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Conflict of Interest Disclosure With High-Quality Advice: The Disclosure Penalty and the Altruistic Signal

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Advisors often have conflicts of interest: a potential clash between professional responsibilities and self-interests. Disclosure—informing advisees of the conflict—is a common policy response to manage such conflicts. However, extant research on disclosure has often confounded disclosure with poor-quality advice. In this article, we explore whether laws requiring conflict of interest disclosure damage the advisor-advisee relationship more than is intended. Across 6 experiments (N = 1,766), we examine situations in which advisors give high-quality advice but still must disclose a conflict of interest. As predicted, such disclosures yield negative attributions regarding the advisor's character, even when advice is of high quality (and advisees have full information to judge advice quality), and even when the advisor's professional responsibility and self-interest are aligned, or the advisor such a mitigated if the adviser's control. When advisor's conflict of interest arose from external factors beyond the advisor's control. When advisors' recommendations run counter to their self-interests, conflict of interest and independent competing effect—the *altruistic signal*—which increases trust. The net effect on trust depends on which effect—the disclosure penalty or altruistic signal—is stronger. We discuss the implications of these findings for law and policy.

Keywords: conflicts of interest, disclosure, trust, advice, judgment and decision-making

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Consider two cases in which an honest, and unbiased, financial advisor is required to disclose that she receives a referral bonus if her client invests in a particular mutual fund. In one case, the fund the advisor receives a bonus for, and recommends, is objectively superior to other funds and best for her client. In another case, the fund that the advisor receives a bonus for is inferior, but the advisor still recommends the other (superior) fund, sacrificing her self-interest. In both cases, the advisor's recommendation is of high quality. How does disclosure—informing the client of the advisor's referral bonus—affect the client's trust in the advisor? Does awareness about the advisor's conflict of interest create problems for the advisor-client relationship even if advice quality is high and the bonus is sacrificed? In this article, we address these

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questions and examine whether laws requiring such disclosures have unintended consequences.

Conflicts of interest (COIs) present a potential clash between an advisor's professional responsibility and a personal self-interest (Boatright, 2000; Carson, 1994; Sah, 2019). By professional responsibility, we mean the responsibilities of advisors to place their advisees' needs above their own. By personal self-interest, we mean advice that gives extra benefits to the advisor, usually (but not necessarily) extra financial compensation. Among the many policy options for managing COIs, disclosure (informing advisees of the COI) is the most commonly implemented solution (Sah, 2017). Disclosure is attractive because it preserves advisee autonomy (Johns, 2007) and, theoretically, enables advisees to hold a critical lens to the advice they receive such that they can assess the risk and extent of COI influence on advice-quality (Thompson, 1993). Recipients say they want the disclosures (Grady, Horstmann, Sussman, & Hull, 2006) and policymakers continue to institute new and broader disclosure mandates that can be delivered in many ways, for example, directly from the advisor, a third party, or a public website. (Rosenthal & Mello, 2013). While we do not contest that there are significant merits to COI disclosure, we examine one important blind spot that comes to light when taking a behavioral perspective: the effect on the advisor-advisee relationship when advice is of high-quality.

There has been recent progress toward a better understanding of the psychological effects of COI disclosure on both the advisor's willingness to give biased advice (Sah, 2019) and on whether

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advisees' choices are influenced by the COI disclosure (Licurse, Barber, Joffe, & Gross, 2010; Sah, Loewenstein, & Cain, 2013, 2019; Sah, Malaviya, & Thompson, 2018). Some of this research has revealed unintended consequences of COI disclosure, such as advisors giving more biased advice (Cain, Loewenstein, & Moore, 2005, although also see Church & Kuang, 2009; Koch & Schmidt, 2010; and Sah, 2019, for instances of COI disclosure improving advice quality), and advisees feeling pressured to comply with advice that they do not trust (Sah et al., 2013, 2019). However, less attention has been given to the downstream effects of such disclosures on the advisor-advisee relationship-mainly, whether advisees wish to maintain the relationship with their advisor or switch advisors after a COI disclosure. And importantly, much of the prior research has conflated the presence of a COI with the provision, or assumption, of biased, poor-quality advice. For example, advisees receiving inferior lottery recommendations (Sah et al., 2013) or bloggers giving highly positive reviews in sponsored blog posts (Sah et al., 2018). Therefore, the question remains: How do advisees respond to disclosure when the advice is uncompromised by the presence of a COI? Indeed, many practitioners argue that a more typical scenario is the presence of a COI with the provision of high-quality, honest advice.¹

In this article, we address the important question of whether people punish advisors for disclosing potential COIs, even when the advice they receive is actually in their best interest. Across six experiments (one preregistered), we examine the inferences advisees make about their advisors' character. We focus on advisees' desire to keep or change advisors after they receive high-quality advice accompanied with, or without, a disclosure of a COI.

We document two effects. The first is the *disclosure penalty*, which leads to increased desire to change advisors with COI disclosure, even when advice is of demonstrably high quality (and advisees have full information to judge advice quality), and regardless of whether the advisor's professional responsibility and self-interest are actually aligned or conflicted, and whether the advice is self-serving or self-sacrificing. We demonstrate that the key boundary condition to the disclosure penalty is whether there is a salient external factor to which the presence of the advisor's personal self-interest can be attributed. The second effect is the altruistic signal, which decreases desire to change advisors with COI disclosure, and is present when advisors give advice that sacrifices (i.e., runs counter to) their self-interests. The net consequence of these two effects on advisees' desire to change advisors depends on which effect-the disclosure penalty or altruistic signal-is stronger.

Conflicts of Interest and Advisor Bias

COIs are common across many professions: Financial advisors, real estate agents, physicians and other advisors often receive a (greater) commission if the advisee selects a particular financial investment, house, medical treatment, or other product or service. COIs have the potential to induce bias in advisors (Mullainathan, Noeth, & Schoar, 2012; Sah & Fugh-Berman, 2013; Sah & Loewenstein, 2015) and disclosure is a popular solution as it alerts advisees to potential bias in the advice. However, the effects of disclosure are complex and the COI domain is more intricate than previous studies reflect, with prior work primarily focusing on, or

assuming, the presence of *poor-quality advice* due to a COI (Sah et al., 2013, 2018, 2019).

The presence of a COI, however, does not necessarily imply that advice is biased (Lo & Ott, 2013; McCoy & Emanuel, 2017; *Pretty v. Prudential Insurance Company of America*, 2010; Rosenbaum, 2015). Although those that possess a COI are more likely to give biased advice, not all that possess such conflicts succumb to bias. A COI, by definition, represents a risk that the advisors' judgment will be compromised, but not a determination that such a lapse has actually occurred (Rothman, 1993).²

Further, in some cases, professional responsibility and personal interest may not actually be in conflict. They could be aligned. For example, a high-quality financial advisor may recommend an investment fund that is the best for her client but also gives the advisor a larger commission. The distinction between the presence of a self-interest and advice quality is important for understanding the psychological dynamics of COI disclosure. These concepts are often confounded in policy arguments, and lead to considerable contention between advocates of COI disclosures and advisors who claim that their integrity ensures that they will give highquality advice and that no conflict actually exists between their professional and self-interests. In this debate, the mere presence of a self-interest is sometimes referred to as a confluence of interests (Cappola & FitzGerald, 2015) or a *potential* (rather than an actual) COI (Lo & Ott, 2013). Others reject this nomenclature and state that there are no "potential" COIs, only the presence or absence of a COI and the *potential* for bias (McCoy & Emanuel, 2017).

Another important dimension that we explore is that advisors may sometimes advise an option that sacrifices their self-interest. For example, consider the following real situation that took place in a U.S. emergency room (ER). The patient, a teenage girl, had been in a minor car accident. The patient's father demanded a computerized tomography (CT) scan of her neck. Upon completing a full history and examination of the patient, the ER physician did not recommend the scan; there was little concern of a fracture and no need for even an x-ray. The patient's father, a lawyer, was insistent threatening to lodge a complaint if the physician did not order the scan. However, it was not in the best interests of the patient, and CT scans can cause harm to the patient later in life due to radiation exposure. The physician explained to the father that the potential harm was not trivial but important. His daughter could get cancer of her thyroid that in later years might actually be fatal and so the physician believed it more harmful than beneficial to do the scan. The father was not convinced. The physician then explained that everything was pushing him to perform the scan; the demands and subsequent explanations were taking up the physician's time, the avoidance of a potential lawsuit that the father was threatening, and the fact that no one would blame him in 20 years from now if his daughter got cancer.

¹ This research was spurred by numerous conversations with both practitioners and academics who were unclear about the effect on the advisoradvisee relationship of disclosing COIs with high-quality advice.

² Although a regulator can prosecute physicians who order treatments that are obviously unnecessary (*United States v. Campbell*, 1988), it is usually difficult to verify the existence and effect of bias from COIs. In many situations in which expert advice is needed (e.g., financial, legal, or medical decisions), multiple options exist, and it can be impossible to determine which advice is best and least biased (Sah, 2015).

Finally, the physician disclosed that he would receive extra compensation for performing the scan due to the U.S. fee-for-service compensation model (Sah, 2015).³ The doctor disclosed that he was sacrificing his self-interest for the patient and putting her interests first by not recommending the scan (This American Life, 2009). This disclosure should serve as a positive altruistic signal, increasing, rather than decreasing, trust in the doctor.

In this article, we systematically investigate how high-quality advice accompanied with COI disclosure affects how advisees' view their advisors and whether they wish to maintain the relationship with their advisor in the future or switch advisors.

The Disclosure Penalty and the Altruistic Signal

The Disclosure Penalty: Negative Attributions Regarding the Advisors' Character

COI disclosure (from any source, e.g., directly from the advisor, a third party, a public website, etc.) informs advisees of their advisors' self-interest and thus, the advisee becomes aware of the possibility that the advisor's recommendation may be biased by his or her self-interests. According to the judgment correction model of decision-making, uncertainty in advice quality should cause the advice to be discounted (Campbell & Kirmani, 2000; Friestad & Wright, 1994; Van Swol, 2009). Consistent with this, prior research reveals that (given sufficient resources to deliberate on and process the meaning of the COI disclosure) advisees report reduced trust in their advisors with COI disclosure (Hwong, Sah, & Lehmann, 2017; Sah et al., 2013, 2018).

The judgment correction perspective suggests, however, that this process will be activated only if there is some uncertainty as to the advice quality. Such uncertainty stems from advisors usually having greater expertise (more information) than advisees, making it difficult for advisees to assess advice quality. This implies that if there is no advisor–advisee information asymmetry, then advisees can judge advice quality. High advice quality should therefore mitigate advisees' concerns about the advice and subsequent distrust in the advisor.

However, drawing from attribution theory, the news of the COI itself may affect perceptions of the advisor, specifically the trustworthiness of the advisor's character. If COI disclosure provides not only a signal regarding the potential (low) quality of the advice but also a negative signal about the advisor's character in general, then disclosure will lead to less favorable judgments of the advisor even when advice quality is high. We propose that COI disclosure could cause advisees to ask themselves not only "How does the conflict of interest affect the advice?" but also "What kind of advisor enters a situation in which he or she possesses a conflict of interest?" One of the foundational results in social psychology is the human tendency toward attributing observed behavior to the character or disposition of the individual rather than an external cause-often referred to as the fundamental attribution error (Gilbert & Malone, 1995; Ross & Nisbett, 1991). Thus, even in the presence of high-quality advice, COI disclosure will have an adverse consequence on the advisor-advisee relationship, decreasing trust in the advisor's character, and increasing desire to change advisors. We refer to this effect as the disclosure penalty: The mere knowledge of the advisor's personal self-interest, even in the presence of high-quality advice, will yield negative attributions about the advisor's character.

At first glance, the disclosure penalty may appear intuitive. However, the attribution lens we apply results in three important (and less intuitive) dynamics that we predict and examine experimentally. First, the disclosure penalty will emerge irrespective of advice quality; in fact, it will emerge even when advice quality is high, and advisees have full information to judge this quality. Second, the disclosure penalty will emerge even when the advisor's professional responsibility and self-interest are not actually in conflict. If we consider COIs only in terms of uncertainty in advice quality, bias, and compliance with advice (as much of the prior literature does), we would miss that the mere presence of a COI creates negative attributions about the advisor that effects trust and the advisor–advisee relationship despite clear high-quality advice.

Third, the disclosure penalty may be mitigated if advisees are explicitly informed that their advisor's COI arose from external factors beyond the advisor's control. To elaborate on this final dynamic, consider that advisors' COIs usually fall into two main categories. One category contains those conflicts created by external factors beyond the advisor's control, sometimes referred to as systemic COIs (Williams, Mayes, Komesaroff, Kerridge, & Lipworth, 2017). For example, the physician fee-for-service model, which is the predominant form of physician payment in the U.S., or financial advisors who work in institutions that compensate them with commissions. The other category contains those conflicts created by the advisor's own volition, sometimes referred to as personal COIs (Williams et al., 2017), such as entering a relationship with a third party who may have other interests. For example, physicians accepting gifts or sponsorships from the pharmaceutical industry. Advisors who engage in the personal category are often viewed as biased and untrustworthy (Rosenbaum, 2015). According to the fundamental attribution error, one should expect that advisees will generate (whether or not they are fully cognizant of it) a personal attribution regarding their advisors' COIs, regardless of whether the COI is actually derived systemically or personally.⁴ This personal attribution will cause the advisee to distrust the advisor, regardless of advice quality, whether the advisor's actual recommendation is actually in conflict with what is best for the advisee and whether the advice is self-serving or self-sacrificing (see Figure 1).

Following our theory, if the disclosure penalty arises from advisees generating a personal attribution regarding their advisors' COIs, the penalty could be mitigated if advisees are informed that the presence of their advisor's COI is due to a systemic cause (i.e., an external cause beyond the advisor's control). Understanding the effects of personal versus systemic attribution for the existence of the advisor's COI has implications for the role that norms and the salience of the systemic attribution play in determining whether disclosure damages the advisor–advisee relationship. If all advisors have COIs and this is salient in the advisees' mind, then having a COI does not reflect anything about the advisor's character (Sabini, Siepmann, & Stein, 2001), and the disclosure penalty may be eliminated (a point we return to in the General Discussion section).

³ The physician (or hospital) would receive more compensation for more complex patients and CT scans can serve as an indication to insurance companies of a more complex patient.

⁴ One can argue as to whether any COI can be considered systemic if advisors ultimately have to accept the presence of the COI to operate within that sphere of influence.

Different COI situations		Disclosure Penalty: Awareness of a COI	Altruistic Signal: Self-sacrificing advice
1.*	Low advice quality – Self-serving advice –	₽	
2.	High advice quality – Self-serving advice –	➡	
3.	High advice quality – Self-sacrificing advice –	₽	
4.	High advice quality – Self-sacrificing advice – Salient external attribution for the existence of the COI	Ţ.	

Figure 1. The disclosure penalty and altruistic signal effects on trust. The quality of advice (low or high) is not relevant for the disclosure penalty, which reduces trust and is present regardless of the advice quality. The signal from self-sacrificing advice increases trust. When advisees learn about their advisors' COI, these signals are activated. In Situations 1, 2, and 3, there is no salient external attribution for the existence of the COI. *Indicates COI situation commonly examined in past research. See the online article for the color version of this figure.

Furthermore, the disclosure (news of the COI) may come from any source (i.e., directly from the advisor, a third party, or public website). As has been shown in prior research (and confirmed by experiments shown in the online supplemental material), the *source* of the disclosure does not have a large effect on advisees' trust—it is the *information* regarding the COI that reduces trust in the advisor regardless of the source (Sah et al., 2013, 2019).⁵

The Altruistic Signal: Positive Attributions Regarding the Advisors' Character

We contrast the disclosure penalty effect with a second dynamic by which COI disclosure can *increase* trust: When advisors recommend an option that sacrifices their self-interest, COI disclosure reveals not only the existence of the conflict to the advisee but also that the advisor has made a self-sacrificing recommendation. This self-sacrifice would be unknown to the advisee without disclosure and, once revealed, provides a positive signal regarding the advisor's character. We refer to this signal as the *altruistic signal*.

The altruistic signal should increase trustworthiness attributions regarding the advisor. The advice "proves" that the advisor prioritizes his or her integrity and benevolence over personal gain. By contrast, recommendations that are consistent with both the advisors' and advisee's interests are ambiguous as to the extent to which they are driven by self-interests versus professional interests.

The disclosure penalty and the altruistic signal create the following dynamic: First, awareness of the COI decreases advisees' trust in their advisors, resulting in a disclosure penalty. The penalty may be mitigated if advisees are explicitly informed that the origin of the COI is external, that is, beyond the advisor's control. A second independent effect is that COI disclosure *can* increase trust if the disclosure reveals that the recommendation sacrificed the advisor's self-interest. These two independent effects of COI disclosure—decreasing trust regardless of advice quality (the disclosure penalty) and increasing trust if the advisor sacrifices her self-interest (the altruistic signal)—are opposing and the net effect on trust depends on which effect is stronger in a given circumstance.

The Present Research

Background and Overview

In this article, we focus on cases of disclosure with high-quality advice. However, to establish a baseline with our paradigm for the typical COI situations examined in prior research, we first conducted two experiments (reported in the online supplemental material) with *poor-quality* advice (N = 456). Similar experiments have been conducted in past research (Sah et al., 2013, 2019).

Sah, Loewenstein, and Cain's (2013) article merits extended discussion here not only for its findings on trust with poor-quality advice, but also because its methods are the basis for the present research. Sah et al. (2013) conducted experiments in which advisors instructed advisees to select between two die-roll lotteries (A or B). The die-roll lotteries resulted in different specific prize sets (for instance, a \$5 Starbucks gift card if a "5" was rolled on Die A). The prizes for the Die-Roll A were superior in value to those of Die-Roll B (more than two times the expected value, and without advice more than 90% of people preferred Die-Roll A over B). Advisors, however, were subject to a COI in that they would

⁵ In some situations, it might be obvious that a systemic COI exists (e.g., a buyer's agent in a real estate transaction). This clarity would mitigate the need for disclosure altogether and eliminate the disclosure penalty if the systemic external attribution is salient. However, many advisees are not aware of (or not actively deliberating on) the presence of the advisors' COI and take advice at face value (Malmendier & Shanthikumar, 2007). Our proposition is that advisees will tend to make an internal (personal) attribution regarding the advisor's COI unless explicitly informed about the external (systemic) attribution.

receive a bonus if the advisee chose the inferior Die-Roll B. The majority (approximately 80%) of these conflicted advisors gave poor-quality advice and recommended the inferior Die-Roll B. Conflicted advisors were randomized to either disclose their COI in a written statement to advisees or were informed not to disclose this COI to their advisee. Across six experiments, Sah et al. (2013) demonstrated that advisees in the disclosure condition are more likely to report decreased trust in their advisors than advisees in the nondisclosure condition. Arguably, this is the "intended" purpose of COI disclosure. Sah et al. (2013) also revealed that when advisees had to make their choice in front of their advisor, they felt greater pressure to comply with their advisor's recommendation with disclosure than without. This pressure resulted in a perverse effect of increased compliance with distrusted advice in the presence of a COI disclosure. Increased compliance occurred even when advisees had full information of the lottery choices for both die-rolls and thus could tell that the advice was of low quality. Pressure to comply was reduced when advisees could make their choice in private away from their advisors. In the current article, we reduce the pressure to comply with the advisor by giving the advice in written form online away from the physical presence of an advisor.

We report our two experiments with poor-quality advice in detail in the online supplemental material (S1 and S2; N = 456, one preregistered). To summarize, COI disclosure decreased trust in the advisor (conceptually replacing Sah et al.'s, 2013 findings) and we also found that it increased desire to change advisors. Like prior research (Sah et al., 2013, 2019), we found that the decrease in trust from COI disclosure was similar regardless of whether the disclosure from the advisor was perceived as mandatory or voluntary (Experiment S1) or if the disclosure was directly from the advisor or made indirectly via a third party (Experiment S2). Although these findings may be surprising—for example, one may expect increased trust with voluntary (vs. mandatory) disclosure or less trust with third-party disclosure (vs. disclosure directly from the advisor)—as explained in prior research (Sah et al., 2013, 2019), the framing and source of the disclosure do not change the fact that the information disclosure, however received, alerts the advisee to the fact that their advisor has a COI.

In the six experiments reported here (N = 1,766, one preregistered), we examine the impact of COI disclosure with high-quality advice. The first three experiments examine high-quality advice when advisor's professional responsibilities and their self-interests are aligned; the second three experiments examine high-quality advice in the presence of misaligned interests and with advisors that sacrificed their self-interests (see Figure 2). In Experiments 1 to 5, advisees were clients and were given "financial advice" which consisted of a recommendation to choose one of two lotteries. Like Sah et al. (2013), one lottery had a better expected outcome for the client-and was preferred by most people in the absence of advice. While building a set of experiments within a given experimental paradigm is useful for comparing the robustness of the observed effect and interventions across studies, it is also useful to conceptually replicate findings in other contexts for generalizability. Therefore, our final experiment moved to a medical context to examine whether disclosure and self-sacrificing advice can increase a patient's trust in his or her doctor.

In each experiment, we predicted how the independent variables would affect the advisees' desire to change their advisor for a second round of advice and their perceptions of their advisors'

	High quality advice (aligned interests; self-serving advice)	High quality advice (misaligned interests; self-sacrificing advice)	
	Experiments 1, 2 and 3	Experiments 4, 5, and 6 ¹	
Option for which the advisor receives a bonus	Superior Option (Portfolio A)	Inferior Option (Portfolio B) Superior Option (Portfolio A ²)	
The advisor's recommendation	Superior Option (Portfolio A)		

Figure 2. Conflict of interest situations with high-quality advice. Experiments 1, 2, and 3 present a scenario in which the advisor's professional and self-interest are aligned. Experiments 4, 5, and 6 present a misaligned scenario, similar to the common COI scenario examined in prior research. In all these experiments, advisors recommend the superior option. In the common COI scenario typically studied in prior research, the advisor gives low-quality advice: recommends the inferior option (see Experiments S1 and S2 in the online supplemental material). ¹Experiment 6 is in the medical context (there are no portfolio options). ²Experiment 4 examines advisors recommending either Portfolio A (the superior portfolio) or Portfolio B (the inferior portfolio). Our focus is on advisees' reaction to receiving high-quality (Portfolio A) advice but we include low quality advice as a basis for comparison in this experiment. See the online article for the color version of this figure.

trustworthiness (as reflected in our preregistrations of Experiments S2 and 6). We report, but did not make predictions about, investment or treatment choice (whether participants ultimately choose the option recommended by their advisor). We anticipated that while choice is materially consequential, it does not accurately reflect how advisees feel about their advisor and the downstream consequences of maintaining the relationship with their advisors, which is our main subject of interest. Problems with interpreting compliance behavior as an operationalization of trust occur because although compliance can arise from trust, it can also arise from other causes (Kelman, 1958; Kramer, 1999). For example, compliance with an advisor's recommendation may stem from feeling pressure to comply in the presence of the advisor (Sah et al., 2013, 2019) or nonconscious anchoring on the recommendation even when attempting to disregard the advice (Tversky & Kahneman, 1974). Choice may be of greater interest in studies in which advisors give poorquality advice (to see whether the advisee was manipulated). However, in all our studies, advice was of high quality and in Experiments 1 to 3, there was no information asymmetry, so advisees had full information to judge advice quality. Advice quality and lottery preference are likely to play a large role in choice whereas our interest is in whether COI disclosure affects trust and the desire to change advisors (regardless of compliance).

Trust and Trustworthiness

Trust is essential in advisor–advisee relationships, and has been defined as a psychological state comprising the intentions to accept vulnerability based on positive expectations of the actions of the trustee (Rousseau, Sitkin, Burt, & Camerer, 1998). In prior research on COI disclosure, trust has been measured by simply asking advisees if they believed that their advisor had their best interests at heart (Sah et al., 2013), or using Mayer, Davis, and Schoorman's (1995) tridimensional trustworthiness measure of the advisor's integrity, benevolence, and ability/expertise (Sah, Fagerlin, & Ubel, 2016; Sah et al., 2018). These three "trustworthiness"

characteristics of the advisor are viewed as antecedents to "trust" and capture suggestions from prior work that trustworthiness perceptions are composed of both the *competence* and *character* of the trustee (Kee & Knox, 1970). Competence and character are likely to have unique relationships with trust (Colquitt, Scott, & LePine, 2007). Competence captures the "can do" component of trustworthiness which corresponds to Mayer et al.'s (1995) ability (or expertise) measure, and Mayer et al.'s (1995) character variables of integrity and benevolence capture the "will do" component. Colquitt, Scott, and LePine (2007) argue that these two character facets-benevolence and integrity-may be redundant with each other in many situations. We hypothesized that advisees' negative attributions due to their advisor's self-interest would affect perceptions of their advisor's character (Ross & Nisbett, 1991), that is, their advisor's integrity and benevolence. We do not focus on, nor make predictions regarding, advisees' perceptions of the advisor's competence or expertise: Indeed, in the first three experiments, we eliminate advisor's expertise by giving advisees full information, so they can assess advice quality.

Desire to change advisors. The main dependent variable for Experiments 1, 3, 4, and 5 is our behavioral measure of trust which was the clients' desire to either keep or change their advisor for a future investment decision. In Experiment 2, we use a different behavioral measure of trust which examines the cost clients are willing to incur to limit their vulnerability to their advisor (McEvily, Radzevick, & Weber, 2012). In Experiment 6, which involved a medical context, we measure advisees' willingness to listen to the doctor for future decisions. All these measures for trust incorporate positive expectations, accepting vulnerability, and a willingness to continue the relationship (Rousseau et al., 1998).

Perceptions of the advisors' trustworthiness. Our measure of trustworthiness consisted of responses to five statements that captured perceptions of the advisor's character. Our scale was the averaged responses, measured on a 7-point scale from 1 (strongly *disagree*) to 7 (*strongly agree*), to the following statements: "My advisor seemed like an honest person," "My advisor had my best interests at heart," "My advisor put my interests first," "I trusted my advisor's recommendation," and "I did not trust my advisor" (reverse coded). In Experiments 2 (and S2), we included additional measures for trustworthiness adapted from Mayer and Davis's (1999) tridimensional construct (integrity, benevolence, and competence/expertise) to ensure that these dimensions corresponded with our measures of character and competence. This, indeed, was the case.⁶ Because trustworthiness is an antecedent to trust, we also examined whether perceptions of the advisor's character mediated the relationship between disclosure and trust (desire to change advisors).

Experiment 1: High-Quality Advice Accompanied With Conflict of Interest Disclosure Reduces Trust

In the first three experiments, advisors (a) recommend the superior Portfolio A and (b) receive a bonus if clients select Portfolio A (see Figure 2). Even though professional and self-interests are aligned for advisors, our theory predicts that merely knowing that one's advisor has a self-interest generates skepticism regarding the advisor's character, *irrespective* of advice quality. Therefore, we predicted that COI disclosure would result in the disclosure penalty, increasing desire to change advisors, as well as

decreasing perceptions of the advisor's trustworthiness, which would mediate the relationship between disclosure and desire to change advisors.

This study was also designed to examine whether distrust from COI disclosure resulted from increased uncertainty in advice quality due to information asymmetry between the advisor and client (usually present in advice-giving due to the advisors' expertise) or was present even when the uncertainty in advice quality was removed. When a client has complete information of the lottery rewards, she can more easily assess the (high) quality of the advisor's recommendation. If the advisor is giving objectively superior advice, this should mitigate negative trustworthiness inferences made from the COI disclosure if advice quality is the client's main concern. However, our theory suggests that negative attributions arise from the presence of the advisor's self-interest, irrespective of advice quality. We therefore predicted that trust should be insensitive to whether the client has complete or incomplete information about the portfolios. If COI disclosure reduces trust even with complete information, then we can more confidently conclude that the disclosure penalty stems from negative attributions toward the advisor's character for merely possessing the self-interest, as opposed to some feature of, or uncertainty in, the recommendation itself. The complete information case can be conceived of as asking for advice from a colleague that does not necessarily have more expertise than you, but can still provide a second, independent opinion about what the best course of action for you may be. As Northcraft and Neale (1987) claim, in the real world, not every advisor is an expert.

Method

In this, and the following experiments, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study (Simmons, Nelson, & Simonsohn, 2011). In all our experiments, analyses were conducted only once data collection for that experiment was finished. Our study received ethics (Institutional Review Board) committee approval.

Participants and design. We requested 50–100 participants per condition from a survey company, ROI Rocket (www.roirocket .com), and received 374 participants (183 women, 187 men, four gender unreported, $M_{age} = 40.2$, SD = 10.6) who were randomly assigned in a 2 (Disclosure vs. Nondisclosure) × 2 (Client Information: Complete vs. Incomplete) between-subjects design. All invited were U.S. residents, between 22 and 60 years of age, employed full-time, and with a bachelor's degree. Participants received \$2.25 for completing the study plus an opportunity for a bonus prize up to \$25 in value.

Procedure. Participants played the role of a client deciding to invest in one of two lotteries: Portfolio A or Portfolio B. The task was adapted from Sah et al. (2013) and titled "The Investment Challenge." In all our experiments within this paradigm, "A" is the superior portfolio and "B" is the inferior portfolio and the same

⁶ For all experiments, we also measured responses to four statements that captured the advisor's competence or expertise—our "can do" trust component. All these results are reported in the online supplemental material. No other items were collected, except where otherwise reported in this article.

portfolios were used in each experiment. Both lotteries had six possible outcomes corresponding to numbers on a die, ranging from \$5 to \$25 in value (see Figure 3). Portfolio A had an expected value of \$17 with greater spending flexibility, whereas the expected value for Portfolio B was \$13 with less spending flexibility. The superiority of Portfolio A was also verified in a pilot survey of 93 independent participants from a U.S university (49 women, 44 men, $M_{age} = 20.1$, SD = 1.0), in which 93% stated that they preferred Portfolio A over Portfolio B, $\chi^2(1) = 70.55$, p < .001, $\varphi = 0.87$, when viewing the portfolios with complete information about possible outcomes. Clients were informed that two participants would be randomly selected upon completion of the study and awarded a bonus based on their choice of portfolio as shown in Figure 3 and the outcome of a fair die roll.

Participants were randomly assigned to one of two information conditions which manipulated how the outcome of a die-roll of "6" was presented. In the *incomplete information* condition, the outcome for rolling a "6" was presented as "???" for both portfolios (see Figure 3). In the *complete information* condition, clients were shown that the sixth outcome was "re-roll" for both portfolios. Therefore—and in contrast to the incomplete information condition—with complete information there was no information asymmetry between the advisors and the clients, providing the client with all the information they need to assess recommendation quality.

After viewing the portfolios, clients received advice about which portfolio to choose from a "financial advisor" who had observed all six of the possible outcomes for each lottery. Clients read their advisors' recommendation stated as "*I'm looking at all six of the dice rolls for each portfolio and I recommend that you go with Portfolio A.*"

Participants were randomly assigned to either a disclosure or nondisclosure condition. In the disclosure condition, the following sentence preceded the advisor's recommendation: "*I am required to tell you that I get a \$10 bonus if you choose Portfolio A.*" This statement was adapted from disclosure statements used in prior research (Sah et al., 2013) and conforms to regulations which

Number	Portfolio A	Portfolio B
$\overline{\mathbf{\cdot}}$	\$25 Amazon gift card	\$20 cash bonus
•	\$25 Visa gift card (use anywhere)	\$5 Starbucks gift card
•	\$10 Starbucks gift card	\$10 Target gift card
	\$15 cash bonus	\$20 Visa gift card (use anywhere)
$\overline{\mathbf{\cdot}}$	\$10 Best Buy gift card	\$10 iTunes gift card
	???	???

Figure 3. Portfolio outcomes for Experiments 1 to 5. Rolling the number "6" always yielded a reroll of the die for both portfolios. In Experiments 1 to 3, clients were informed of this (the "???" was replaced with "re-roll"), thus there was no advisor–advisee information asymmetry and clients could assess advice quality. See the online article for the color version of this figure.

require COI disclosures to be simple, concise, direct, and conspicuous (Securities and Exchange Commission, 2010). The nondisclosure condition was identical absent the disclosure sentence.

After reading their advisor's recommendation, clients made a choice of either Portfolio A or B, reported their trustworthiness perceptions of the advisor's character (Cronbach's alpha = .83), and whether they would want to change advisors.

Results

Desire to change advisors. We used logistic regression to estimate the effect of disclosure and information completeness on desire to change advisors (see Figure 4). There was no interaction between disclosure and portfolio information, b = 0.20, SE = 0.13, Wald = 2.38, p = .12. Consistent with our hypothesis, COI disclosure increased the desire to change advisors (33%) compared with nondisclosure (14%), b = 0.57, SE = 0.13, Wald = 18.51, p < .001. This was true both within the incomplete information conditions, b = 0.73, SE = 0.37, Wald = 4.02, odds ratio (OR) = 2.08, 95% CI [1.02, 4.17], p = .04, and within the complete information conditions, b = 1.55, SE = 0.39, Wald = 16.22, OR = 4.72, 95% CI [2.22, 10.04], p < .001. Complete portfolio information (24%) had no significant effect on requests to change advisors compared with incomplete information (22%), b = 0.001, SE = 0.13, Wald = 0.01, p = .99.

Trustworthiness. Similarly, COI disclosure decreased trustworthiness perceptions of the advisor's character (M = 4.54, SD =1.01) compared with nondisclosure (M = 4.96, SD = 0.88), F(1,370) = 18.68, p < .001, $\eta_p^2 = .05$. Again, this effect occurred within both the incomplete information conditions: disclosure (M = 4.48, SD = 1.04) versus nondisclosure (M = 4.96, SD =0.91), F(1, 370) = 11.85, p < .001, $\eta_p^2 = .03$; and the complete information conditions: disclosure (M = 4.59, SD = 0.98) versus nondisclosure (M = 4.96, SD = 0.86), F(1, 370) = 7.09, p = .008, $\eta_p^2 = .02$. Again, there was no effect of information (complete information: M = 4.78, SD = 1.01 vs. incomplete information: M = 4.72, SD = 1.01), F(1, 370) = 0.36, p = .55, $\eta_p^2 = .001$, and no interaction between disclosure and portfolio information, F(1,370) = .34, p = .56, $\eta_p^2 = .001$.

Bootstrapping mediation analysis (Hayes, 2013; Model 4), using 10,000 random samples with replacement (MacKinnon, Fairchild, & Fritz, 2007), revealed that trustworthiness perceptions significantly mediated the relationship between disclosure and the desire to change advisors (0.57, 95% CI [0.27, 0.95]).⁷

Portfolio choice. Portfolio choice is not the focus of this article, but we report the analyses nevertheless. There was no interaction between disclosure and information, b = 0.20, SE = 0.76, Wald = 0.07, p = .79. Clients who received a COI disclosure were less likely to select the superior Portfolio A (85%)—thereby rejecting their advisor's high-quality recommendation—than clients with no disclosure (93%), b = 1.24, SE = 0.60, Wald = 4.29, p = .04. This effect was present in both the incomplete information conditions (OR = 0.35, 95% CI [0.14, 0.90]) and complete information conditions (OR = 0.29, 95% CI [0.09, 0.94]). The amount of information had no effect on portfolio choice (87% with

⁷ The bootstrapping mediation method provides advantages to, and has largely replaced, the former Baron and Kenny (1986) mediation step method (see online supplemental material for more information).



Figure 4. The percent of participants who reported they would want to change advisors in Experiment 1, by condition. In all conditions, the advisor's self-interest was aligned with what was best for the client and the advisor recommended the superior portfolio. Disclosure increased the desire to change advisors, relative to nondisclosure, when the client had incomplete information about the portfolios (advisee-advisor information asymmetry) and also when the client had complete information (no advisee-advisor information asymmetry). Error bars are ± 1 *SE*. See the online article for the color version of this figure.

incomplete information vs. 91% with complete information selected Portfolio A), b = 0.64, SE = 0.64, Wald = .98, OR = 1.64, 95% CI [0.84, 3.23], $p = .32.^{8}$

Discussion

Even when an advisor's professional and self-interests are aligned, and the superior option is recommended, COI disclosure increased desire to change advisors. Put differently, even with honest advice (no bias produced from the COI) and no information asymmetry between advisors and advisees, disclosure of a selfinterest significantly decreased trust in the advisor's character leading to an increased desire to change advisors.

Importantly, disclosure was damaging for both advisors and clients. Advisors were trusted less despite giving high-quality advice. And, clients' lack of trust in the advisor caused them to both desire new advisors (which has switching costs for clients in the real-world) and select inferior options for themselves, even when they could assess the quality of advice (with complete information, 13% of clients choose the inferior option with disclosure, compared with 4% with nondisclosure, b = 1.24, SE = 0.60, Wald = 4.29, OR = 3.44, 95% CI [1.07, 11.10], p = .04). This increased rejection of high-quality advice may be due to a wish to "punish" advisors for possessing a COI. People sometimes forego opportunities for gain or harm themselves if they perceive others to lack integrity or behave unfairly, as seen in the rejection of unfair offers in the ultimatum game (Thaler, 1988). Our next experiment examines if distrust in the advisor's character generated by the COI disclosure causes people to pay more (i.e., incur financial costs) to avoid trusting that advisor in the future.

Experiment 2: Paying to Avoid Honest Advisors Who Disclose a Self-Interest

Experiment 1 revealed that COI disclosure has a cost—it causes clients to trust their (honest unbiased) advisors less, desire chang-

ing advisors, and potentially reject valuable advice. This experiment explored the price clients would pay to avoid trusting honest advisors who disclose a COI.

Method

Participants and design. We requested 50-100 participants per condition from a U.S. university undergraduate research lab, and received 164 participants (93 women, 71 men; $M_{age} = 20.8$, SD = 1.7) who were randomized into one of two conditions, disclosure or nondisclosure. Participants received \$5 for completing the study, and a potential bonus of up to \$25.

Procedure. Clients were informed that they would complete two tasks with the same advisor. The first task was identical to the investment portfolio decision in the previous experiment, with all advisors recommending the superior Portfolio A, and this time all clients had complete information on the portfolios (die-roll OF "6" was known to be "re-roll"). In the disclosure condition, clients received the same disclosure statement from their advisor as in the previous experiment. In the nondisclosure condition, as previously, there was no statement. Clients then reported their portfolio choice, and trustworthiness perceptions ($\alpha = .76$).⁹

Clients, however, did not report their desire to change advisors. Instead, clients proceeded to the second task with the same advisor. This task, adapted from McEvily, Radzevick, and Weber (2012), served to produce an incentivized behavioral measure of

⁸ Portfolio choices for the remaining experiments are reported in the online supplemental material.

⁹ Our trustworthiness items use the word "partner" in this study. To ensure correspondence of this measure with other trustworthiness measures, we also measured the constructs of integrity, benevolence, and ability adapted from Mayer and Davis (1999). We predicted, and found, that the integrity and benevolence dimensions revealed the same patterns of significance as our trustworthiness measure of the advisor's character, and the ability/expertise dimension behaved similarly to our competence measure (all these analyses are reported in the online supplemental material).

trust, which again reflects their willingness to be vulnerable to the same advisor (Rousseau et al., 1998) but this time with a more granular financial measure in which we can determine the cost to clients.

Clients were informed that their advisor had previously been asked to divide \$10 (anywhere from \$0 to \$10, in 50 cent increments) and the split would determine the allocation the client would receive-like a dictator game. Clients stated their preference between receiving a guaranteed bonus of a certain amount \$X (Option A; see Figure 5) or to accept whatever portion of the \$10 their advisor had stated would be allocated to them (Option B). Option A was then presented to them starting from \$6 down to \$0, in 50 cent increments and clients reported for each \$X, whether they would prefer to accept that (Option A) or let their advisor decide the split (Option B). The \$X amount at which clients switch from Option A to B reflects a financially incentivized behavioral measure of trust in the advisor. Switching to Option B at a relatively high guaranteed \$X amount would reflect a high level of trust in the advisor. For example, switching to Option B at \$4.50 would be consistent with an expectation that the advisor will provide (at least) a 50/50 split of the \$10. On the other hand, sticking with Option A at even low guaranteed amounts of \$X reflects low trust in the advisor. For example, if a client switches to Option B at \$1.50, this suggests that the client expects the

advisor to provide a split of the \$10 that will not favor the client. We predicted that clients in the COI disclosure condition in the first task would choose a lower financial dependence on the advisor on this measure by switching to Option B at lower \$X amounts than clients in the nondisclosure condition.

Results

Financial trust level. As predicted, the highest potential guaranteed amount (\$X) at which the client would prefer to trust their advisor to split the \$10 over receiving \$X was significantly lower with disclosure (M = \$3.13, SD = 1.47) than nondisclosure (M = \$3.69, SD = 1.27), $F(1, 162) = 6.59, p = .01, \eta_p^2 = .04$. In other words, if their advisor had disclosed a COI in the prior task, they expected the advisor to leave them a mean of \$0.56 (15%) less than if their advisor had not disclosed a COI in the prior task. This was despite clients having full information to clearly assess the high-quality recommendation given to them, demonstrating a real financial cost of COI disclosure on advisees.

Trustworthiness. Similar results were reflected with our trustworthiness measure which was significantly lower with disclosure (M = 3.80, SD = 0.97) compared with nondisclosure (M = 4.13, SD = 0.78), F(1, 162) = 5.71, p = .02, $\eta_p^2 = .03$.

Option A: "Collect" You receive \$X for sure.		Option B: "Let partner decide"	
		Let your partner decide how to split \$10 between the two of you.	
	I W Rece	Option A Vould "Collect" ive the guaranteed amount of \$.	Option B I Would "Let Partner Decide" Receive whatever amount of \$ your partner said he or she would leave for you out of the \$10.
If Guaranteed Amount $X = $ \$6?		X	
If Guaranteed Amount $X = $ \$5.50?		x	
If Guaranteed Amount $X = $ \$5?		x	
If Guaranteed Amount $X = $ \$4.50?		x	
If Guaranteed Amount $X = $ \$4?		x	
If Guaranteed Amount $X = $ \$3.50?		x	
If Guaranteed Amount $X = $ \$3?			x
If Guaranteed Amount $X = $ \$2.50?			x
If Guaranteed Amount $X = $ \$2?			x
If Guaranteed Amount $X = $ \$1.50?			x
If Guaranteed Amount $X = $ 1?			x
If Guaranteed Amount $X = $ \$0.50?			x
If Guaranteed Amount $X = $ \$0?			x

Figure 5. Measure of financial distrust in Study 2. In this example, for guaranteed amounts \$6 to \$3.50, the participant preferred Option A, but preferred Option B for lower guaranteed amount, \$3 to \$0. In this case, the measure of financial distrust would be \$3; the highest amount the participant would prefer to let the partner decide the split. See the online article for the color version of this figure.

Trustworthiness perceptions also mediated the effect of disclosure on the financial trust level (0.29, 95% CI [0.06, 0.57]).

Discussion

Again, consistent with our hypotheses, with high-quality advice, COI disclosure decreased trustworthiness perceptions and clients were willing to accept lower bonuses to avoid trusting their advisor again. This occurred even though clients had full information and could, therefore, assess the quality of advice. This demonstrates clients' negative reaction to advisors with COI disclosure causes them to forego opportunities for financial gain in order to avoid their advisor. Similar findings for our financial measure of trust in this study and our trust variable in the prior study (desire to change advisors) help to establish the convergent validity of these results.

Experiment 3: High-Quality Advice Accompanied With Voluntary Disclosure Still Reduces Trust

The experiments thus far demonstrate that even with high advice quality and full information, the disclosure penalty creates a negative signal regarding the advisor's character. To further test the robustness of the disclosure penalty, in this experiment we used disclosure in way that conveyed a voluntary sense, using the words—"I would like you to know that . . ." rather than our mandatory disclosure used in Experiments 1 and 2 ("I am required to tell you that . . .").

Prior research (Sah, Loewenstein, & Cain, 2019) and our Experiment S1 (in the online supplemental materials) have revealed similar levels of trust when COI disclosures are deemed voluntary versus mandatory, suggesting the information about the presence of the advisor's COI is more influential in assessments of trust than the framing of the disclosure. That is, voluntary disclosures did not increase, or even preserve, trustworthiness perceptions of the advisor's character over mandatory disclosures. To establish if similar effects are present when advice is of high-quality, this experiment utilized the voluntary disclosure framing. With high-quality advice (and no information asymmetry) and a voluntary disclosure of a self-interest, clients may perceive advisors as honest and increase their trustworthiness perceptions of the advisor's character. However, we predicted that voluntary disclosure would behave similarly to mandatory disclosure because it should raise the same concerns over why the advisor has a COI, and thus invoke the disclosure penalty, negative attributions regarding the advisor's character for possessing a COI, rather than rewarding advisors with increased trust for their honesty and high-quality advice.

Method

Participants and design. We requested 50–100 new participants per condition from an undergraduate research lab at a private U.S. university, and received 114 participants (67 women, 46 men, one gender unreported, $M_{age} = 20.8$, SD = 1.72) who were randomly assigned in a two-cell (voluntary disclosure vs. nondisclosure) between-subjects design. Participants received \$3 for participating in the experiment with a chance of winning a \$25 bonus.

Procedure. Clients followed the same procedure and measurements (including trustworthiness, $\alpha = .83$) as in Experiment 1. The nondisclosure condition was the same as in prior experiments.

In the disclosure condition, the following sentence preceded the recommendation: "*I would like you to know that I get a personal bonus of \$10 if you choose Portfolio A.*" Again, all clients were shown that the sixth outcome was "re-roll" for both portfolios. Therefore, there was no information asymmetry between the advisors and the clients, and the clients could assess the quality of advice given to them.

Results

Desire to change advisors. As predicted, clients in the voluntary disclosure condition (50%) were significantly more likely to want to change advisors than those in the nondisclosure condition (27%), b = 0.50, Wald = 6.32, OR = 2.73, 95% CI [1.25, 5.99], p = .01.

Trustworthiness. Trustworthiness perceptions of the advisor's character was significantly lower with voluntary disclosure (M = 3.89, SD = 1.01) than without disclosure (M = 4.53, SD = 0.92), F(1, 112) = 12.64, p < .001, $\eta_p^2 = .10$, and this measure, as predicted, mediated the effect of disclosure on the preference to change advisors; bootstrap analysis estimated the size of the indirect effect as 0.90; 95% CI [0.36, 1.71].

Discussion

This experiment used voluntary disclosure, as opposed to the mandatory disclosure implemented in Experiments 1 and 2. Consistent with the previous results with mandatory disclosure, this experiment documented that COI disclosure decreases trust in advisors, even when the advisor's personal and professional interests are *not* in conflict, the disclosure is deemed voluntary and the advice quality is high. See also Experiment S2 in the online supplemental material in which we present evidence showing that third-party (indirect) disclosure yields similar results to voluntary disclosure directly from the advisor.

The next three experiments examine the net effect of disclosure penalty (which decreases trust) and the altruistic signal that occurs when advisors sacrifice their self-interests (which should increase trust) to give clients high-quality unbiased advice.

Experiment 4: The Play-Off Between the Disclosure Penalty and the Altruistic Signal

In the next three experiments, we transition to examining the effect of disclosure on trust when the advisor's professional and self-interests are in conflict (i.e., the advisor receives the bonus if the client chooses the inferior option). In this experiment, we also randomly manipulate whether advisors give biased poor-quality advice that satisfies their self-interest or unbiased high-quality advice that sacrifices their self-interest. If advisors give biased advice, then disclosure should decrease trust due to the disclosure penalty (replicating Experiment S1 in the online supplemental material). If advisors give unbiased high-quality advice, thereby sacrificing their self-interests, our theory generates competing predictions for the effect of disclosure on trust (see row 3 in Figure 1). The disclosure penalty suggests that knowledge of the mere presence of the advisor's self-interest should decrease trust. However, with disclosure, making a recommendation that sacrifices self-interest, produces the altruistic signal which should increase trust. The net effect on trust with disclosure depends on which opposing effect the disclosure penalty or the altruistic signal—is stronger.

Method

Participants. We requested 100 participants per condition from ROI Rocket Survey Company. A higher-than-anticipated response rate (and the absence of a formal quota restriction in their software), resulted in 541 participants (287 women, 254 men, $M_{\text{age}} = 42.1$, SD = 10.1) completing the study for \$2.25 and a one in 100 chance to win a bonus up to \$25.

Design and procedure. Clients were randomized to a 2 (Nondisclosure vs. Disclosure) \times 2 (Advisor Recommendation: Portfolio A vs. Portfolio B) between-subjects design. The task was identical to the incomplete information conditions in Experiment 1, where the die roll of six was hidden from the client for both portfolios (i.e., "???"). The disclosure statement was the same as in Experiments 1 and 2: "I am required to tell you that . . ." As previously, clients reported their investment choice, trustworthiness perceptions ($\alpha = .85$), and desire to change advisors.

Results

Desire to change advisors. There were significant main effects of both disclosure, b = 0.53, SE = 0.20, Wald = 7.05, p <.01, and portfolio recommendation, b = 1.17, SE = 0.20, Wald = 34.03, p < .001, on desire to change advisors, which were qualified by an interaction, b = 0.91, SE = 0.40, Wald = 5.19, p = .02(see Figure 6). When advisors recommended inferior Portfolio B (consistent with their self-interest), disclosure (56%) significantly increased the likelihood that clients wanted to change advisors relative to nondisclosure (32%), b = 0.99, SE = 0.26, Wald = 14.72, OR = 2.68, 95% CI [1.62, 4.44], p < .001. However, when advisors recommended superior Portfolio A (sacrificing their selfinterest), disclosure neither increased nor decreased the clients' likelihood of wishing to change advisors (20% vs. 19%), b = 0.08, SE = 0.31, Wald = 0.06, OR = 1.08, 95% CI [0.59, 1.97], p =.81, suggesting that the disclosure penalty and the altruistic signal may have canceled each other out.

Trustworthiness. Similarly, there were significant main effects of disclosure, F(1, 537) = 3.84, p = .05, $\eta_p^2 = .01$, and portfolio recommendation, F(1, 537) = 42.94, p < .001, $\eta_p^2 = .07$, on trustworthiness perceptions, qualified by an interaction, F(1, 537) = 12.85, p < .001, $\eta_p^2 = .02$. Simple-effect analyses revealed that for advisors who recommended inferior Portfolio B (consistent with their self-interest), disclosure significantly decreased trustworthiness (M = 4.14, SD = 1.09) compared with nondisclosure, (M = 4.62, SD = 0.96), F(1, 537) = 14.98, p < .001, $\eta_p^2 = .03$. For advisors who recommended superior Portfolio A, however, disclosure had no significant net effect on trustworthiness (M = 5.02, SD = 1.02 vs. M = 4.88, SD = 0.92), F(1, 537) = 1.36, p = .24, $\eta_p^2 = .003$.

Moderated mediation analyses (Hayes, 2013; Model 7) revealed that trustworthiness perceptions significantly mediated the effect of disclosure on the desire to change advisors when the advisor recommended Portfolio B (0.43. 95% CI [0.20, 0.73]), but, unsurprisingly given the null net effect on trustworthiness perceptions, not when the advisor recommended Portfolio A (-0.13, 95% CI [-0.34, 0.08]).

Discussion

Disclosure decreased trustworthiness perceptions and increased the desire to change advisors, when advisors gave biased advice that satisfied their self-interests (recommending Portfolio B). However, when advisors recommended the superior Option A and sacrificed their self-interest, disclosure neither increased nor decreased trustworthiness nor desire to change advisors compared with nondisclosure.¹⁰ Our theory made predictions of opposing effects when advisors sacrifice their self-interest from both the disclosure penalty decreasing trust and the altruistic signal increasing trust (see Figure 1). These effects appeared to negate each other.

Our interpretation that the trustworthiness effects canceled one another out yields an important implication: If the disclosure penalty can be muted, then it may be possible for COI disclosure to increase trust (through the altruistic signal; see Figure 1). Our theory is that the disclosure penalty is a consequence of an attribution made regarding the advisor's character. Therefore, the disclosure penalty could be mitigated if advisees are informed that the presence of their advisor's COI is due to an external systemic cause (i.e., a cause beyond the advisor's control). The following two experiments were designed to disentangle the disclosure penalty from the altruistic signal and sought to document an example in which COI disclosure actually increases trust in the advisor's character.

Experiment 5: Salient External Attribution for the Presence of the COI Mutes the Disclosure Penalty

In the preceding experiments, we found evidence of a disclosure penalty. If our theory that the mere presence of a COI produces negative personal attributions (Gilbert & Malone, 1995; Ross & Nisbett, 1991) regarding the advisor's character is correct (whether or not the advisee is cognizant of the personal attribution), then providing a salient external (systemic) reason for the presence of the COI should mute the disclosure penalty. If the disclosure penalty can be mitigated through salient external attribution, then, due to the altruistic signal, which appears when advisors recommend an option that sacrifice their self-interests, disclosure should *increase* trustworthiness. In this experiment, when we inform clients that the COI was due to an external cause, we expect the altruistic signal to dominate and trust in the advisor to increase (see last row in Figure 1).

Method

Participants and design. We requested approximately 100 participants per condition and received 361 new participants from ROI Rocket (184 women, 177 men, $M_{age} = 42.8$, SD = 10.7) who were randomized to one of three conditions: nondisclosure, disclosure, and disclosure with salient external attribution.

Procedure. All advisors recommended the superior Portfolio A but were awarded a bonus if the client selected the inferior

¹⁰ Note that Portfolio A recommendations led to greater trust than Portfolio B recommendations, even though disclosure did not have a significant effect on clients who received Portfolio A recommendations (due to the presence of both the disclosure penalty and the altruistic signal; i.e., perceptions of advice quality can influence trust in both nondisclosure and disclosure conditions, but the disclosure penalty is still present irrespective of advice quality when advisors disclose a self-interest).



Figure 6. The percent of participants who reported they would want to change advisors in Experiment 4, by condition. Disclosure increased the wish to change advisors when the inferior portfolio was recommended (self-serving advice) but had no effect on the wish to change advices when the advice was self-sacrificing suggesting that the disclosure penalty and altruistic signal may have cancelled each other out. Error bars are ± 1 *SE*. See the online article for the color version of this figure.

Portfolio B. Participants could see five possible prizes for each portfolio but the outcome for a die roll of "6" was shown as "???" for both portfolios. The disclosure and nondisclosure conditions were the same as in our prior experiment. In the disclosure with salient external attribution condition, before viewing the portfolios, clients were informed that "In addition to their base pay, your advisor can earn a bonus if you choose a certain portfolio. The structure of this bonus was entirely out of their control; we assigned the possible bonus to them. They had absolutely no choice in determining which portfolio earns them the bonus." As in previous experiments, clients reported their investment choice, trustworthiness perceptions ($\alpha = .89$), and desire to change advisors.

Results

Desire to change advisors. See Figure 7 for a depiction of the results. As in the previous experiment, when advisors recommended the superior Portfolio A, there was no statistical difference between the nondisclosure (14%) and disclosure (18%) conditions in the desire to change advisors, b = 0.31, SE = 0.36, Wald = 0.77, OR = 0.73, 95% CI [0.37, 1.47], p = .38. However, disclosure with external attribution decreased the likelihood of requesting to change advisors (7%) relative to disclosure alone, b = 1.03, SE = 0.42, Wald = 5.95, OR = 0.36, 95% CI [0.16, 0.82], p = .01, and to nondisclosure, although this latter effect was not



Figure 7. The percent of participants who reported they would want to change advisors in Experiment 5, by condition. Disclosure alone had no effect on the wish to change advices (with self-sacrificing advice). Muting the disclosure penalty with a salient external attribution for possessing a conflict of interest, lead to increased trust from the altruistic signal, that is, less desire to change advisors. Error bars are ± 1 *SE*. See the online article for the color version of this figure.

significant, b = 0.72, SE = 0.43, Wald = 2.74, OR = 0.49, 95% CI [0.21, 1.14], p = .10.

Trustworthiness. Similarly, trustworthiness perceptions differed significantly across the three conditions, F(2, 358) = 7.40, p < .001, $\eta_p^2 = .04$. As in Experiment 4, disclosure alone (M = 5.14, SD = 1.17) did not increase or decrease trustworthiness relative to nondisclosure, (M = 4.97, SD = 0.93), t(358) = 1.33, d = 0.16, p = .18, but disclosure with external attribution (M = 5.47, SD = 0.97) significantly increased trustworthiness compared with both nondisclosure, t(358) = 3.80, d = 0.53, p < .001, and disclosure alone, t(358) = 2.41, d = 0.31, p = .02. Mediation analysis (with a multicategorical independent variable) revealed trustworthiness to be a significant mediator (0.59, 95% CI [0.27, 1.02]) between disclosure with external attribution and the desire to change advisors.

Discussion

Only when (a) advisors recommend an option sacrificing their self-interest—thereby sending the altruistic signal—and (b) advisees are informed that the source of the advisor's COI (self-interest) is due to an external cause (beyond the advisor's control)—thereby muting the disclosure penalty—does COI disclosure increase the client's trust in the advisor. If no salient external attribution for the COI is present, replicating the previous experiment, the disclosure penalty which decreases trust and the altruistic signal which increases trust appear to negate each other leaving a null net effect on trust.

The attribution given for the presence of an advisor's COI has important implications. Although it appears we have strong tendencies to attribute nefarious qualities to advisors who possess COIs, this penalty may be overcome if advisees "rationalize" or "normalize" the existence of their advisors' COIs to systemic issues. If all advisors possess COIs, for example, physicians paid via a fee-for-service model, then the disclosure penalty may be muted. Our next study moves to the medical (fee-for-service) context to investigate if the altruistic signal leads to increased trust in physicians who give selfsacrificing advice in the presence of a COI.

Experiment 6: The Altruistic Signal in a Medical Context

Our final experiment moves to a medical scenario. Prior experiments have revealed that, consistent with the disclosure penalty, physicians who possess a COI and give self-serving poor-quality advice with simple salient disclosures (that recipients can deliberate on) are trusted less than those that do not disclose (Sah et al., 2019). In this experiment, we investigate how advise trust is affected when a physician who gives self-sacrificing high-quality advice discloses his or her fee-for-service COI. U.S. hospitals often have a fee-for-service compensation model (payment for each treatment or procedure performed) and therefore an external reason for the physicians' COIs exists. This external attribution may mute the disclosure penalty if made salient to the patient as patients will then interpret the conflict as being beyond the advisor's control. If the disclosure penalty is muted, then the altruistic signal may dominate and lead to increased trust as in the prior experiment (as depicted in the last row in Figure 1).

Method

Participants and design. We randomly assigned 212 participants from MTurk (114 women, 98 men, $M_{age} = 36.0$, SD = 10.0; all with at least a bachelor's degree) to one of two conditions: disclosure with salient external attribution and nondisclosure. This study was preregistered on the Open Science Framework.¹¹

Procedure. The scenario was based on the real event described in the introduction that took place in a U.S. emergency room (This American Life, 2009). Participants were asked to imagine that they were the parent of a 14-year-old girl who had been involved in a minor car accident. They read that after examination the doctor had recommended that the patient be discharged but you, the parent, had requested a CT scan. The doctor explained the risks (radiation exposure) and benefits (closer look) of a CT scan and still recommended no scan. In the disclosure with salient external attribution condition, there was one additional sentence: "*I also should let you know that, like most hospitals, we operate on a fee-per-service model, so I actually receive a payment for each CT scan I conduct.*"

Participants then decided between "CT scan to check for potential neck fracture" and "No CT scan to avoid radiation exposure." After making this decision, on a 7-point scale, participants indicated whether they would listen to the doctor for future decisions. Participants also completed the trustworthiness measure, this time with respect to the doctor ($\alpha = .96$).¹²

Results

Listen to the doctor in the future. As predicted, participants in the disclosure condition (M = 5.54, SD = 1.23) were more likely to indicate that they would listen to this doctor for future decisions than those in the nondisclosure condition (M = 4.97, SD = 1.60), F(1, 210) = 8.69, p = .004, $\eta_p^2 = .04$.¹³

Trustworthiness. Also, as predicted, trustworthiness perceptions of the advisor's character was significantly higher with disclosure (M = 5.69, SD = 1.15) than without (M = 5.29, SD = 1.44), F(1, 210) = 5.17, p = .02, $\eta_p^2 = .02$, ¹⁴ and this measure mediated the effect of disclosure on willingness to listen to the doctor for future decisions (0.37; 95% CI [0.05, 0.70]).

Discussion

Like the prior experiment, COI disclosure (with external attribution) and with self-sacrificing advice led to significantly increased trust in the advisor compared with nondisclosure. Even though prior work has shown a decrease in trust with simple salient COI disclosure in medical contexts (Hwong et al., 2017; Sah et al., 2019), the disclosure penalty appears to be muted in this context for fee-forservice COIs which can easily be attributed to factors beyond the advisor's control (systemic attribution). Self-sacrificing advice (when accompanied with COI disclosure) in this context, therefore, leads to an increase in trust due to the altruistic signal.

¹¹ See https://osf.io/uj8yp/. Due to a pricing increase at ROI Rocket, we ran the study through MTurk.

¹² At the end of the study, we also asked participants for any comments they may have with regards to their impression of the doctor.

¹³ The difference is also significant via t-test, t(210) = 2.95, d = 0.41, p = .004.

¹⁴ The difference is also significant via t-test, t(210) = 2.27, d = 0.31, p = .02.

General Discussion

Conflicts of interest (COIs) are ubiquitous among advisors across professions and disclosure is a popular remedy. However, prior studies examining the effect of disclosure on trust have often confounded the presence of a COI with poor-quality advice. In this article we focus on cases when advisors give high-quality advice. That is, when the advisor recommends the best option for the advisee. We find that COI disclosure with high-quality advice damages the advisor-advisee relationship and increases the desire in advisees to switch advisors.

We pit a dispositional attribution account against an informationprocessing account and find evidence favoring the attribution theory perspective. The attribution account emphasizes the default tendency of advisees who are aware of their advisors' COI to make negative inferences about their advisors' character rather than attribute the existence of the COI to an external systemic cause (unless informed otherwise). This disclosure penalty which increases the desire to change advisors arises even when advisors give high-quality advice (and clients have complete information to assess the (high) quality of the advice). It also arises regardless of whether the advisor's professional and personal interests are aligned or actually in conflict. Finally, the penalty can be muted if advisees are informed that the presence of their advisor's COI is due to an external cause (i.e., a cause beyond the advisor's control). The default tendency to assume poor character traits in the advisor due to the presence of a self-interest reveals the unforgiving nature of COI disclosures.

However, we also find that trust can increase through COI disclosure under a particular circumstance: When advisors recommend an option that sacrifices their self-interest, disclosure reveals the self-sacrifice and generates a positive *altruistic signal*. Even then, trust gain from the altruistic signal competes with trust loss from the disclosure penalty and the net effect depends on the stronger of the two signals. If the disclosure penalty is muted, for example with a salient external attribution for the presence of the COI, then disclosure can lead to increased trust overall.

These results suggest that, although transparency is often desired, COI disclosure may lead to essential damage to the advisor–advisee relationship and an increased desire to change advisors if the disclosure penalty is strong. That is, in practice, an unintended consequence of disclosure may be that even honest, unbiased advisors who disclose a self-interest may find their clients looking elsewhere and perhaps even their valuable advice being rejected, unless there is a clear external attribution that can be made for the existence of the COI.

Theoretical Implications

The current research draws on attribution theory and contributes to the literature on COI disclosure and trust. We aimed to contribute to this conceptual space to further inform the dialogue on COI disclosure and extend the literature to domains in which advisors with COIs are honest and give high-quality advice. Theoretically, COI disclosure is said to alert consumers to potential (low) quality advice (Healy & Palepu, 2001), and thus lead to less favorable judgments of the advisor. Our findings (using simple, salient disclosures in which advisees are likely to notice and deliberate on) reflect this pattern but also extend it further than the prior theory would predict. While prior studies often confounded the presence of a COI with poor-quality advice, we disentangle these variables in a series of controlled experiments which uncover that even when there is no uncertainty as to the quality of advice—in fact, even when the quality of advice can be judged objectively as being high—advisees still report decreased trust in their advisor with COI disclosure. These findings are better explained by an attribution theory perspective rather than a pure informationprocessing account of disclosure (i.e., a judgment correction process). The mere presence of an advisor's self-interest, regardless of whether it biases the advisor or affects the advice quality, results in advisees attributing negative characteristics to their advisors. Only when advisees are informed that the presence of their advisor's COI is due to an external cause (i.e., a cause beyond the advisor's control), and the advisor sacrifices any self-interest to place the advisee first, does trust in the advisor increase compared with a nondisclosure situation.

It is important to note that advisees in our studies had little information competing with the disclosure information-in rich environments in which advisees may be focused on other information (such as which product to buy) rather than deliberating on the disclosure, prior research has shown an increase in perceptions of the advisor's expertise which leads to increased persuasion (Sah et al., 2018). This effect-named disclosure's expertise cueoccurs only when COI disclosures are processed automatically (without much conscious awareness) rather than deliberatively. When disclosures are processed deliberatively, consistent with our findings, Sah et al. (2018) find evidence of decreased trust in the advisor (the disclosure penalty). In this article, in order to systematically manipulate and examine aspects of the COI landscape such as the quality of advice and whether the advice is self-serving or self-sacrificing, we focus on simple, salient disclosures in which the advisees are likely to deliberate on.

In sum, this research demonstrates the robustness of the COI disclosure penalty which is present regardless of the quality of advice. Such distrust in reaction to awareness of a COI emerges even with honest advisors, and even when advisors advise an option sacrificing their personal interests, causing consumers to potentially discount valuable advice. The "cost" of possessing COIs is therefore borne by both advisors and consumers regardless of whether advisors are influenced by the COI or not.

Managerial, Legal, and Policy Implications

In addition to contributing to theory, this research has implications for managers, advisors, regulators, and policymakers. Our findings add to, and help to refine, a growing body of literature demonstrating the complexity of using disclosure as a remedy for COIs. Although disclosure may "work" in the sense of reducing trust in the advisor, this benefits advisees only when the advice given is actually biased. In many other situations, disclosure damages the advisor–advisee relationship and could lead to valuable advice being ignored. While disclosure will and should remain an important aspect of addressing the problem of COIs, we should not overestimate the extent to which it is an all-encompassing solution. Policies and laws that help advisors eliminate COIs should remain the first priority.

Advisors often declare that because they do not succumb to bias, they do not possess a COI (McCoy & Emanuel, 2017). Certainly the presence of a COI does not mean the presence of biased or poor-quality advice (Lo & Ott, 2013; *Pretty v. Prudential Insurance Company of America*, 2010; Rosenbaum, 2015). These factors, however, are largely irrelevant with regards to advisees' perceptions of their advisors' character. A penalty exists for merely possessing a COI regardless of whether the advisor succumbs to the conflict or not. Given the robust disclosure penalty finding, managers, regulators, and individual advisors may want to avoid or eliminate COIs wherever possible, so they can signal the absence of any conflicts. For example, managers should carefully consider the incentive systems for professional advisors. Our findings suggest that disclosure of these incentives (which is often required) may have adverse consequences for the advisor-advisee relationship. Importantly, it could make clients look elsewhere for advice. Removing COIs from an organizations' incentive or reward structures should have substantial effects on advisee (and consequently, public) trust (Brennan et al., 2006; Criminal Code, Criminal penalties for acts involving Federal health care programs, 2011; United States v. Goss, 2004). Greater trust should also lead to greater positive reputational effects. This would lead other organizations and institutions to make efforts to eliminate COIs so they can declare the absence of any conflicts (Sah & Loewenstein, 2014).

Our results also highlight that a critical determinant of whether trust decreases with disclosure is due to the tendency to attribute the COI to the advisors' poor character rather than external factors. However, if COIs are the norm in particular industries, advisees may perceive such conflicts as systemic rather than reflective of the advisors' character, leading to a decrease in the disclosure penalty. Even so, our studies suggest this external systemic cause of the COI must be salient to the advisee at the time of the COI disclosure. Furthermore, especially if the disclosure penalty is muted, advisors may gain trust if they sacrifice their self-interests to give good quality advice, as our final two experiments demonstrate.

To be clear, the authors are not advocating to eliminate disclosure mandates. The findings in this study, however, do show situations in which COI disclosure may hurt the advisor–advisee relationship more than is intended. Adding to a body of work on unintended consequences of COI disclosure (Cain et al., 2005; Grady et al., 2006; Loewenstein, Sah, & Cain, 2012; Sah et al., 2013, 2018, 2019), and the difficulty to assess bias in advice, laws that consider eliminating conflicts of interest may have greater benefit than those that merely require conflicts of interest to be disclosed.

Limitations and Future Directions

The research presented here has some limitations that should be considered for future research. First, in each of our experiments the disclosure provided new information to the advisee that he or she was previously unaware of. Our conversations with practitioners suggest that this is the more common situation in which disclosure occurs because the intended purpose of disclosure is to reveal something that was previously unknown. However, the effects of disclosure may be different when it provides information that the advisee is already aware of.

Second, in all our experiments, advisees had little information about their advisors. In the field, advisees may have additional information on their advisors and other signals that could indicate high or low trustworthiness. For example, a long-standing relationship with an advisor may cause advisees to instinctively attribute or rationalize the advisor's disclosed COI to a cause beyond his or her control. On the other hand, an advisor revealing a self-interest within an ongoing relationship with an advisee could be perceived as an even greater violation of trust.

The effect sizes in these studies were small to moderate. For example, for the disclosure penalty, the odds ratio of disclosure on the desire to change advisors with high-quality advice was approximately 3.18 and the average η_p^2 for the same effect on advisor trustworthiness was .06. Importantly, we propose that eliminating COIs are likely to have a much larger effect on improving advice quality and protecting consumers than policies such as disclosure or mandatory second options (Sah, 2018).

The effects may also differ in situations in which advisees have little or no opportunity to choose a different advisor. If the time and financial cost of seeking another advisor are prohibitive, advisees may engage in motivated reasoning to increase their trust in their advisor, thereby muting the disclosure penalty. In this vein, prior research has shown that the greater the monetary cost to seek a second opinion, the more likely advisees are to report trusting their primary advisor (Sah & Loewenstein, 2015). Moreover, some professionals or occupations are trusted more than others. Physicians, for example, are trusted more than financial advisors (Gallup Poll, 2015). A different baseline for trust can lead to advisees' rationalizing the presence of their advisor's COI, again muting the disclosure penalty (Rose et al., 2019).

A conceivable, albeit less plausible, situation that we did not empirically examine in this article is the case in which (similar to our Experiments 1 to 3) the best option for the client is aligned with the advisor's self-interest, but this time the advisor sacrifices her self-interest to recommend an inferior option to the client. If signaling trustworthiness supersedes all other objectives, conceivably an advisor may benefit from such an approach-recommending an option that is knowingly inferior but visibly demonstrates self-sacrifice, thereby sending the altruistic signal. If the long-term benefit of the trust gain is greater than the short-term benefit from the self-interest and any benefits from giving high-quality advice, then this approach may benefit the advisor at the advisees' expense. However, the disclosure penalty will still be present in this situation (the differing effects on trust would be like Situation 3 shown in Figure 1), mitigating any increase in trust and making it unlikely that this could be an optimal strategy for the advisor. Such strategic behavior might be consistent with Cialdini's classic work on "baiting," in which, for example, a waiter points a customer to the less expensive appetizer or wine (self-sacrificing advice), so as to be perceived as doing a favor for the customer, but then goes on to recommend more expensive main courses or desserts (Cialdini, 2001). Future research could investigate these possibilities.

Finally, our article focuses on advisees rather than advisors. It is possible that advisors may behave differently if they have to disclose a COI, either by eliminating the COI if they are able to do so (Sah & Loewenstein, 2014), or increasing or decreasing the bias in their advice (Sah, 2019). Reputational concerns may also encourage advisors to reduce bias in their advice and repeated interactions may model these concerns (see Koch & Schmidt, 2010 and Experiment 4, Sah & Loewenstein, 2015). However, regardless of how advisors behave and the quality of their advice, the findings in this article demonstrate that advisors who disclose a COI face a disclosure penalty, even if their advice is unbiased and their interests are not actually in conflict.

Conclusion

Across a range of professions such as medicine, finance, and law, disclosure policies seek to inform and protect consumers from advice that may have been compromised by an advisor's conflict of interest. However, disclosing conflicts of interest has complex effects on both advisors and advisees. The findings in this article give us an improved understanding of the trust dynamics involved when advisors disclose conflicts of interest along with high-quality advice. Disclosure leads to an increased desire to change advisors even when advice quality is high: an effect we call the disclosure penalty. If advisors sacrifice their self-interests, disclosure produces a competing positive signal: an effect we call the altruistic signal. The net effect on perceptions of the advisor's trustworthiness depends on which effect-the disclosure penalty or the altruistic signal-is stronger. The disclosure penalty highlights a substantial hazard which is borne not only by biased advisors but also by honest unbiased advisors and their advisees. Even when advice is in the advisees' best interest, conflict of interest disclosure can damage the advisor-advisee relationship, lead advisees to change advisors, and may drive advisees away from valuable advice. Laws that eliminate conflicts of interest may provide greater benefit to advisees than those that merely require conflicts of interest to be disclosed.

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