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Nothing to Declare: Mandatory and Voluntary Disclosure Leads Advisors to Avoid Conflicts of Interest

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Abstract

Professionals face conflicts of interest when they have a personal interest in giving biased advice. Mandatory disclosure—informing consumers of the conflict—is a widely adopted strategy in numerous professions, such as medicine, finance, and accounting. Prior research has shown, however, that such disclosures have little impact on consumer behavior, and can backfire by leading advisors to give even more biased advice. We present results from three experiments with real monetary stakes. These results show that, although disclosure has generally been found to be ineffective for dealing with unavoidable conflicts of interest, it can be beneficial when providers have the ability to avoid conflicts. Mandatory and voluntary disclosure can deter advisors from accepting conflicts of interest so that they have nothing to disclose except the *absence* of conflicts. We propose that people are averse to being viewed as biased, and that policies designed to activate reputational and ethical concerns will motivate advisors to avoid conflicts of interest.

Keywords

conflicts of interest, ethics, disclosure, decision making, policy making, judgment, morality, social behavior

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Professionals, such as physicians, lawyers, and financial advisors, face conflicts of interest (COIs) when they have a personal, often financial, interest in giving biased advice. COIs present an ethical dilemma for advisors by creating a tension between personal interests and professional values. Across all industries and sectors of society (e.g., medicine, finance, academia, and government), mandating disclosure (informing consumers of an advisor's conflict) is a popular response to the presence of COIs and is intended to protect consumers from biased advice.

Prior research has shown, however, that consumers often do not know how to respond to COI disclosures (Ben-Shahar & Schneider, 2011; Loewenstein, Sah, & Cain, 2012; Sah, Loewenstein, & Cain, 2013a; Verrecchia, 2001) and, as a result, often ignore them (Hampson et al., 2006) or discount conflicted advice insufficiently or erratically (Cain, Loewenstein, & Moore, 2005; Malmendier & Shanthikumar, 2007; Morris & Larrick, 1995). Even when disclosure does decrease trust in advice, it often, perversely, increases pressure to comply with the advice (Sah et al., 2013a, 2013b). Furthermore, consumers rarely seek second opinions for advice that might be conflicted, because of monetary and time costs and to avoid insulting their primary advisor (Zeliadt et al., 2006). Disclosure can also have perverse effects because, once a conflict has been disclosed, advisors feel "morally licensed" to offer advice that is even more biased (Cain et al., 2005; Monin & Miller, 2001; Sachdeva, Iliev, & Medin, 2009).

Although existing research calls into question the efficacy of disclosure as a solution to the problems caused by COIs, virtually all prior studies dealt with a situation in which advisors were subject to a COI that they were unable to avoid. In many contexts, however, advisors do have the ability to eschew COIs. For example, doctors can decide whether to meet with, and accept gifts from, pharmaceutical companies' sales representatives (Sah &

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Loewenstein, 2010). Here, we present results from three experiments demonstrating that when COIs can be avoided, disclosure can have beneficial effects by deterring advisors from accepting COIs so that they have nothing to disclose except the *absence* of conflicts.

Impact of COIs on Advisors

Prior research documents situations in which advisors—subject to unavoidable COIs—feel morally licensed to give more-biased advice when their conflict is disclosed (Cain et al., 2005). When COIs are avoidable, however, the situation can change dramatically because the ability to avoid conflicts brings other motives into play. First, when there is an option to eschew conflicts, disclosure becomes a potential vehicle for demonstrating one's own ethics. People may become motivated to disclose the absence of conflicts to signal to themselves and to others that they are honest and moral (Aquino & Reed, 2002; Crocker & Knight, 2005; Jordan & Monin, 2008; Mazar, Amir, & Ariely, 2008) and that they prioritize others' interests over their own (Berman & Small, 2012). Second, in many situations, including the one implemented in our experiments, advisors benefit financially when advisees follow their advice. When disclosing the absence of conflicts increases the likelihood that the advice will be followed, advisors may also be motivated to avoid conflicts for financial reasons.

Although some field data on the behavior of advisors in response to disclosure has been reported (Fung, Graham, & Weil, 2007), to the best of our knowledge, no experimental research has addressed whether the presence of mandatory or voluntary disclosure influences the likelihood that advisors will accept COIs. Our first experiment was conducted as a baseline, to replicate previous results showing perverse effects of disclosure when advisors do not have the ability to avoid conflicts (Cain et al., 2005). The second experiment used the same paradigm but gave advisors a choice to accept or reject the COI. We predicted that advisors who would have to disclose their conflict would be more likely than others to reject the COI and report ethical reasons for doing so. We also predicted that this tendency for disclosure to lead advisors to reject the COI would result in better-quality advice from advisors and better outcomes for advisees with disclosure. The final experiment examined voluntary-disclosure in addition to mandatory-disclosure and nondisclosure conditions. Game theory predicts that, in situations in which an individual has potentially adverse information, and has the ability to disclose that information credibly, the absence of disclosure will be interpreted as equivalent to revealing adverse information (Grossman, 1981; Milgrom, 2008). Whether this is true in real-world settings, however, is likely to depend on how salient the absence of disclosure is—whether people notice the proverbial "dog that didn't bark." Because disclosure in the third experiment was salient, as was its absence, we hypothesized that advisors would believe that failing to disclose the presence or absence of a conflict would be interpreted to mean that they had a conflict and that, as a result, they would eschew the conflict and disclose that they had done so.

Experiment 1: Disclosure Backfires When Advisors Cannot Avoid COIs

Method

Participants. Ninety-seven advisors (44 males, 52 females, 1 participant with unreported gender; mean age = 35.42 years, *SD* = 16.68) and 97 advisees (52 males, 45 females; mean age = 31.98 years, *SD* = 15.11), all members of the Pittsburgh community, participated in this lab experiment for the opportunity to earn Amazon .com gift cards. We aimed for a minimum of 40 advisor-advisee pairs per condition, to be consistent with prior studies using a similar experimental paradigm (Sah & Loewenstein, 2012).

Procedure. Advisors viewed a large, 30 × 30 grid of dots, some filled and some clear, and were informed of the correct number of filled dots in this grid (409). Advisors gave advice to advisees, who could see only a small 3 × 3 subset of the grid but were aware that their advisors had seen the full grid and had been informed of the correct number of filled dots. Advisees were rewarded with $5 for estimating the number of filled dots in the full grid accurately (within 10 dots), and advisors were informed of this potential reward. Advisors were rewarded with $5 if their advisees gave an estimate above the correct number and $10 if their advisees gave an estimate 100 dots or more above the correct number. This created a narrow window (if an advisee overestimated the number of dots by between 1 and 10) in which both an advisor and his or her advisee could receive a $5 payoff. The setup was designed to simulate the common situation in which an advisee receives advice from a better-informed, but conflicted, advisor.

Advisors participated in the online experiment by clicking a link that randomly assigned them to either a disclosure condition (n = 46) or a nondisclosure condition (n = 51). In the disclosure condition, advisors knew that they would reveal their payment scheme when they forwarded their advice to their advisees; in the nondisclosure condition, they were told that it would not be revealed to advisees.

Advisees gave their estimates on the number of filled dots in the large grid and then rated how much they agreed or disagreed with the following statements, "I

trusted my advisor's recommendation" and "My advisor gave honest advice." Ratings were made on a 5-point Likert scale, from *strongly disagree* (1) to *strongly agree* (5). Advisors and advisees were randomly matched (one-to-one) but did not interact personally with each other, nor did participants know any identifying characteristics of the person with whom they were paired.[1]

Results and discussion

As in prior experiments (Cain et al., 2005), disclosure backfired. Although mean advice was significantly biased (above the correct number of filled dots) in both conditions ($ps < .002$), advisors in the disclosure condition gave more-biased advice (mean deviation above the correct number = 91.52, $SD = 122.31$) than did those in the nondisclosure condition ($M = 28.86$, $SD = 62.46$), $F(1, 95) = 10.39$, $p = .002$, $\eta_p^2 = .10$ (Fig. 1). The majority of advisors (67.4%) in the disclosure condition gave biased advice (above the highest estimate that the advisee could give and still receive the reward), whereas only 33.3% of advisors in the nondisclosure condition did so, $\chi^2(1, N = 97) = 11.22$, $p = .001$.

Advisees were worse off if their advisor's conflict was disclosed. Advisees in the nondisclosure condition gave significantly lower, more accurate, estimates (mean deviation above the correct number = 13.88, $SD = 90.20$) than did those in the disclosure condition ($M = 100.15$, $SD = 190.71$), $F(1, 95) = 8.37$, $p = .005$, $\eta_p^2 = .08$ (Fig. 1). They were also more likely to be correct (within 10 dots) in their estimate (nondisclosure: 27.5%; disclosure: 13.0%), $\chi^2(1, N = 97) = 3.07$, $p = .080$, and had higher mean earnings (nondisclosure: $M = \$1.37$, $SD = 2.25$; disclosure: $M = \$0.65$, $SD = 1.70$), $F(1, 95) = 3.10$, $p = .081$, $\eta_p^2 = .03$. Advisors, in contrast, earned more in the disclosure condition ($M = \$6.09$, $SD = 4.34$) compared with the nondisclosure condition ($M = \$3.53$, $SD = 3.36$), $F(1, 95) = 10.66$, $p = .002$, $\eta_p^2 = .11$.

With disclosure, advisees reported significantly less trust in the advice ($M = 2.98$, $SD = 1.02$, vs. $M = 3.48$, $SD = 1.11$), $F(1, 94) = 5.28$, $p = .024$, $\eta_p^2 = .05$, and believed their advisor was less honest ($M = 3.02$, $SD = 0.93$, vs. $M = 3.60$, $SD = 1.03$), $F(1, 94) = 8.28$, $p = .005$, $\eta_p^2 = .08$.

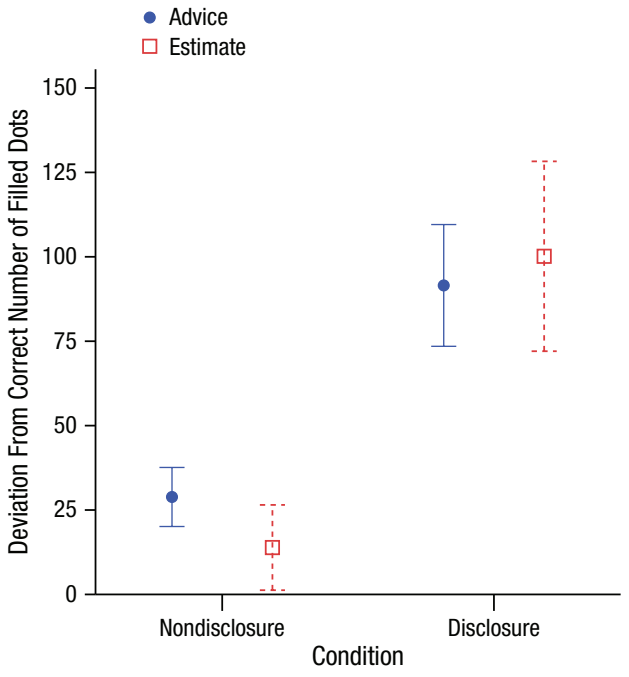

Fig. 1. Results from Experiment 1: mean deviation of advice and of estimates from the correct number of filled dots in the disclosure and nondisclosure conditions. Error bars represent ±1 *SE*.

Experiment 2

In Experiment 2, we made one key change: We gave advisors a choice of whether to accept or reject the COI. We also asked advisors why they chose the reward structure that they did and coded their answers as indicating either financial or ethical reasons.

Method

Participants. One hundred one advisors (54 males, 46 females, 1 participant with unreported gender; mean age = 35.33 years, $SD = 17.08$) and 101 advisees (50 males, 49 females, 2 participants with unreported gender; mean age = 33.66 years, $SD = 15.99$), members of the Pittsburgh community, were randomly assigned, as before, into a disclosure condition ($n = 52$ in each group) and a nondisclosure condition ($n = 49$ in each group).

Procedure. The procedure was the same as in Experiment 1 except that the grid had 455 filled dots, advisors had a choice of reward structure (one with and one without a COI), and advisors were asked why they chose the reward structure that they did. Advisors could choose to reject the COI, in which case they received $5 if the advisee was accurate (within 10 dots), or they could accept the COI, in which case they received $10 if the advisee gave an estimate 100 or more dots above the correct number. This arrangement simulates a situation in which an advisor might make more money by accepting a COI, but is taking a risk, particularly if there is disclosure of the COI, that the advisee will discount or ignore the advice. Note that in this setup, as in the real world, advisors might choose to eschew conflicts for two reasons: (a) because they believe that their payoff is safer if they disclose the absence of conflicts or (b) because they want to signal their ethicality to themselves or their advisees. In an attempt to unpack these two motives, we

asked advisors to provide reasons for why they chose a particular reward structure, and two research assistants, blind to the hypotheses, coded these reasons as financial, ethical, or both financial and ethical (intercoder reliability = 95%).

Results and discussion

A majority of advisors in the nondisclosure condition (63%) chose the incentives that created a COI, whereas a minority of those in the disclosure condition (33%) accepted the conflict, $\chi^2(1, N = 101) = 9.46$, $p = .002$. Those who chose conflicted incentives provided higher (more biased) advice than did those who did not accept the conflict, both in the nondisclosure condition, $F(1, 47) = 8.54$, $p = .005$, $\eta_p^2 = .15$, and in the disclosure condition, $F(1, 50) = 4.58$, $p = .037$, $\eta_p^2 = .08$ (see Table 1 for means). In contrast to Experiment 1, there was no significant difference in advice between the disclosure and nondisclosure conditions for conflicted advisors, $F(1, 46) = 1.01$, $p = .32$; thus, moral-licensing effects due to disclosure may not be activated when advisors self-select into conflicts. Moral licensing seems more likely to occur when advisors can convince themselves that they have been honest in a situation that they could not avoid—and thus have license to indulge in bias (Merritt, Effron, & Monin, 2010). It seems less likely to occur when advisors, by choosing the conflict, place themselves in a situation that could be viewed as immoral (Klass, 1978).

Because the percentage of advisors who opted to eschew the conflict was higher in the disclosure than in the nondisclosure condition, mean advice was higher (more biased) in the nondisclosure condition ($M = 62.12$, $SD = 123.37$, vs. $M = 7.85$, $SD = 108.25$), $F(1, 99) = 5.54$, $p = .021$, $\eta_p^2 = .05$. Also, a larger percentage of advisors gave extremely biased advice (100 or more dots above the correct number) in the nondisclosure condition (27%) than in the disclosure condition (8%), $\chi^2(1, N = 101) = 6.40$, $p = .011$. When advisors had a choice of whether or not to accept a COI, therefore, there was a significant decrease in bias for advisors who had to disclose their conflict. Rejecting the COI did not, however, maximize advisors' monetary payoff, which was significantly higher if they accepted the COI ($M = \$3.33$, $SD = 4.76$, vs. $M = \$1.79$, $SD = 2.42$), $F(1, 99) = 4.32$, $p = .040$, $\eta_p^2 = .04$ (see Table 1); indeed, they may not have intended to maximize their payoff (Bennis, Medin, & Bartels, 2010)—a majority of advisors (74%) who rejected the COI cited an ethical reason for doing so (Table 1).

Although there were no significant differences between the nondisclosure and disclosure conditions in the mean estimates given ($M = 27.69$, $SD = 148.63$, and $M = 19.27$, $SD = 104.82$, respectively), $F(1, 99) = 0.11$, $p = .74$, $\eta_p^2 = .001$, advisees were more likely to be correct (within 10

Table 1. Descriptive Statistics for the Dependent Variables in Experiment 2

	Condition ($N = 101$)			
	Nondisclosure ($n = 49$)		Mandatory disclosure ($n = 52$)	
Variable	Rejected conflict ($n = 18$; 37%)	Accepted conflict ($n = 31$; 63%)	Rejected conflict ($n = 35$; 67%)	Accepted conflict ($n = 17$; 33%)
Advice (deviation from correct number of dots)	–0.72 (16.14)	98.61 (143.03)	–13.80 (51.39)	52.41 (169.13)
Estimate (deviation from correct number of dots)	6.61 (126.35)	39.94 (160.86)	–2.83 (84.12)	64.76 (129.30)
Advisee's ratings (1–5)				
Trust in advice	3.50 (0.99)	3.29 (1.16)	3.66 (0.91)	3.06 (0.97)
Honesty of advice	3.17 (0.62)	3.29 (1.04)	3.77 (0.77)	2.94 (1.09)
Advisor's payoff ($)	1.67 (2.43)	3.23 (4.75)	1.86 (2.45)	3.53 (4.93)
Advisee's payoff ($)	1.67 (2.43)	0.16 (0.90)	1.86 (2.45)	1.47 (2.35)
Reasons for choosing reward structure				
Financial	0	28	5	16
Ethical	15	0	20	0
Both financial and ethical	0	0	7	0

Note: For all variables except reasons, the table presents means, with standard deviations in parentheses. For reasons, the table presents the number of advisors whose reasons were classified in each category (91 comments were available for coding). The correct number of filled dots in this experiment was 455.

dots) in the disclosure condition (35% vs. 14%), $\chi^2(1, N = 101) = 5.60$, $p = .018$, and received a higher mean payoff in the disclosure condition ($M = \$1.73$, $SD = 2.40$, vs. $M = \$0.71$, $SD = 1.77$), $F(1, 99) = 5.81$, $p = .018$, $\eta_p^2 = .06$ (see Table 1 for means broken down by advisors' choice of reward structure). Advisees in the disclosure condition reported significantly more trust in the advice, $F(1, 50) = 4.78$, $p = .033$, $\eta_p^2 = .09$, and believed their advisor was more honest, $F(1, 50) = 10.08$, $p = .003$, $\eta_p^2 = .17$, when advisors rejected the COI compared with when advisors accepted the COI. In the nondisclosure condition, there were no significant differences in the advisees' ratings of trust in the advisor, $F(1, 47) = 0.41$, $p = .52$, $\eta_p^2 = .009$, or of the advisor's honesty, $F(1, 47) = 0.21$, $p = .65$, $\eta_p^2 = .004$, associated with whether advisors accepted or rejected the COI (see Table 1).

Mandatory disclosure thus had its intended effect of protecting advisees when advisors could avoid a COI. This was because a substantial number of advisors rejected the COI when they knew they would have to disclose it, and in this situation, advisors gave better-quality advice on average and advisees gave more-accurate estimates. The advisor-advisee relationship also improved when advisors disclosed the absence of conflicts, increasing trust in the advice and perceptions of their honesty.

Experiment 3

In a third, and final, experiment, we added an extra condition, voluntary disclosure, to replications of the two conditions from Experiment 2: mandatory disclosure (previously referred to as "disclosure") and nondisclosure. In the voluntary-disclosure condition, advisors were given both the choice to accept or reject the COI and the choice to disclose or not disclose whether or not they faced a conflict. We asked advisors in this condition their reasons for choosing to disclose or not disclose their reward structure and coded the reasons. We hypothesized that advisors who rejected the COI would be enthusiastic to disclose the absence of conflicts in order to display their trustworthiness to their advisees.

Method

Participants. Three hundred alumni of a northeastern U.S. university were invited via e-mail to participate in an online experiment. Two hundred forty-eight (83%) responded, and these participants were our advisors (142 males, 105 females, 1 participant with unreported gender; median age category = 26–35 years[2]). Advisees (126 males, 117 females, 5 participants with unreported gender; mean age = 19.81 years, $SD = 2.10$) were students at an East Coast U.S. university.

Procedure. The procedure for the mandatory-disclosure ($n = 89$) and nondisclosure ($n = 74$) conditions was the same as in Experiment 2. In the new voluntary-disclosure condition ($n = 85$), advisors could again choose whether to accept or reject the COI, and they could also choose whether or not to disclose their payment structure to their advisee; advisors made these two choices jointly rather than sequentially. So that the absence of disclosure would be salient to both advisees and advisors, advisees were informed if their advisor chose not to make the disclosure, and advisors who opted not to disclose their reward structure were made aware that their advisees would be informed about this choice.

In addition to coding the reasons why advisors chose the reward structure that they did (as in Experiment 2; intercoder reliability = 97%), we coded the reasons why advisors in the voluntary-disclosure condition either did or did not choose to disclose their reward structure (intercoder reliability = 95%). We used four categories: For unconflicted advisors who chose to disclose the absence of a conflict, we coded whether they gave ethical reasons (e.g., advisees' right to know) or indicated that they wanted to display their trustworthiness to advisees in order to gain cooperation. For conflicted advisors who chose to disclose their conflict, we coded whether they gave ethical reasons or indicated that they suspected their advisees would infer a conflict anyway. Finally, for conflicted advisors who chose not to disclose their conflict, we coded whether they indicated that they wanted to mislead their advisees to satisfy their own personal interests.

Results and discussion

There were significant differences among the three conditions in whether or not advisors accepted the COI, $\chi^2(2, N = 248) = 11.97$, $p = .003$. As in Experiment 2, advisors in the nondisclosure condition were significantly more likely to accept the COI (39% did so) than were advisors in the mandatory-disclosure condition (16%), $\chi^2(1, N = 163) = 11.45$, $p = .001$, and again, the majority (56%) of advisors who rejected the COI cited ethical reasons for doing so (see Table 2). Voluntary disclosure and mandatory disclosure worked similarly: Advisors in these conditions had similar rates of COI acceptance (23% and 16%, respectively), $\chi^2(1, N = 174) = 1.68$, $p = .20$, and voluntary-disclosure advisors had a significantly lower COI acceptance rate than advisors in the nondisclosure condition (39%), $\chi^2(1, N = 159) = 4.55$, $p = .033$.

There were also significant differences among the three conditions in the mean advice given, $F(2, 245) = 3.28$, $p = .039$, $\eta_p^2 = .03$ (see Table 2 and Fig. 2), and in the number of advisors who gave advice of 100 or more

Table 2. Descriptive Statistics for Dependent Variables in Experiment 3

	Condition (N = 248)					
	Nondisclosure (n = 74)		Mandatory disclosure (n = 89)		Voluntary disclosure (n = 85)	
Variable	Rejected conflict (n = 45; 61%)	Accepted conflict (n = 29; 39%)	Rejected conflict (n = 75; 84%)	Accepted conflict (n = 14; 16%)	Rejected conflict (n = 65; 76%)	Accepted conflict (n = 20; 24%)
Advice (deviation from correct number of dots)	0.62 (8.00)	143.66 (106.42)	0.10 (5.53)	145.79 (175.32)	–0.22 (2.93)[a]	136.15 (98.10) Chose to disclose (n = 11; 55%): 117.82 (105.53) Chose not to disclose (n = 9; 45%): 158.56 (88.90)
Estimate (deviation from correct number of dots)	10.44 (61.77)	89.21 (121.92)	–4.00 (80.86)	92.79 (184.08)	2.49 (77.45)	14.55 (132.94)
Advisee's ratings (1–5)						
Trust in advice	3.51 (1.14)	3.34 (1.08)	3.91 (0.93)	2.86 (0.95)	3.91 (1.11)	2.80 (1.01)
Honesty of advice	3.76 (0.80)	3.45 (0.99)	3.61 (0.93)	2.86 (0.66)	3.75 (1.03)	3.00 (0.73)
Advisor's payoff ($)	2.11 (2.50)	5.52 (5.06)	2.93 (2.48)	4.29 (5.14)	3.15 (2.43)	2.00 (4.10)
Advisee's payoff ($)	2.11 (2.50)	0.52 (1.55)	2.93 (2.48)	0.36 (1.34)	3.15 (2.43)	0.75 (1.83)
Reasons for choosing reward structure						
Financial	2	26	20	11	17	19
Ethical	36	0	42	0	26	0
Both financial and ethical	7	1	13	1	22	1

Note: For all variables except reasons, the table presents means, with standard deviations in parentheses. For reasons, the table presents the number of advisors whose reasons were classified in each category (244 comments were available for coding). The correct number of filled dots in this experiment was 455.
[a]All participants in this group chose to disclose the absence of a conflict.

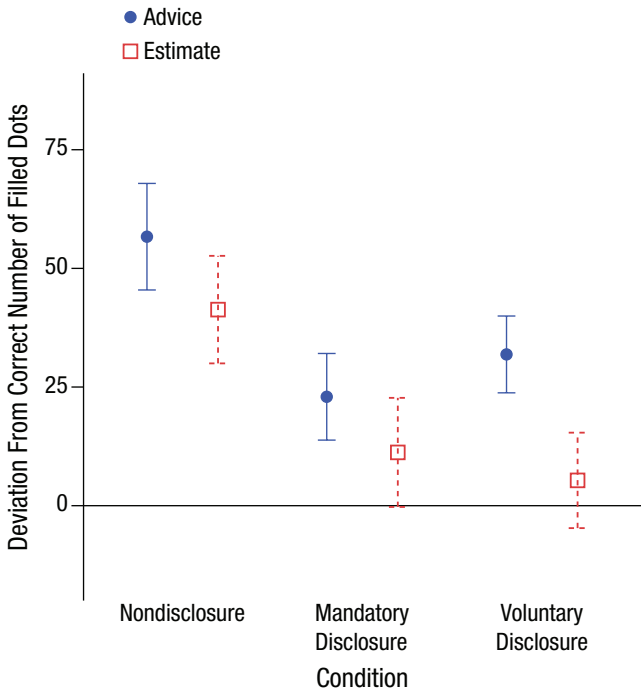

Fig. 2. Results from Experiment 3: mean deviation of advice and of estimates from the correct number of filled dots in the nondisclosure, mandatory-disclosure, and voluntary-disclosure conditions. Error bars represent ±1 *SE*.

dots above the correct number, $\chi^2(2, N = 248) = 10.36$, $p = .006$. Mean advice was higher (more biased) in the nondisclosure condition ($M = 56.68$, $SD = 96.56$) compared with the mandatory-disclosure condition ($M = 22.94$, $SD = 86.11$), $t(245) = 2.50$, $p = .013$, and voluntary-disclosure condition ($M = 31.87$, $SD = 74.62$), $t(245) = 1.82$, $p = .070$. Advisors were also more likely to give advice that was greater than 100 dots above the correct number in the nondisclosure condition (30%) compared with the mandatory-disclosure condition (10%), $\chi^2(1, N = 163) = 10.10$, $p = .001$, or the voluntary-disclosure condition (18%), $\chi^2(1, N = 159) = 3.24$, $p = .072$.

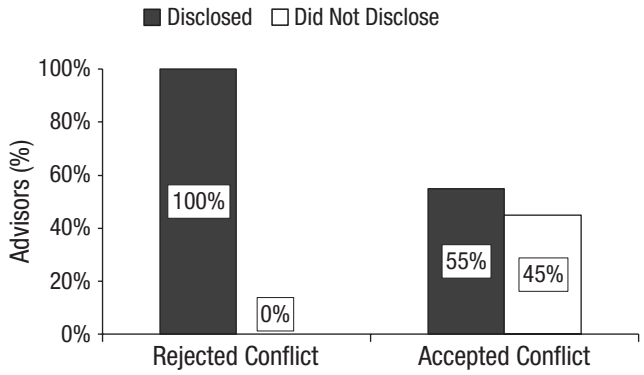

Fig. 3. Results from the voluntary-disclosure condition of Experiment 3: percentage of advisors who did and did not disclose the presence or absence of a conflict of interest as a function of whether they accepted or rejected the conflict.

In the voluntary-disclosure condition, the choice of whether to disclose the presence or absence of a conflict differed between advisors who accepted and rejected the conflict, $\chi^2(1, N = 85) = 32.71$, $p < .001$ (Fig. 3). All (100%) advisors who rejected the COI opted to disclose the absence of conflicts, stating that this was because they wanted to display their trustworthiness to the advisee (72%) or because the advisee had a right to know (28%). Also, surprisingly, more than half (55%) of those who accepted the COI chose to disclose it to their advisees. Of those who disclosed their COI, 18% stated that their reason for doing so was that advisees would, in any case, infer the conflict from the lack of disclosure (a reason consistent with game-theoretic models of disclosure; Grossman, 1981; Milgrom, 2008; Milgrom & Roberts, 1986), 64% cited ethical reasons for disclosing the conflict (e.g., the advisee's right to know), and the final 18% gave strategic reasons (e.g., seeking to influence the advisee to cooperate so as to get their higher reward—perhaps an intentional panhandler effect; see Sah et al., 2013a).

Advisees gave lower estimates in the disclosure conditions (mandatory: $M = 11.22$, $SD = 108.44$; voluntary: $M = 5.33$, $SD = 92.71$) than in the nondisclosure condition ($M = 41.31$, $SD = 97.47$, $t(245) = 2.38$, $p = .018$ (see Fig. 2 and Table 2). Advisees were more likely to be correct (within 10 dots) in the mandatory-disclosure (51%) and voluntary-disclosure (52%) conditions than in the nondisclosure condition (30%), $\chi^2(2, N = 248) = 9.66$, $p = .008$. There were also significant differences in advisees' payoffs across the three conditions, $F(2, 245) = 4.97$, $p = .008$, $\eta_p^2 = .04$ (Table 2); advisees received higher payoffs with both mandatory disclosure ($M = \$2.53$, $SD = 2.51$), $t(245) = 2.70$, $p = .007$, and voluntary disclosure ($M = \$2.59$, $SD = 2.51$), $t(245) = 2.83$, $p = .005$, than with nondisclosure ($M = \$1.49$, $SD = 2.30$).

Advisees in the two disclosure conditions trusted their advisors' recommendations more and reported that their advisors gave more honest advice (all ps $< .005$) when they were aware that their advisors had rejected rather than accepted the COI (see Table 2 for mean ratings in all conditions). In the voluntary-disclosure condition, advisors who disclosed their reward structure were rated as more trustworthy ($M = 3.78$, $SD = 1.14$, vs. $M = 2.56$, $SD = 1.01$), $F(1, 83) = 9.44$, $p = .003$, $\eta_p^2 = .10$, and more honest ($M = 3.66$, $SD = 1.03$, vs. $M = 2.89$, $SD = 0.60$), $F(1, 83) = 4.82$, $p = .031$, $\eta_p^2 = .06$, compared with advisors who did not disclose whether they had a COI. In the nondisclosure condition, advisees' ratings of trust and honesty did not differ significantly according to whether advisors accepted or rejected the COI.

In the nondisclosure condition, advisors' payoffs were higher if advisors accepted rather than rejected the COI, $F(1, 72) = 14.86$, $p < .001$, $\eta_p^2 = .17$. In the disclosure conditions, advisors' payoffs did not differ significantly depending on whether they accepted or rejected the COI (see Table 2 for means). In all three conditions, advisees' payoffs were significantly higher when advisors rejected rather than accepted the COI, all ps $< .003$ (see Table 2 for means).

In summary, both mandatory and voluntary disclosure resulted in advisors opting to avoid COIs, which consequently protected advisees from biased advice and resulted in better outcomes for advisees. Again, disclosing the absence of COIs improved the advisees' perception of their advisors.

General Discussion

Although disclosing COIs can have perverse outcomes in situations in which COIs are unavoidable, our findings demonstrate that disclosure may result in advisors becoming motivated to avoid COIs. Disclosure seems to work best not when it depends on consumers responding effectively, but rather when it influences the behavior of the people whom the disclosure is about, encouraging low-quality providers to improve quality or exit the market (Brennan et al., 2006; Dranove & Jin, 2010; Fung et al., 2007). Reputational concerns, or an aversion to being viewed as corrupt, may be the drivers of this behavior (Bowles, 2008; Milinski, Semmann, & Krambeck, 2002; Wang, Galinsky, & Murnighan, 2009). For example, mandatory disclosure of automobile rollover ratings was successful in leading car manufacturers to improve their designs to obtain better ratings, and mandatory posting of standardized health-rating cards in Los Angeles led restaurants to improve their hygiene (Fung et al., 2007; Jin & Leslie, 2003). Similarly, disclosure in our experiments not only motivated advisors to avoid COIs but also appeared to improve trust in advisors when they explicitly conveyed the absence of conflicts.

Even in our simple paradigm, in which advisors were giving advice anonymously online, and were therefore psychologically distant from advisees (a factor likely to increase bias in advice; see Sah & Loewenstein, 2012), advisors were motivated to eschew COIs, and the majority of advisors stated ethical reasons for the rejection. This suggests that advisors might have been even more motivated to avoid COIs if they had to disclose their conflicts in person, particularly in an environment where such conflicts are not approved, and justifications for engaging in questionable behavior are thereby removed (Bartels & Medin, 2007; Cornelissen, Bashshur, Rode, & Le Menestrel, 2013; Shalvi, Eldar, & Bereby-Meyer, 2012).

Our findings regarding voluntary disclosure are somewhat consistent with the prediction from game theory that consumer skepticism or competition can lead to unfavorable information being revealed. Although the failure to reveal information should logically be informative, some field data suggest that consumers do not draw correct negative inferences from nondisclosure (Dranove & Jin, 2010), and individuals can, in some situations, be influenced by information, even when it has been provided selectively by another person with misaligned incentives (Rayo & Segal, 2010; Sah et al., 2013a). Movies released without a prior screening for reviewers produce greater box-office revenue than movies receiving negative reviews, as some moviegoers do not infer low quality from the absence of reviews (Brown, Camerer, & Lovallo, 2012, 2013); such limited strategic thinking by moviegoers makes withholding of information profitable for movie marketers.

What consumers infer from a lack of information, or nondisclosure, is important in determining whether voluntary disclosure can mitigate COIs, and hence for deciding whether disclosure should be voluntary or mandatory (Bebchuk & Jackson, 2013; Brown et al., 2012; Fishman & Hagerty, 2003; Verrecchia, 2001). If consumers are naive, and fail to draw sufficiently negative conclusions from nondisclosure, then mandatory disclosure may be the best option to encourage advisors to eschew COIs. If consumers are sophisticated, or advisors assume them to be sophisticated, then voluntary disclosure could be as beneficial as mandatory disclosure. In the presence of a significant mass of sophisticated consumers, or a critical mass of professionals opting to disclose their COIs, other professionals will be motivated to avoid conflicts out of fear that consumers will shift their business to advisors who disclose the absence of conflicts.

Evidence from the field complements our findings. The American Medical Student Association's PharmFree Scorecards program (which grades COI policies at U.S. academic medical centers; see www.amsascorecard.org) has been successful in encouraging many centers to implement stronger COI policies. Similarly, mandatory disclosure of marketing costs for prescription drugs in the District of Columbia produced a downward trend in marketing expenditures by pharmaceutical companies, including gifts to physicians, from 2007 to 2010 (George Washington University School of Public Health and Health Services, 2012). Although we cannot distinguish whether physicians themselves decided to decrease financial relationships with the industry after public disclosure or whether the pharmaceutical companies decided to make this change, it appears that disclosure motivated the avoidance of COIs between the medical profession and the industry.

An elegant feature of disclosure is its self-calibrating quality. A physician's disclosure that he or she has accepted free calendars and pens from a pharmaceutical

company probably will not raise many eyebrows, but if it raises any, most doctors will probably feel that accepting these small gifts is not worth the repercussions. Disclosure of an industry-financed vacation, in contrast, may be very tempting, but the information will also be commensurately damaging. Hence, the impact of disclosure on reputation generally increases with the temptation to accept a conflict.

In summary, contrary to prior research demonstrating perverse effects of disclosure, this research shows a reversal of these effects and suggests that disclosure could be a successful intervention for managing some COIs. If information providers have the option to avoid conflicts, even naive consumers will gain protection when institutions and professionals become motivated to avoid COIs so that they can explicitly state that they have nothing to declare.

Author Contributions

S. Sah and G. Loewenstein developed the study concept and design. S. Sah developed the study materials, performed data collection, and conducted the analyses. Both authors participated in interpreting results and drafting the manuscript and approved the final version of the manuscript for submission.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Supplemental Material

Additional supporting information may be found at http://pss.sagepub.com/content/by/supplemental-data

Notes

1. The grids, instructions given to advisors and advisees, and other stimulus materials for all three experiments can be seen in the Supplemental Material available online.
2. Advisors reported their age category rather than their age.

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