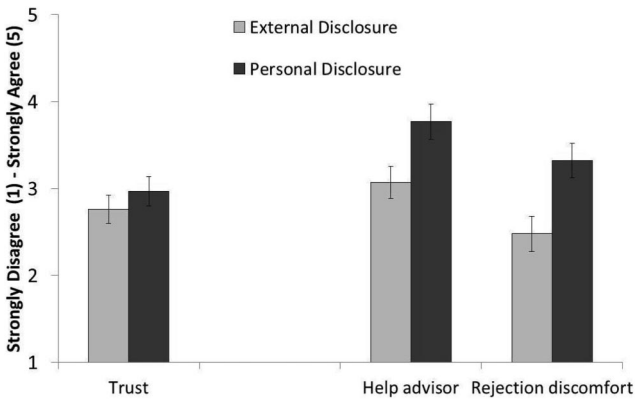

Figure 2. Experiment 3: Increased pressure with personal disclosure. Error bars represent the standard error of the mean.

The 52% rate of compliance with biased advice observed with external disclosure is comparable to the 53% rate of compliance in the no-disclosure condition of Experiment 1, even though the inferior option was less desirable in this experiment. Compliance with external disclosure could have occurred due to uncertainty in the chooser's mind about whether the advisor knew that the chooser had been warned by disclosure (uncertainty present in Experiment 3's external disclosure, but absent in Experiments 1 and 2, in which, without any disclosure, the possibility that the advisor might have a COI probably did not occur to the chooser). The next experiment addresses this issue.

Experiment 4: Clarifying Common-Knowledge Effects

Experiment 4 followed the same design as Experiment 3 but, in addition to replicating the personal disclosure condition, used two external disclosure conditions to manipulate common knowledge of the COI—that is, whether advisors knew about the external disclosure. We predicted that, without common knowledge of the COI, choosers would feel more comfortable disregarding their advisor's recommendation since their advice rejection cannot send a signal of being unresponsive to the advisor's interest (after all, the advisor is unaware that choosers even know about these interests).

Method

Participants. Two hundred fifty-two participants (126 advisors, approximately 52% male, 60% Caucasian; mean age = 35.5 years, $SD = 16.6$) were recruited, with the same inducements as in the previous experiment, onto the mobile data truck parked in a residential area.

Design and procedure. As before, participants were randomly assigned to the role of advisor or chooser. The prizes, associated with the die-rolls A and B, were changed only slightly from Experiment 3 because some prizes were no longer available to us. Die-roll A offered superior prizes to die-roll B, with the exception of the colas, so the set-up more closely resembles Experiment 1 in terms of the relative desirability of the die-rolls. Pretests again showed that nearly everyone preferred die-roll A to die-roll B. The procedure was the same as in the last experiment.

Conditions. All advisors were subject to a COI, and there was always some form of disclosure. In one condition (personal disclosure) it occurred from the advisor, as in the previous experiments; in a second condition (external disclosure with common knowledge) the disclosure read as follows:

> Private information—In his/her instructions, your advisor has been informed that he/she will be rewarded (with a die-roll and resulting prize) only if you choose to roll die-B. Your advisor will not receive any reward if you choose die-A. Your advisor knows that you know this information but your advisor will not discuss personal benefits with you. You should also not mention the advisor's personal benefits when you speak with your advisor.

A third and final condition (external disclosure with no common knowledge) read as follows:

> Private information—In his/her instructions, your advisor has been informed that he/she will be rewarded (with a die-roll and resulting prize) only if you choose to roll die-B. Your advisor will not receive any reward if you choose die-A. Your advisor is not aware that you know this and you should not mention to your advisor that you know about this.

Results

Die-roll advice. There was no difference between the conditions in the advisors' recommendations; 77% of advisors in the external-disclosure not-common-knowledge condition recommended die-roll B (the inferior die), 75% in the external-disclosure common-knowledge condition, and 77% in the personal disclosure condition, $\chi^2(2, N = 126) = 0.07$, $p = .97$. Again, advisors reported that die-roll A was significantly more attractive than die-roll B ($M = 4.05$, $SD = 0.75$ vs. $M = 3.39$, $SD = 0.77$), $t(124) = 8.33$, $p < .001$.

Die-roll choice. In the external-disclosure not-common-knowledge condition, 43% of choosers picked the inferior die-roll B; with external-disclosure common-knowledge, this increased to 60% of choosers, and with personal disclosure, 77% picked die B, $\chi^2(2, N = 126) = 8.86$, $p = .01$. Again, choosers found die-roll A significantly more attractive than die-roll B ($M = 3.75$, $SD = 0.76$ vs. $M = 3.29$, $SD = 0.77$), $t(125) = 5.17$, $p < .001$.

Focusing on advisors who recommended die-roll B ($n = 96$ out of 126 total advisors), with external-disclosure not-common-knowledge, 47% of choosers complied with the advisor's recommendation and picked inferior die-roll B; with external-disclosure common-knowledge, this increased to 72% of choosers, and with personal disclosure, 92% complied with the biased advice, $\chi^2(2, N = 96) = 14.36$, $p = .001$. External-disclosure not-common-knowledge had significantly less compliance (47%) than external-disclosure common-knowledge (72%), $\chi^2(1, N = 70) = 4.61$, $p = .03$; and external-disclosure common-knowledge had significantly less compliance than personal disclosure (92%), $\chi^2(1, N = 62) = 3.90$, $p = .048$.

Chooser's survey. Focusing on choosers paired with advisors who recommended B ($n = 96$ out of 126 total advisors), there was no significant difference between the conditions in trust in the advice (M [Personal disclosure] = 2.69, $SD = 0.97$ vs. M [External-disclosure common-knowledge] = 2.78, $SD = 0.76$ vs.

M [External-disclosure not-common-knowledge] = 2.53, *SD* = 1.11), $F(2, 93) = 0.61$, $p = .55$, $\eta_p^2 = .01$, again suggesting that trust is driven by the informational component of disclosure, not the aspects that create compliance pressures. However, there was a significant difference between the conditions in how much pressure choosers felt to help their advisor, $F(2, 93) = 4.24$, $p = .02$, $\eta_p^2 = .08$, and how uncomfortable they were turning down the recommendation, $F(2, 93) = 7.74$, $p = .001$, $\eta_p^2 = .14$. Choosers with personal disclosure from their advisor felt significantly more pressure to help their advisor ($M = 3.96$, $SD = 0.87$), compared to choosers in the external-disclosure common-knowledge condition ($M = 3.33$, $SD = 1.15$), $F(1, 93) = 5.50$, $p = .02$, who, in turn, directionally felt more pressure to help their advisor than choosers in the external-disclosure not-common-knowledge condition ($M = 3.18$, $SD = 1.14$), although this difference was not statistically significant, $F(1, 93) = 0.33$, $p = .57$. Likewise, choosers with personal disclosure were significantly more uncomfortable ($M = 3.73$, $SD = 0.87$) turning down the recommendation than choosers with external-disclosure common-knowledge ($M = 2.83$, $SD = 1.08$), $F(1, 93) = 12.14$, $p = .001$, and again, although choosers in the external-disclosure common-knowledge condition directionally felt more uncomfortable than choosers in the external-disclosure not-common-knowledge condition ($M = 2.74$, $SD = 1.14$), this difference was not statistically significant, $F(1, 93) = 0.14$, $p = .71$.

Responses to helping the advisor and rejection discomfort were significantly correlated ($p < .01$), and we again computed an average *z*-score for the "pressure to comply" (Cronbach's $\alpha = .77$), which was significantly different for the three conditions, $F(2, 93) = 7.35$, $p = .001$, $\eta_p^2 = .14$; significantly higher for choosers receiving personal disclosure ($M = 0.54$, $SD = 0.70$) compared to external-disclosure common-knowledge ($M = -0.14$, $SD = 0.88$), $F(1, 93) = 10.60$, $p = .002$, which in turn was higher, but not significantly, for choosers receiving external-disclosure not-common-knowledge ($M = -0.26$, $SD = 0.90$), $F(1, 93) = 0.29$, $p = .60$.

There was no significant difference among the three conditions in how attractive choosers found die-roll A or B, how pleased they were with their choice, how much they liked their advisor, or how honest they believed their advisor to be.

Increased pressure to comply: Mediation analysis. To test whether pressure to comply mediated the effect of type of disclosure on the chooser's choice of die-roll, we used similar procedures as in the previous experiments. A logistic regression for the chooser's choice and an OLS regression for the mediator revealed a significant outcome for personal disclosure[8] (for choice of die-roll, $\beta = 2.08$, $p = .007$; for the mediator, $\beta = 0.74$, $p < .001$), and a final logistic regression showed that, when controlling for personal disclosure, pressure to comply predicted the chooser's choice of die-roll ($\beta = 1.19$, $p < .001$), while the effect of personal disclosure on choice of die-roll decreased ($\beta = 1.40$, $p = .09$) (Sobel $z = 2.57$, $p = .01$).[9]

Discussion

Again, personal disclosure resulted in greater compliance with conflicted advice through increased pressure to comply. With personal disclosure, choosers indicated that they were much more uncomfortable turning down the advisor's recommendation, and also that they felt increased pressure to help their advisors. While the underlying feelings showed only directional (but not statistically significant) differences between external disclosure conditions, actual die- roll choice was significantly different across each condition. The lowest rate of compliance with bad advice occurred when choosers were assured that their advisors did not know about the external disclosure; thus, common knowledge about the disclosure appeared to drive some of the compliance with bad advice. Common knowledge means that advice rejection also sends a signal to the advisor regarding the advisees' unwillingness to help the advisor, and so advice rejection has a larger bearing on the relationship. Without common knowledge of the disclosure, noncompliance can be more easily seen as rejection of the *advice* rather than of the advisor and/or the advisor's motives. Personal disclosure also caused more compliance and more pressure than did external disclosure with common knowledge. Thus, the source of the information (directly from the advisor vs. a third party) is also important.

The next experiment investigates other interventions to diminish the burden of disclosure. Specifically, we investigate whether choosers' decisions change when they have an opportunity to change their mind and can make decisions in private (not in front of the advisor). If, as we hypothesize, compliance is driven largely by rejection discomfort and pressure to signal cooperativeness or generosity, then cooling-off periods and private decisions will decrease this burden, and choosers will be more likely to pick the superior option, further demonstrating that their public compliance is not in alignment with private preference.

Experiment 5: Private Decisions

Experiment 5 examines whether recipients will change their mind if given an opportunity to "cool off" after making their decision in front of their advisor. We also examine recipients' choices when they can make their decision in private (to be revealed later to the advisor), rather than in front of their advisor. If the physical presence of the advisor amplifies the pressure to comply, then removing the advisor after disclosure should reduce compliance with advice that is not trusted. Private decisions also mitigate some of the pressures of common knowledge, as the chooser's decision is revealed to the advisor several days later, after the chooser is long gone.

Method

Participants. Two hundred seventy-eight participants (139 advisors, approximately 45% male, 74% Caucasian; mean age = 42.6 years, *SD* = 15.4) were recruited as before onto the mobile data truck parked in a residential area in Pittsburgh, Pennsylvania.

[8] The dummy variable for personal disclosure was coded 1.0, with personal disclosure coded as 1 and compared against the combined external disclosure conditions. Mediation analysis was also conducted with dummy variables for external-disclosure not-common-knowledge coded as 1 and compared against external-disclosure common-knowledge and personal disclosure conditions combined, and similar results were obtained.

[9] Mediation analysis on the separate items (helping advisor and rejection discomfort) revealed similar patterns, although the rejection discomfort mediator was only marginally significant in predicting the chooser's choice of die-roll. Bootstrap analysis for the combined mediator showed that the 95% bias-corrected confidence intervals for the size of the indirect effect (0.95) excluded zero (0.25, 1.69).

Design and procedure. Participants were randomly assigned to the role of advisor or chooser, and the die-roll prizes remained the same as in the previous experiment; but this time (to facilitate delayed payment) advisors were rewarded with a $5.00 Amazon voucher if choosers picked the inferior die-roll B. These vouchers were e-mailed to advisors after the experiment was completed, which allowed advisors to leave while choosers were given an opportunity to change their mind or make their decision in private.

Conditions. All advisors were subject to a COI and were randomly assigned to one of four between-subject conditions: disclosure with private decision, no-disclosure with private decision, disclosure with a public decision followed by a private (re)decision, and no-disclosure with a public decision followed by a private (re)decision.

The public-then-private (re)decision conditions followed the same procedure as in the previous experiments until after the chooser had made his or her choice. The advisor then left and the chooser was shown the die-roll prizes again and given an opportunity to change his or her mind.[10] The private decision conditions again followed a similar procedure, but the advisor left before the chooser made his or her decision, so the advisor was unaware of any choice the chooser made until receiving a voucher or not.

Results

Die-roll advice. There was no significant difference between the conditions in the advisors' recommendations, $\chi^2(3, N = 139) = 4.05$, $p = .26$; 76% of advisors without disclosure recommended the inferior die-roll B (79% in the private decision condition, 74% in the public-then-private [re]decision condition), and 64% of advisors who disclosed (58% in the private decision condition, 71% in the public-then-private [re]decision condition). As in the previous experiments, advisors thought die-roll A was significantly more attractive than die-roll B ($M = 4.11$, $SD = 0.70$ vs. $M = 3.22$, $SD = 0.85$), $t(136) = 10.93$, $p < .001$.

Die-roll choice. There was a significant difference in choice of die-roll among the four conditions, $\chi^2(3, N = 139) = 11.22$, $p = .01$. For private decision conditions, with no-disclosure, only 12% of choosers picked B, and with disclosure, 42% of choosers picked the inferior die-roll B. With the public-then-private (re)decision conditions, with no-disclosure, 21% of choosers picked B as their final choice (same as their initial choice); with disclosure, 41% of choosers picked B as their final choice (with 71% initially choosing B). Again, choosers found die-roll A more attractive than die-roll B ($M = 3.96$, $SD = 0.80$ vs. $M = 3.22$, $SD = 0.81$), $t(137) = 8.43$, $p < .001$.

Focusing on choosers in the private decision conditions whose advisors recommended the inferior die-roll B ($n = 48$ out of 71 advisors), with no-disclosure, only 15% of choosers complied with the advice to take the inferior die-roll B, compared with 59% with disclosure, $\chi^2(1, N = 48) = 9.95$, $p = .002$. So, although private decision-making decreased the overall acceptance of the inferior die-roll, there was still a significant effect of disclosure. For advisors who recommended die-roll B in the public-then-private (re)decision conditions ($n = 49$ out of 68 advisors), with no-disclosure, only 28% of choosers complied and initially picked die-roll B, and none of these choosers changed their minds when given the opportunity. However, with disclosure, 88% of choosers complied and picked B in front of their advisors, $\chi^2(1, N = 49) = 17.70$, $p < .001$, but many of these (43%) changed their minds when they were able to revise their decision in private, resulting in a total of 50% of choosers choosing the inferior die-roll (now an insignificant difference compared to the no-disclosure condition), $\chi^2(1, N = 49) = 2.50$, $p = .11$. Figure 3 illustrates the choices for the disclosure conditions when the decision was initially in private, in public and then private (re)decision. This figure demonstrates that choosers' private preference was different from their public compliance.

Chooser's survey. Again, focusing on choosers paired with advisors who recommended B ($n = 97$ out of 139 total advisors), with disclosure compared to no-disclosure, choosers felt less trust in the advice ($M = 1.67$, $SD = 0.94$ vs. $M = 2.33$, $SD = 0.86$), $F(1, 95) = 12.90$, $p = .001$, $\eta_p^2 = .12$; greater pressure to help their advisor ($M = 3.87$, $SD = 1.02$ vs. $M = 2.47$, $SD = 1.10$), $F(1, 95) = 41.67$, $p < .001$, $\eta_p^2 = .31$; and greater discomfort in turning down the recommendation ($M = 3.54$, $SD = 1.21$ vs. $M = 2.47$, $SD = 1.17$), $F(1, 95) = 19.72$, $p < .001$, $\eta_p^2 = .17$.

In the disclosure conditions, comparing the private decision versus the public-then-private (re)decision, when the first choice was in private, choosers were less uncomfortable turning down the advisor's recommendation ($M = 3.18$, $SD = 1.26$ vs. $M = 3.88$, $SD = 1.08$), $F(1, 44) = 4.05$, $p = .05$, $\eta_p^2 = .08$, and felt less pressure to help their advisor ($M = 3.50$, $SD = 1.06$ vs. $M = 4.21$, $SD = 0.88$), $F(1, 44) = 6.11$, $p = .02$, $\eta_p^2 = .12$. These differences between public and private decisions were insignificant in the no-disclosure conditions, where there was a generally reduced pressure to comply. Figure 4 illustrates the pressure to comply, showing that both disclosure and public decisions increase the burden to comply. Even when decisions were eventually made in private, disclosure created some lingering burdens that influenced compliance with biased advice.

Wanting to help the advisor and rejection discomfort were again significantly correlated ($p < .01$), and we computed an average z-score for the "pressure to comply" (Cronbach's $\alpha = .78$), which was significantly higher with disclosure (vs. no-disclosure) ($M = 0.51$, $SD = 0.76$ vs. $M = -0.46$, $SD = 0.78$), $F(1, 95) = 37.90$, $p < .001$, $\eta_p^2 = .29$, and when in public (vs. private decision) ($M = 0.18$, $SD = 0.98$ vs. $M = -0.18$, $SD = 0.79$), $F(1, 95) = 3.95$, $p = .05$, $\eta_p^2 = .04$.

There was no significant difference between the conditions in how attractive choosers found die-roll A or B, how pleased they were with their choice, or how much they liked their advisor. Choosers believed their advisor was less honest in the private decision condition than in the public-then-private (re-)decision condition ($M = 3.48$, $SD = 1.09$ vs. $M = 3.96$, $SD = 0.89$), $F(1, 95) = 5.65$, $p = .02$, $\eta_p^2 = .06$, but there was no difference in how choosers viewed their advisors' honesty with disclosure versus no-disclosure ($M = 3.78$, $SD = 1.09$ vs. $M = 3.67$, $SD = 0.95$), $F(1, 95) = .31$, $p = .58$, $\eta_p^2 = .003$.

Increased pressure to comply: Mediation analysis. Mediation analysis revealed that pressure to comply explained the relation-

[10] To avoid deception, both advisors and choosers were told the full procedure—that the advisor would leave, and the chooser would have an opportunity to revise his or her decision. This increases the generalizability of these results, as real-world "cooling off" periods will also be known to advisors or sellers, and recipients will make use of them only if they know about them.

ship between disclosure and the chooser's final choice of die-roll (Sobel $z = 2.88$, $p = .004$); disclosure significantly affected the choice of die-roll ($\beta = 1.47$, $p = .001$) and the mediator ($\beta = 0.96$, $p < .001$) in simple logistic and OLS regression models, respectively; and with both disclosure and the mediator in the model, the effect of disclosure was reduced ($\beta = 0.59$, $p = .27$), while the mediator significantly affected the die-roll choice ($\beta = 1.11$, $p = .001$).[11]

Discussion

Again, disclosure resulted in greater compliance with conflicted advice as a result of the perception of increased pressure to comply. Disclosure did not appear to induce good will or genuine altruism on the part of the recipient, as being provided with some privacy or the chance to change decisions helped choosers avoid compliance (although not completely) and increased the likelihood that the chooser will select the superior die-roll. In general, private decisions imply that advisees do not have to confront the advisor when rejecting advice, and can avoid being seen as uncooperative or failing to reciprocate.

Experiment 6: Expertise in Advice

This final experiment takes a step toward greater realism by effectively making the advisor a relative expert in the issue he or she was advising on. In the real world, disclosure is often paired with advice that is, at least, potentially optimal for the advisee. In this experiment, it was plausible to the choosers that the advice (whatever it was) was helpful to both the chooser and the advisor. We introduced expertise by including a "mystery gift" for each lottery if the chooser rolled a 6. Advisors were told what the mystery gift was, but choosers were not informed and were therefore more reliant on the advisor's recommendation than in the previous experiments. We compared personal disclosure to no-disclosure to see if our previous findings would hold.

Method

Participants. One hundred thirty-two participants (66 advisors, 54% male, 87 students, 54% Caucasian, 31% Asian; mean age = 21.8 years, $SD = 6.88$) were recruited outside the University Center in Durham, North Carolina.

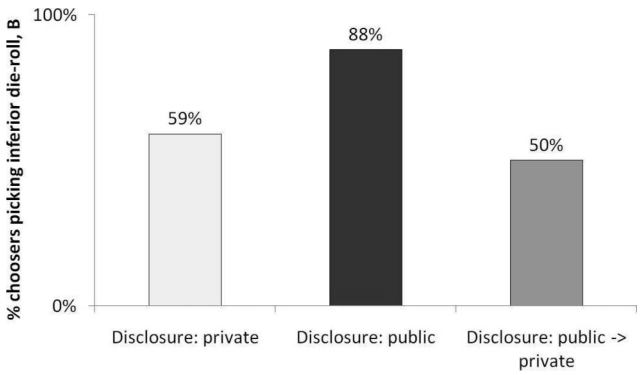

Figure 3. Experiment 5: Choosers who comply with taking die-roll B.

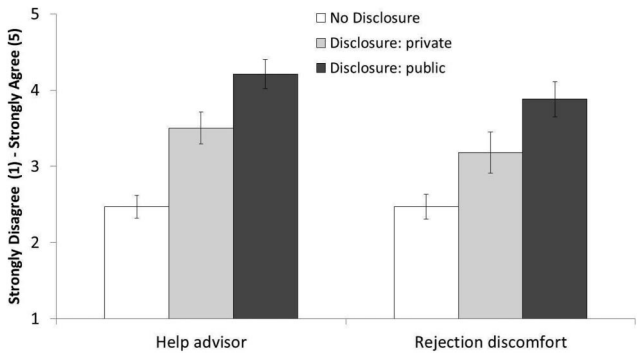

Figure 4. Experiment 5: Increased pressure with disclosure and public decisions. Error bars represent the standard error of the mean.

Design and procedure. Participants were again randomly assigned to two roles, and the procedure was similar to Experiments 1 and 2, with the exception that the prize associated with a die-roll of 6 was a "mystery gift" that the advisor knew about but the chooser did not. The prizes are outlined in Table 4. Advisors were told

> For die-A, the mystery gift is a Twix bar. For die-B, the mystery gift is two Twix bars. You can tell the other person whatever you like about the mystery gift; they will not be able to verify what you tell them and will only learn about the mystery gift if they roll a 6.[12]

Conditions. Again, all advisors were subject to a COI, and they were randomized into the personal disclosure condition or the no-disclosure condition.

Results

Die-roll advice. The majority of advisors recommended the inferior die-roll B; with no-disclosure, 85% of advisors recommended die-roll B, and with disclosure, 91% recommended B; this difference was not statistically significant, $\chi^2(1, N = 66) = 0.57$, $p = .45$. Again, advisors personally thought die-roll A was significantly more attractive than die-roll B ($M = 4.17$, $SD = 0.54$ vs. $M = 3.62$, $SD = 0.74$), $t(65) = 5.36$, $p < .001$.

Die-roll choice. With no-disclosure, 55% of choosers picked the inferior die-roll B (they are often [truthfully] told that the mystery gift is twice as good in die-roll B than in die-roll A), whereas with disclosure, this increased to 82%, $\chi^2(1, N = 66) = 5.66$, $p = .02$. As before, choosers found die-roll A more attractive than B ($M = 3.77$, $SD = 0.72$ vs. $M = 3.47$, $SD = 0.75$), $t(65) = 3.31$, $p = .002$. Focusing on just the advisors who recommended die-roll B ($n = 58$ out of 66 total advisors), with no-disclosure,

[11] Mediation analysis on the separate items (helping advisor and rejection discomfort) revealed similar patterns of mediation, with partial mediation seen for rejection discomfort and full mediation for helping the advisor. Bootstrap analysis for the combined mediator showed that the 95% bias-corrected confidence intervals for the size of the indirect effect (1.10) excluded zero (0.51, 1.91).

[12] We asked the same panhandler question as in the previous experiments, but we dropped the rejection discomfort question. We replaced it with another question at the end (so it would not compromise our experiment) to test for a different effect not related to the panhandler effect. We did not find significant results for this unrelated effect.

Table 4
Experiment 6: Prizes Associated With the Die-Rolls as Seen by Choosers

Die A	Die B
1. $20 Amazon voucher (online)	1. Mr. Goodbar
2. $5 gift card for Starbucks	2. $5 Amazon voucher (online)
3. Snickers bar	3. $5 gift card for Dunkin' Donuts
4. Can of Coca-Cola	4. Can of My Essentials cola
5. $5 gift card for Dunkin' Donuts	5. $5 gift card for Starbucks
6. Mystery prize A	6. Mystery prize B

Note. A pilot test ($N = 50$) revealed that 92% of participants preferred to roll die-roll A over die-roll B and were willing to pay more for die-roll A ($M = \$29.08$, $SD = 25.69$) compared to die-roll B ($M = \$15.06$, $SD = 18.58$), paired $t(49) = 6.46$, $p = .001$.

64% of choosers complied with their advisor's recommendation and picked the inferior die-roll B. However, with disclosure, 87% complied, $\chi^2(1, N = 58) = 3.96$, $p = .047$.

Chooser's survey. When advisors recommended B ($n = 58$ out of 66 total advisors),[13] choosers who received disclosure were less likely to trust the advice ($M = 2.47$, $SD = 1.01$ vs. $M = 3.43$, $SD = 0.74$), $F(1, 56) = 16.93$, $p < .001$, $\eta_p^2 = .23$ [full sample of 66 choosers: ($M = 2.52$, $SD = 1.06$ vs. $M = 3.48$, $SD = 0.83$), $F(1, 64) = 16.98$, $p < .001$, $\eta_p^2 = .21$], and at the same time, they felt increased pressure to help their advisor, ($M = 3.67$, $SD = 1.03$ vs. $M = 3.07$, $SD = 0.86$), $F(1, 56) = 5.69$, $p = .02$, $\eta_p^2 = .09$ [full sample of 66 choosers: ($M = 3.55$, $SD = 1.06$ vs. $M = 3.03$, $SD = 0.85$), $F(1, 64) = 4.74$, $p = .03$, $\eta_p^2 = .07$]. There was no significant difference among conditions in how pleased choosers were with their choice of die-roll, how much they liked their advisor, how attractive choosers found die-roll A or B, or how honest they believed their advisor was.

Increased pressure to comply: Mediation analysis. Mediation analysis results (using the full sample of choosers)[14] demonstrated that the panhandler effect mediated the relationship between disclosure and choice of die-roll; disclosure significantly affected the choice of die-roll ($\beta = 1.32$, $p = .02$) and the mediator ($\beta = 0.52$, $p = .03$) in simple logistic and OLS regression models, respectively, and with both disclosure and the mediator in the model, the effect of disclosure was reduced ($\beta = 1.11$, $p = .06$), while the mediator significantly affected the die-roll choice ($\beta = 0.73$, $p = .03$). However, the Sobel test was not significant (Sobel $z = 1.56$, $p = .12$).[15]

Discussion

Increased pressure to comply was found to hold even when relative expertise was introduced: Advisees still felt uncertain about the quality of advice given with disclosure and felt more pressure to help their advisor once the advisor's self-interest had been disclosed. Increasing expertise further could increase base-rate (no disclosure) compliance even more as advisees become more reliant on the knowledge of their advisors, but the *burden* of disclosure seemed robust to relative expertise.

General Discussion

The results of these six experiments show that people experience conflicting reactions to the disclosure that an advisor has a COI. Advisees who receive such disclosures become aware that the advice is likely to be biased, and trust it less, yet feel increased pressure to comply. Hence, instead of a warning, disclosure can become a burdensome request to comply with distrusted advice.

Experiments 1–5 demonstrate that the pressure to comply, which we attribute to a "panhandler effect," is strong even in one-shot social interactions in which recipients have full information about their options and are, therefore, in a good position to judge the (un)soundness of conflicted advice. Our advisees followed advice they knew was not in their interest when disclosure openly suggested that doing so was in the interest of the advisor.

Potential alternative explanations were that advisee behavior could be driven by a sense of fairness, equality, or a desire to reward advisor honesty. However, while Experiment 1 showed that disclosure increased pressure to help the advisor, it also found that choosers were less happy with their choice, liked their advisor less, and felt more uncomfortable to turn down the advice. These effects would not be predicted if genuinely altruistic motives were responsible for compliance. Furthermore, when disclosure came from an external source (in Experiments 3 and 4) and when choosers could decide in the absence of their advisor (Experiment 5), the propensity to comply diminished significantly even though the opportunity to help the advisor was held constant. In combination, these findings suggest that the advisor's *expectations* better explain the choosers' "generous" behavior than does a sense of fairness or concern for the advisor (Bargiela-Chiappini, 2003; Dana et al., 2006; DellaVigna et al., 2012).

The overall pattern of results presented here also cannot be explained by the purely informational account that disclosure changed recipients' interpretations of the advice they received. Although trust decreased similarly regardless of the process of disclosure, actual compliance depended critically on whether the disclosure was personal or external (Experiment 3), whether there was common knowledge of the disclosure (Experiment 4), and whether the choice was made in front of the advisor (Experiment 5). The results of all six studies are therefore consistent with the idea that disclosure leads to social pressures to comply with advice, even as it reduces trust in the quality of the advice.

As with all stylized studies, the generalizability of these experiments can be questioned. For example, the stakes involved in these experiments are smaller than those in many natural advisor-advisee contexts. However, in Experiment 2, even though increasing the stakes may have decreased the rate of compliance when there was no disclosure, with disclosure, there was as much compliance with increased stakes as with smaller stakes. Furthermore, in real-world situations, in which the consequences of compliance are likely to be greater for choosers than they are in our experiments, the temptation for advisors to give biased advice, and to pressure choosers to comply, will typically be greater as well.

[13] Similar results were found when taking the whole sample (and are reported in square brackets in the text).

[14] Unlike previous studies, the restricted sample (when advisors recommended B) did not reveal significant mediation results.

[15] Bootstrap analysis for the mediator showed that the 95% bias-corrected confidence intervals for the size of the indirect effect (0.41) excluded zero (0.03, 1.21). Bootstrap analysis using the restricted sample ($n = 58$) revealed a similar indirect effect (0.35); however, the 95% bias-corrected confidence interval included zero (−0.17, 1.31).

While advisors in our studies stood to gain only a die-roll (or a gift certificate) if they persuaded choosers to take the inferior die-roll, the incentives for real-world advisors can be in the thousands of dollars (e.g., the payment for referring a patient to a clinical trial) or even hundreds of thousands of dollars per year for some highly conflicted physicians (Harris, Carey, & Roberts, 2007) or hedge fund managers (Sklar, 2008). Physicians use many rationalizations to justify accepting COIs (Chimonas, Brennan, & Rothman, 2007; Sah & Loewenstein, 2010), and research on the impact of disclosure laws on actual physician prescribing has shown that these laws are unlikely to have a large deterrence or de-biasing effect on physicians (Pham-Kanter, Alexander, & Nair, 2012). Moreover, the pressure to comply is also likely to be stronger in an ongoing advisor-advisee relationship, and, as prior work has shown, social pressure and influence can have major effects in the real world, even when stakes are high (Cialdini, 2001; Schwartz, Luce, & Ariely, 2011).

Furthermore, in these experiments, it was clear (to the advisors in all six experiments and to the choosers in the first five), that a "biased" (die-roll B) recommendation was bad advice. So, it is interesting that compliance was so high. In other contexts, the advisor is likely to be a relative expert, so what is best for the advisee is often somewhat ambiguous. This ambiguity provides scope for self-serving bias (Babcock, Loewenstein, Issacharoff, & Camerer, 1995; Thompson & Loewenstein, 1992), whereby experts persuade themselves that biased advice is in the interest of the advisee. Moreover, advisees are unlikely to learn that the advice they received was biased, since the consequences of many (and particularly investment and medical) decisions are inherently uncertain. Sensible decisions may lead to bad outcomes and bad decisions may lead to good outcomes. Even biased advice can appear to have many good reasons supporting it at the time (Babcock & Loewenstein, 1997).

Taken as a body, these experiments, as well as earlier research (e.g., Loewenstein, Cain, & Sah, 2011), provide grounds for pessimism about the likely impact of disclosure, both on the quality of advice given and its impact on advisees. Yet, disclosure is likely to remain a central part of the solution to the problems caused by COIs. Recognizing that disclosure is only likely to increase over time, the current research provides insights that, if assimilated into policy, could improve the functionality of disclosure.

Disclosure is especially likely to produce perverse effects when it happens in person, establishing mutual awareness of the advisor's interests. Therefore, an implication of these experiments is that disclosure of an advisor's conflict should not come from the advisor him or herself, but should be done through some external means. Disclosure is also more likely to have negative consequences when advisees make decisions in the presence of advisors, so, in addition, our results suggest that recipients should not make important decisions in the presence of an advisor immediately after receiving advice, but should be given the opportunity to ponder the decision away from the advisor. Finally, advisees should be given a convenient and impersonal way of conveying a decision to not follow the advice of the advisor.

Lessons from earlier research have shown that disclosure may decrease the bias in advice if sanctions are available (Church & Kuang, 2009), or if reputation is important and there are repeated interactions between the same advisor–receiver dyad (Koch & Schmidt, 2010). However, in many contexts, sanctions are not available, and it is generally impossible to detect whether advice is biased, and even when it is possible, the information often comes too late to be of use to advisees. Church and Kuang (2009) also found that the negative effects of COIs can be somewhat curtailed if it is made easier to reject the advice. If advice recipients have easy and immediate access to multiple opinions with disclosure, it will become salient to them which opinions are conflicted and which are not, and they are then more likely to heed unconflicted advice (Cain et al., 2011; Sah & Loewenstein, 2012b). Moreover, once advisors see that recipients are shifting their business in response to disclosed conflicts, they are likely to become more motivated to avoid conflicts than they are under the current system, so they would have nothing to disclose except the absence of conflicts (Sah & Loewenstein, 2012a).

Rather than asking whether disclosure is good or bad (a question to which there is no simple answer), we believe that future research could productively focus on exploring when the benefits of transparency outweigh the costs, and testing interventions to enhance disclosure's effectiveness. Certainly, none of the authors of this article are opposed to transparency. Rather, we believe that transparency is often insufficient to deal with the problems caused by COIs, and can in some cases lead to perverse effects, so more fundamental interventions are needed. We also believe that measures intended to increase transparency can be implemented in ways that make them more or less effective.

As many others have advocated (Brennan et al., 2006; McCormick, Tomlinson, Brill- Edwards, & Detsky, 2001; Surowiecki, 2002), the optimal solution to COIs is to eliminate them wherever possible, or at least to increase the availability of unbiased advice (Amsterlaw, Zikmund-Fisher, Fagerlin, & Ubel, 2006; Robertson, 2010). The limits of disclosure revealed by these studies and others suggest that policy makers should focus less on disclosing COIs and more on decreasing them.

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