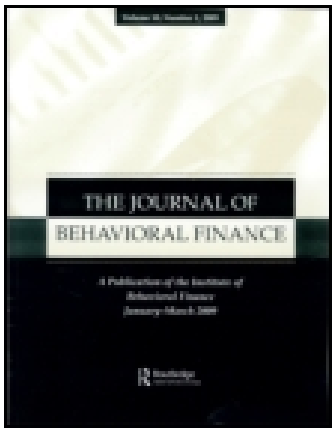

Journal of Behavioral Finance
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/hbhf20

Detecting Lies in the Financial Industry: A Survey of Investment Professionals' Beliefs

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Published online: 27 Jul 2015.

THE JOURNAL OF BEHAVIORAL FINANCE, 16: 173–182, 2015

ISSN: 1542-7560 / 1542-7579 online
DOI: 10.1080/15427560.2015.1034862

Routledge
Taylor & Francis Group

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Research suggests that interpersonal deception is a common phenomenon in many settings. However, to date no research has examined lying and lie detection in the financial industry. This paper presents an empirical examination of investment professionals' beliefs about deception. We obtained survey data from 607 CFA Institute charter holders across the world. Three aspects of deception were included in the survey. First, respondents' beliefs about the behavioral characteristics of lying were examined. Second, perceptions of the prevalence of lies in professional and everyday life were mapped. Third, respondents were asked to estimate their ability to distinguish between lies and truths. The results showed that respondents subscribed to common misconceptions about deceptive behavior, in particular the beliefs that liars are gaze aversive and fidgety. Respondents believed that lying occurs on a daily basis, and that their accuracy in detecting lies exceeds 65%. Previous research suggests that this estimate may be overconfident. Implications of these results and directions for future research on deception in the financial industry are discussed.

Keywords: Investment professionals, Interpersonal deception, Lie detection

Lying is a ubiquitous phenomenon in everyday life. Despite the common view that lying is immoral (e.g., Backbier, Hoogstraten, & Meerum Terwogt-Kouwenhoven [1997], Bok [1978]), social psychological research shows that people lie frequently for a variety of reasons. For example, diary studies in which people are asked to report on the lies they tell during their everyday life interactions show that people lie daily, sometimes for selfish reasons (e.g., to create positive impressions of themselves, to obtain desired goals and to evade punishment for wrongdoing) and sometimes for pro-social reasons (e.g., to protect others' feelings from being hurt; see DePaulo and Bell [1996], DePaulo, Kashy, Kirkendol, Wyer, and Epstein [1996], Kashy and DePaulo [1996]). In other words, lying is not an anomalous behavior but rather an integral part of social life.

In some contexts, correct assessments of veracity are critical. Perhaps most prominently, in various stages of the legal process, it is paramount to accurately distinguish between true and false statements (Granhag and Strömwall [2004]). Because of the importance of deception judgments, there is a considerable body of empirical research on interpersonal deception and its detection. This research has focused on three primary questions. First, how do liars behave? That is, are there discernable differences, so-called *cues to deception*, in people's demeanor and speech when they lie compared to when they tell the truth? Second, how good are people at distinguishing between true and false accounts? That is, with what degree of accuracy do they classify statements as truthful or deceptive? Third, are there

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ways in which people's accuracy in detecting deception can be improved? The latter question is of particular importance for practical settings in which correct judgments of trusthworthiness are key (for a recent overview of research on this topic, see Granhag and Vrij [in press]).

Deception and its detection has been approached from a variety of perspectives. As mentioned above, social psychologists have examined deception as an interpersonal phenomenon with the aim of understanding its role in regulating social life (e.g., DePaulo and Kashy [1998]). Evolutionary psychologists have also studied the adaptive significance of deception and its detection (Bond and Robinson [1988], von Hippel and Trivers [2011]). In the domain of applied psychology, forensic psychologists have extensively mapped deception in legal contexts (Vrij, 2008). In national security contexts, credibility judgments at airports and border checkpoints have attracted attention, partly as a consequence of the terrorist attacks on September 11, 2001 (Weinberger [2010]). However, some domains in which lies may play an important role have received little or no empirical attention. One such domain is the financial industry, where performance-based compensation plans for business executives and investment professionals, coupled with accounting rules reliant upon the subjective judgments of those same professionals, create large monetary incentives and potential conflicts of interest for manipulating information in order to capture a share of the trillions of dollars of both global daily financial market transactions and/or corporate profits. Examples of such behavior are myriad and know no geographic bounds, and they include Barings Bank, WorldCom, Enron, Tyco International, Fannie Mae, Olympus, MF Global, and the London Interbank Offered Rates (LIBOR) manipulation scandal. In each case, corporate executives or financial professionals received large monetary rewards (millions of dollars) for presenting favorable financial performance. These same executives were also in the position of self-reporting as to the quality of that performance. Compliance officers, risk managers, financial analysts, portfolio managers, and other investors reliant upon business executive and financial professionals statements are therefore very interested in evaluating and vulnerable to the veracity of information they receive from business executives and financial professionals.

In this paper, we describe what is, to our knowledge, the first empirical study on lying and lie detection in the financial industry. We conducted a survey of a broad sample of investment professionals with the aim of capturing their understanding of the dynamics of deception. Before describing the present study in further detail, we will review the major findings of deception research. This overview will provide a context for the empirical study we carried out.

MAJOR FINDINGS IN DECEPTION DETECTION RESEARCH

As we described above, a primary question of deception research is whether there are behavioral signs of deception. A large number of studies have examined such cues to deception. In the typical experimental approach, participants in laboratory studies are induced to provide either truthful or deliberately false statements about their beliefs, attitudes, opinions, or actions. The statements given by these participants are videotaped and analyzed in order to compare the behavior of truth tellers to that of liars. In the field approach, real-life statements for which ground truth (i.e., objective veracity) can be established are analyzed (see Mann, Vrij, and Bull [2002]). In 2003, DePaulo and colleagues compiled a meta-analysis of 120 studies of cues to deception, analyzing a total of 158 behaviors. This analysis showed that few behaviors were related to deception, and that those behaviors that were related to deception were only weakly linked with deception. For example, the study showed that liars are not more prone to avert their gaze, to fidget or to shift their posture. However, liars appear somewhat more ambivalent and tense, their voices are somewhat more high-pitched. They also talk for a shorter time and include fewer details compared to truth tellers. In sum, the accumulated literature shows that cues to deception are scarce, and that there is no Pinocchio's nose—no single behavior that systematically indicates deception.

How accurate are people at detecting lies? A recent meta-analysis synthesized several decades of research on human lie detection ability (Bond and DePaulo [2006]). This study included 206 studies in which nearly 25,000 judgments of deception were made. The average accuracy rate was 54%, hardly an impressive performance given that the accuracy rate obtained by simply guessing is 50%. Contrary to common beliefs, there is no evidence of individual differences in lie detection ability; another meta-analysis of 247 samples showed that individual differences in judgment accuracy are minute (Bond and DePaulo [2008]). In fact, people differ no more in their ability to judge deception than could be expected by chance. Further, there is no evidence that some groups are better lie-catchers than others. For example, although law enforcement officers, who routinely make judgments of deception and who may receive specialized training in how to establish veracity (e.g., Inbau, Reid, Buckley, and Jayne [2001]) place a great degree of faith in their own ability to distinguish between truths and lies (Kassin et al. [2007]), the empirical literature shows that they obtain the same near-chance accuracy as lay people (e.g., Bond and DePaulo [2006], Hartwig, Granhag, Strömwall, and Vrij [2004], Meissner and Kassin [2002], Vrij and Mann [2001]). In summary, that lie detection is a difficult enterprise is a robust finding that holds true across a variety of groups.

BELIEFS ABOUT DECEPTIVE BEHAVIOR

Why are lie judgments so prone to error? In the literature, two primary explanations have been proposed (Vrij [2008]; for a meta-analytic test of these two explanations, see Hartwig and Bond [2011]). First, it has been suggested that the weak behavioral differences between liars and truth tellers are responsible for poor lie detection accuracy. That is, because liars and truth tellers differ only minutely, if at all, lie-catchers do not have diagnostic information to rely on when making judgments about veracity. Second, it has been suggested that incorrect beliefs about the characteristics of deceptive behavior play a role. That is, people may hold stereotypical and faulty beliefs about how liars behave, which cause them to rely on incorrect beliefs when attempting to detect deception. In order to examine this idea, several studies have mapped *subjective cues to deception*, that is, the behaviors that people believe to be signs of deceit (Strömwall, Granhag, and Hartwig [2004]). The most common approach to examine subjective cues to deception is the survey approach, in which people are asked to self-report on their beliefs about deceptive behavior (Akehurst, Köhnken, Vrij, and Bull [1996], Taylor and Hick [2007], Strömwall and Granhag [2003], Vrij and Semin [1996]; for a different approach, see Zuckerman, Koestner, and Driver [1981]). Typically, these surveys provide participants with a list of verbal and nonverbal behaviors and ask them how, if at all, these behaviors are related to deception (e.g., Colwell, Miller, Miller, and Lyons [2006], Lakhani and Taylor [2003]). Surveys of this kind have been conducted with lay people and with presumed lie experts (e.g., police officers, customs officers, prison guards, Migration Board officers; for an overview of this research, see Strömwall, Granhag, and Hartwig [2004]).

The results from surveys on beliefs about deception are highly consistent. The most frequently reported belief is that gaze aversion (i.e., not looking the conversation partner in the eyes) indicates lying. In the most comprehensive study to date, researchers surveyed subjective cues to deception in 58 countries. In 51 of these countries, the belief that liars look away was the most commonly reported (Global Deception Research Team [2006]). Across these studies, people also report that frequent body movements, fidgeting, and posture shifts are associated with deceit. Based on these results, it seems that people expect liars to experience discomfort and nervousness, and that these feelings will be reflected in behavior (Vrij and Semin [1996]). The notion that liars will act nervously is not supported by research on actual cues to deception (DePaulo et al. [2003]). In general, there is agreement in the literature that people have misconceptions about the characteristics of deceptive behavior, and that such misconceptions are at least partly responsible for people's poor lie detection ability (Vrij [2008], but see Hartwig and Bond [2011]).

DECEPTION AND ITS DETECTION IN THE FINANCIAL INDUSTRY

All of finance is based on a *fundamental transaction*: those with an excess of money, yet a deficit of investment ideas, attempt to exchange equally with those who have a deficit of money, yet a surplus of investment ideas. Because money is fungible it is the preferred asset over investment ideas. Therefore, to provide proper compensation for the loss of liquidity/fungibility an investment idea must result in an economic return, including compensation for risks borne, for the providers of money to share in an equal exchange with idea providers. That is, the result of the execution of the investment idea must result in getting more economic benefit than before from the same amount of money, or getting the same benefit as before but from a smaller amount of money. When this is the case, a rate of return on the investment is earned by both parties and the transaction can finally be said to be an equal exchange.

Because financial transactions are reliant on the quality of the investment ideas, these exchanges are particularly dependent on quality information being given to the providers of money. Put another way, the investment ideas must be a convincing statement about a possible future reward; otherwise money providers have no inducement to surrender their capital. Furthermore, the providers of investment ideas only receive monies at the outset if the information they provide is convincing to the money providers. Importantly, even if the investment idea is poor and results in an uneconomic return, the providers of the investment idea still receive money at the outset. So who controls the information controls the nature and quality of the transaction. Furthermore, given that the dollar amounts of these transactions are frequently in the billions of dollars, as are the commensurate returns, there is tremendous economic incentive to "sell" the investment idea. Unfortunately, sometimes the selling of the idea includes not just positive bias or a stretching of the truth but also outright deception. In short, there are large rewards for successful deception and much reason for capital providers to be able to detect any deception.

THE CURRENT STUDY

As we have argued above, it is reasonable to assume that deliberate misrepresentation and deception occur with some frequency in the financial industry. However, research on deception in this domain is minimal or even nonexistent. Our general goal was to begin to remedy this by conducting an empirical study of lying and lie detection in finance. More specifically, our goal is to examine investment professionals' beliefs about deceptive behavior. To tap their beliefs, we asked them to indicate how a number of overt behaviors are related to deception (if at all). We

also asked them about the psychological processes at play during deception. In order to further map their reasoning and beliefs about lying, we asked them to estimate the frequency of lies in everyday life and professional settings. Furthermore, we asked them to estimate their own lie detection accuracy. Finally, we asked them to provide an assessment of the importance of lie detection skills in their profession.

As no previous study has examined lying and lie detection in the financial realm, there is no direct empirical basis for predictions. However, given the consistency of previous surveys about beliefs about deception, we expect the following patterns: First, we predict that respondents will endorse common stereotypes about deceptive behavior. That is, we expect them to endorse the view that liars are gaze aversive and fidgety, and that they experience and display general signs of nervousness. Second, in line with previous research, we expect that participants will believe that nonverbal behavior is more diagnostic of deception than verbal behavior. Third, we expect that participants will rate their lie detection ability as significantly higher than the near-chance accuracy found in prior research.

METHOD

Participants

Our sample comprised members of CFA Institute, a global association of investment professionals numbering more than 110,000, which promotes rigorous standards of knowledge and ethics for the investment profession. Of the 25,000 CFA Institute members who were sent the survey by email, 607 responded, representing a 2.4% response rate. Participants were geographically diverse, residing in 76 countries, including Australia ($N = 21$), Canada ($N = 44$), China ($N = 14$), Hong Kong ($N = 17$), Germany ($N = 23$), India ($N = 17$), Japan ($N = 10$), Singapore ($N = 26$), Switzerland ($N = 26$), the United Kingdom ($N = 56$), and the United States ($N = 176$). Most of the sample ($N = 418$) reported residing in Europe or North America.

Most participants were CFA[1] charter holders ($N = 537$; 89%), male ($N = 496$; 82%), and employed full-time ($N = 531$; 88%). All adult age ranges were represented, from 21–25 ($N = 2$), to over 65 ($N = 5$); the majority of participants were between 31 and 45 years old ($N = 347$; 57%).

Forty-two different occupations were represented in the sample, with the most common being portfolio manager ($N = 116$; 19%), research analyst ($N = 67$; 11%), consultant ($N = 36$; 6%), and financial advisor ($N = 31$; 5%). Institutional primary asset bases were most common ($N = 170$; 28%), participants worked primarily on the "buy side"[2] of the investment business ($N = 268$; 44%), and the modal primary investment practice was in equities ($N = 192$; 31%).

The modal participant was a 31–35-year-old male charter holder with 11–15 years of experience, working full-time in the United States as a portfolio manager on the buy side.

Procedure

Participants received an invitation to participate in the survey by email. They were informed that the survey would ask about their thoughts on lying and lie detection in an investment context. After providing informed consent, participants were given the questionnaire to complete and submit online.

Excluding the outliers who took more than a day (representing a browser left open and abandoned), participants completed the questionnaire in less than 20 minutes on average ($M = 18.5$, $SD = 47.6$).

Survey Instrument

Participants were first asked to judge to what extent 11 characteristics were more typical of lying or truth telling. Each of these characteristics was presented in a 7-point Likert-scale item, and participants were asked to indicate whether they agreed that it was more typical of deception or of truth. For example, "deceptive statements are *less* detailed than truthful statements" stood in opposition to "deceptive statements are *more* detailed than truthful statements. Along with statement detail, the remaining 10 items concerned eye contact, movement, vocal pitch, fidgeting, cooperation, statement plausibility, nonverbal behavior, anxiety, nervousness, and mental effort (see Appendix for a full descriptions of these items).

Participants were then asked how often the average person tells lies, and how frequently they think others tell lies to them in their professional life. For both, to minimize potential anchoring effects, participants were permitted to select a frequency to use in their response: number of lies per day, week, or month.

Participants were asked to report the percentage of truth they believed that they receive in four finance-specific contexts: one-on-one meetings with company executives, phone conversations with investor relations professionals (or other executives), quarterly earnings calls, and other conferences calls (e.g., mergers and acquisitions, succession, and other material events). These contexts differ in several important ways. For example, they differ in intimacy and the degree to which they allow for interaction: While one-to-one meetings allow the different parties to pose questions, quarterly earning calls typically do not. There is also a difference in the type of information available in these contexts. Conference calls offer only verbal and vocal cues, while one-on-one meetings allow the opportunity to attend to demeanor and body language cues. Moreover, the contexts differ in financial stakes, with the

stakes being highest in the quarterly earnings and other conference calls due to the widespread dissemination of actionable information to the investing profession, and lowest in a phone call with an investor relations professional where only a few individuals may be involved.

Participants were also asked to rate their own lie detection accuracy in both their everyday and professional lives. For both, participants were given the option to respond in increments of 10%, starting with "50%, just guessing," up to "100%, always accurate." Finally, participants rated their own interest in learning techniques for lie detection in their professional life, and rated how important they believed lie detection skills were to financial professionals.

RESULTS

Beliefs About Deceptive Behavior

Participants were asked to classify several characteristics as more indicative of liars or truth-tellers on 1–7 Likert scales, with higher numbers (>4) meaning the characteristic is typical of lying rather than truth telling. The characteristics are reported in decreasing order of effect size, and for each, a one-sample *t*-test comparing the mean to the neutral point on the scale (4). See Table 1 for means and effect sizes.

Participants believed it takes more mental effort to lie than tell the truth ($M = 5.84$, $SD = 1.33$, 95% CI [5.73, 5.94]), $t(589) = 33.441$, $p < .001$, $d = 1.38$. Liars were believed to experience more anxiety than truth-tellers ($M = 5.24$, $SD = 1.38$, 95% CI [5.13, 5.35]), $t(584) = 21.707$, $p < .001$, $d = 0.90$. Participants believed liars to be more nervous than truth-tellers ($M = 5.11$, $SD = 1.27$, 95% CI [5.01, 5.22]), $t(583) = 21.176$, $p < .001$, $d = 0.88$. Liars were seen as making less eye contact than truth-tellers ($M = 2.78$, 1.40, 95% CI [2.67, 2.89]), $t(590) = -21.10$, $p < .001$, $d = -0.87$. Liars were believed to fidget more than truth-tellers ($M = 5.02$, $SD = 1.30$, 95% CI [4.90, 5.12]), $t(583) = 18.918$, $p < .001$, $d = 0.78$. Nonverbal behavior was seen as more reliable than verbal content when judging truthfulness ($M = 2.95$, $SD = 1.50$, 95% CI [2.82, 3.07]), $t(588) = 17.089$, $p < .001$, $d = -0.70$. Participants thought that liars move more than truth-tellers ($M = 4.95$, $SD = 1.38$, 95% CI [4.84, 5.05]), $t(583) = 16.582$, $p < .001$, $d = 0.69$. Deceptive statements were seen as less plausible than truthful ones ($M = 3.46$, $SD = 1.34$, 95% CI [3.35, 3.57]), $t(587) = -9.759$, $p < .001$, $d = -0.40$. Liars were believed to be slightly less cooperative than truth-tellers ($M = 3.43$, $SD = 1.71$, 95% CI [3.29, 3.57]), $t(584) = -8.044$, $p < .001$, $d = -0.33$. Participants believed high-pitched voices to be slightly more indicative of deception than truth-telling ($M = 4.35$, $SD = 1.30$, 95% CI [4.24, 4.45]), $t(584) = 6.544$, $p < .001$, $d = 0.27$. Finally, participants believed that liars provide slightly fewer details than truth-tellers ($M = 3.70$, $SD = 1.80$, 95% CI [3.56, 3.85]), $t(590) = -4.019$, $p < .001$, $d = -0.17$.

TABLE 1
Beliefs About Cues to Deception

Characteristic	M	SD	Effect Size (Cohen's *d*)
Mental effort	5.84	1.33	1.38
Anxiety	5.24	1.38	0.90
Nervousness	5.11	1.27	0.88
Eye contact	2.78	1.40	−0.87
Fidgeting	5.02	1.30	0.78
Nonverbal vs verbal	2.95	1.50	−0.70
Body movements	4.95	1.38	0.69
Plausibility	3.46	1.34	−0.40
Cooperation	3.43	1.71	−0.33
Pitch of voice	4.35	1.30	0.27
Details	3.70	1.80	−0.17

Note: Values over 4 indicate the characteristic is associated with lying more than truth telling.

Frequency of Lies (Told and Received)

Participants reported that the average person, in everyday life, tells just over two lies a day ($M = 2.14$, $SD = 4.47$, 95% CI [1.81, 2.53]), and that in their own professional lives, they are lied to roughly 1.5 times per day ($M = 1.62$, $SD = 3.12$, 95% CI [1.38, 1.89]). Participants, then, expect significantly less deception directed at them in their professional lives (by about one-half of a lie per day) than the average person generates, $t(556) = 3.22$, $p = .003$, $M_{diff} = 0.52$, 95% CI [0.23,0.84], $d = 0.14$.

TRUTH PERCENTAGE IN FOUR CONTEXTS

Participants perceived receiving significantly different amounts of truth among the four different contexts provided (one-on-one meetings, phone conversations, quarterly earnings calls, or other conference calls), $F(3,1476) = 24.172$, $p < .001$, $\eta^2_p = .047$. See Table 2 for means. An examination of the six pairwise comparisons of these four contexts found that participants expected the most truth in one-on-one meetings ($M = 68.9$, $SD = 19.6$), which was significantly greater than phone conversations with investor relations professionals ($M = 64.4$, $SD = 20.1$), $M_{diff} = 4.5$, $p <$

TABLE 2
Percentage of Truths Received

Context	M	SD
one-on-one meetings	68.9 %	19.6
quarterly earnings calls	67.1 %	19.7
phone conversations	64.6 %	20.1
other conference calls	64.0 %	20.3

.001, 95% CI [3.3,5.7], $d = 0.33$, significantly larger than quarterly earnings calls ($M = 67.1$, $SD = 19.7$), $M_{diff} = 1.8$, $p = .015$, 95% CI [0.4,3.3], $d = 0.11$, and significantly more than was perceived in other types of conference calls ($M = 64.0$, $SD = 20.3$), $M_{diff} = 4.9$, $p < .001$, 95% CI [3.4,6.4], $d = 0.29$. The context seen as the second most truthful, quarterly earnings calls ($M = 67.1$), was seen as having a significantly higher truth content than both investor relations phone calls, $M_{diff} = 2.7$, $p < .001$, 95% CI [1.5,3.9], $d = 0.20$, and other conference call types, $M_{diff} = 3.1$, $p < .001$, 95% CI [1.9,4.3], $d = 0.23$. The two contexts perceived to contain the least truth, phone conversations with investor relation professionals and other types of conference calls, did not significantly differ in their perceived truth content, $M_{diff} = 0.4$, $p = .578$, 95% CI [−0.9,1.7], $d = 0.03$.

Self-reported Lie Detection Accuracy

When asked to report how accurate their own lie detection was, participants saw themselves as 68% accurate in their professional life ($M = 68.2$, $SD = 11.6$); this was slightly, but significantly, greater than the 66% accuracy they believed themselves to obtain in their everyday lives ($M = 66.0$, $SD = 12.2$), $t(561) = 5.34$, $p < .001$, $M_{diff} = 2.2$, 95% CI [1.4,3.0], $d = 0.23$. When compared with the meta-analytic average of 54% accuracy (Bond and DePaulo [2006]), participants saw themselves as significantly more accurate both in their professional life, $t(561) = 29.12$, $p < .001$, $M_{diff} = 14.2$, $d = 1.23$, and their everyday lives, $t(561) = 23.34$, $p < .001$, $M_{diff} = 12.0$, $d = 0.98$. When compared to the accuracy rate obtained by chance (50%), participants saw themselves as significantly more accurate both in their professional life, $t(561) = 37.31$, $p < .001$, $M_{diff} = 18.2$, $d = 1.57$, and their everyday lives, $t(561) = 31.12$, $p < .001$, $M_{diff} = 16.0$, $d = 1.31$

Importance of Deception Detection Skills

Participants rated the importance of learning how to detect and cope with deception in the financial industry to be high ($M = 5.8$, $SD = 1.4$)—significantly higher than the neutral point (4), $t(565) = 30.22$, $p < .001$, $d = 1.27$. It follows, then, that their interest in learning lie-detection techniques for their professional life is also significantly higher than neutral ($M = 5.6$, $SD = 1.5$), $t(568) = 25.40$, $p < .001$, $d = 1.06$.

DISCUSSION

This study is to our knowledge the first attempt to empirically explore deception and its detection in the financial industry. By conducting a survey of a large sample of investment professionals, we sought to map their beliefs about deception, with a particular focus on their beliefs about how liars behave.

Why might investment professionals' beliefs be of interest? There are several reasons. Previously we argued that lying and lie detection may play a role in the financial industry. Therefore, gaining a sense of investment professionals' reasoning about lying is an important first step to understanding interpersonal deception in this context. Second, to the extent that beliefs influence judgments and behavior, examining the realism in investment professionals' beliefs about lying may inform us of possible pitfalls in their decision making. If it is the case, as we predict, that these professionals have faulty beliefs about deceptive behavior, it is plausible that they may commit systematic and costly errors when attempting to make judgments of trustworthiness. Identifying shortcomings and biases in reasoning has merits from a basic psychological perspective (e.g., Kahneman, Slovic, and Tversky [1982]). From a practical perspective, knowledge about such biases may be useful for improving the quality of reasoning and judgments (Kahneman and Tversky [1982]).

Investment Professionals' Beliefs versus Reality

In our survey, we included questions about three aspects of lies. First, we tapped respondents' beliefs about the behavioral characteristics of lying. Second, we inquired about perceptions of the prevalence of lies in professional and everyday life. Third, we asked respondents to estimate their own ability to distinguish between lies and truths. We will discuss our results for each of these aspects in turn below.

Beliefs About Deceptive Behavior

We included questions about the psychological processes at play during lying. In response to these questions, participants expressed the beliefs that lying is more mentally demanding than truth telling, and that liars experience more anxiety and nervousness. In response to our questions about overt behavioral differences between liars and truth tellers, the most pronounced beliefs were that liars look away and that they fidget. In line with the latter, participants also expressed the belief that liars move more than truth tellers. In terms of verbal differences between lies and truths, participants indicated that lies are less plausible and less detailed than true statements. We also asked whether verbal or nonverbal behavior is more helpful for distinguishing between liars and truth tellers. In response to this question, investment professionals favored nonverbal behavior.

In general, the beliefs expressed by the participants in our sample match those obtained in other surveys about subjective cues to deception. For example, the literature review by Vrij [2008] suggests that gaze aversion and increased body movements are among the most widely

reported subjective cues among lay people in the Western world. In line with this, the global survey on subjective cues (Global Deception Research Team [2006]) suggests that the belief in liars as gaze aversive and prone to fidgety behavior occurs all over the world. Moreover, the literature suggest that presumed lie experts such as law enforcement officers also endorse this view (Strömwall et al. [2004])[3]. In sum, as we expected, investment professionals' beliefs about lying are in line with a widespread stereotype held by a variety of groups across the world.

How realistic are investment professionals' beliefs about deceptive behavior? Comparing the beliefs expressed by our respondents to the literature on actual cues to deception suggests discrepancies between the two sets of cues. For example, gaze aversion is not a reliable indicator of deception—the meta-analysis on cues to deception shows that the relationship is practically zero (DePaulo et al. [2003], but see Mann et al. [2012] for an interesting finding on deliberate eye contact). As for body movements and fidgeting, in contrast to the beliefs of our respondents, liars do not fidget more than truth tellers. If anything, liars have a slight tendency to move less—they display somewhat fewer foot movements, and they move their hands and fingers less frequently than truth tellers (Vrij, 2008). Regarding verbal indicators, our respondents had on average less strong beliefs (as measured by the effect sizes presented in Table 1). They expressed the view that deceptive statements are less plausible, and that their statements are less detailed—beliefs that are in line with the patterns emerging from research on cues to deception. To conclude, while our respondents expressed some realistic beliefs about verbal behavior, their most strongly expressed beliefs reflected the common misconception that liars feel and act nervously and anxiously.

The Psychology of Folk Beliefs

Why would people expect liars to experience nervousness and discomfort? To explain such views about deception, Bond and DePaulo [2006] suggested that people hold a *prescriptive* stereotype about the behavior of liars. That is, when asked to describe cues to deception, people might be expressing their view on how liars *should* feel and behave. Since people likely experience moral indignation at the thought of being lied to, they may project feelings of guilt and discomfort onto the liar, which influences their perception about how liars will behave. For a further discussion on the role of lay morality in lying and lie detection, see Bond and DePaulo [2006].

As discussed above, the respondents' strongest beliefs were about links between body language and lying. Further, when asked directly whether nonverbal or verbal behavior is more reliable, respondents expressed a preference for nonverbal behavior. Here too, investment professionals' reasoning is in line with general folk beliefs. The *demeanor assumption*—the belief that a person's overt behavior yields insight into his or her state of mind—has been widely observed in the domain of social perception (Pronin [2008]). For example, people tend to believe that they can gather diagnostic information from brief samples of behavior (Ross and Nisbett [1991]), and they subscribe to such beliefs with unwarranted degrees of confidence (Dunning, Griffin, Milojkovic, and Ross [1990]). Interestingly, people believe that others are easier to read than themselves, a phenomenon labelled *the illusion of asymmetrical insight* (Pronin, Kruger, Savitsky, and Ross [2001]).

Our results thus suggest that investment professionals' reasoning about lying is in line with naïve psychological beliefs. Of course, this may not be surprising—these professionals are experts in the domain of finance, not in psychology. Still, the fact that investment professionals have misconceptions about deceptive behavior may have negative consequences in their work life: If their beliefs about lying are largely misconceptions, it may be expected that these professionals periodically commit mistakes when attempting to establish veracity. From a signal detection perspective, they may commit two types of judgment errors: First, they may commit false positive errors by mistakenly distrusting a statement that is actually true. Here a financial professional may avoid purchasing an interest in an investment security because she or he thinks that a business professional has acted deceptively. An example would be an analyst disbelieving a business's forecast of its future sales/revenue growth because the analyst feels the business executive has acted deceptively, yet the business is able to perform as forecasted. Here the analyst would likely have missed purchasing an investment that is more likely to appreciate in value. Second, an investment professional might commit false negative errors, by mistakenly trusting a statement that is actually a lie. Historically, there are many examples of investment professionals having been deceived by deceptive statements from business executives (e.g., Enron, MF Global). Given the possible negative consequences of incorrect veracity judgments, it is encouraging to note that our respondents expressed a high level of motivation to learn more about how to detect deception in their professional life.

Beliefs About Lie Frequency and Lie Detection Accuracy

In response to our question about the frequency of lies in everyday life, respondents estimated that people lie on average twice a day. This estimate is close to the figures obtained in studies mapping lying in everyday life. For example, DePaulo et al. [2006] found that undergraduate students reported telling two lies a day, while community members reported lying once a day. Of course, the validity of self-reports about the frequency of lies is in some doubt, given that people may not be willing to disclose the true

frequency with which they lie. Still, based on the available data it seems fair to state that our respondents were largely realistic about the frequency of lies in social life. Broadly, they agreed with the general research finding that lying is part of everyday life.

Interestingly, when we asked participants to estimate how often they are lied to in their professional life, they indicated a somewhat lower number (around 1.5 lies) than their estimate of the frequency of lies in everyday life. Perhaps participants believe that the financial industry is more honest than everyday life. Also, since the question concerned the number of lies they themselves were the target of, it could be that our respondents believe they are lied to less frequently than the average person in their profession (possibly a form of self-protecting bias, see Sedikides and Alicke [2012]). Since there is no estimate of the frequency of interpersonal deception in the financial industry, we cannot gauge the realism of our participants' beliefs in this respect. It is a question for future research to examine whether lies are, in fact, less prevalent in this realm than in other realms of social life.

We also asked respondents about the frequency of lies in different professional contexts. Although there were some differences between participants' estimates of the proportion of truths in these contexts, these differences were practically speaking small (for all contexts, participants expected a proportion of truths around or slightly above 65%). The fact that respondents expected fairly similar degrees of truth telling in these contexts is interesting, given that the settings are different in several respects (see our discussion above). Of course, we do not know the actual base rate of truths and lies in these different contexts. We believe it would be fruitful for future research to further examine investment professionals' perceptions in these settings, as they differ as to the monetary stakes involved as well as the degree of intimacy between information disseminators (e.g., company executives) and information assessors (e.g.. investment analysts).

When asked how accurate they are at detecting lies, participants reported that they were, on average, 66% correct in everyday life judgments and somewhat higher (68%) in their professional life. This is substantially higher than chance and also far higher than the hit rates emerging from syntheses of the available data on lie judgment accuracy (e.g., 54% in Bond and DePaulo [2006]). As we did not measure our respondents' objective ability to detect lies, we cannot conclude with absolute certainty that their self-estimate is overconfident. Still, we believe there are several reasons to doubt the realism of their estimates. First, that people obtain hit rates around the level of chance is one of the most stable findings in social psychology. To date, there is no evidence that some people are systematically more accurate than others in detecting lies (Bond and DePaulo [2008], Leach et al. [2009]). Moreover, no single group has been identified as being more proficient at detecting lies, despite empirical examination of a variety of groups (Vrij, 2008). In other words, if investment professionals obtained lie detection accuracy rates between 65–70%, it would be a highly anomalous finding. Second, research on meta-cognitive realism shows that people frequently display overconfidence in their judgments across a variety of domains (Allwood and Granhag [1999], Lichtenstein and Fischhoff [1977], Moore and Healy [2008]). Third, overconfidence in judgments of deception has been observed in meta-analytic reviews of the literature (DePaulo et al. [1997]).

Limitations and Future Directions

In this study, we found that investment professionals express stereotypical beliefs about the characteristics of deceptive behavior. Many of these beliefs are unsupported by data on actual cues to deception. We further found that investment professionals rate their ability to judge deception as far higher than the hit rates obtained in experimental research on human lie detection ability. In sum, our results suggest that there may be room for improvement in investment professionals' knowledge about interpersonal deception.

Of course, we have to note some limitations to our study, a few of which we have foreshadowed in our discussion. In this study, we relied on self-reports (as all surveys do). The degree to which self-reports about mental processes are valid is a long-standing issue in psychological research. For example, in a classic paper questioning the validity of self-reports, Nisbett and Wilson [1977] argued that people may have little insight into the processes underlying their social judgments, evaluations, and impressions (see also Neisser [1967], but see Eichenbaum and Bodkin [2000] for a contrasting perspective). Indeed, a recent wave of social cognitive research has shown that a significant amount of processing of social stimuli occur automatically and without conscious awareness (Bargh and Chartrand [1999]). Hence, some caution in interpreting our results may be prudent. It will be an important step for future research to examine the actual deception judgments made by investment professionals. Two particular questions ought to be examined. First, what behaviors actually coincide with judgments of deception? That is, beyond self-reported cues to deception, what behaviors actually trigger lie judgments in these professionals (for an analytic approach to examine this question, see Hartwig and Bond [2011])? Second, with what accuracy do they distinguish between true and false statements?

With regard to our sample, our respondents were CFA charter holders from a variety of countries. It is possible that the results of this study do not generalize to financial analysts who are non-CFA charter holders. Future research employing a different sample could address this potential concern. Further, in this study we did not conduct analyses of how beliefs about deception may differ as a function of

professional experience or training. It might be fruitful to compare more and less experienced investment professionals, in order to examine whether their beliefs change over time or as a function of specific training.

While we acknowledge the methodological limitations of our approach, we believe that our survey constitutes an important first step in mapping lying and its detection in the financial industry. It is our hope that our study can inspire others to empirically examine the dynamics of interpersonal deception in this domain.

ACKNOWLEDGMENTS

We are thankful to the CFA Institute for their assistance with data collection. We are particularly indebted to Melissa Looney and Prashant Goswami for their help with the distribution of the survey.

NOTES

1. CFA is a globally recognized, graduate level curriculum that provides practical investment analysis and portfolio management skills with a special emphasis on high ethical and professional standards of conduct.
2. "Buy side" refers to investment professionals whose primary responsibility is to act as a fiduciary for retail investors conducting financial analysis and making investment recommendations based on that analysis. Thus, they are frequently in the position of evaluating the truth of statements from others.
3. To date, the only group that has been found to deviate from the widespread stereotype of liars as gaze aversive and fidgety is criminals. For a discussion of these results and the possible effects of environment on decision making, see Granhag, Andersson, Strömwall, and Hartwig [2004]).

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APPENDIX:
Characteristics of Lying/Truth Telling

1. Deceptive statements are *less* detailed than truthful statements
   Deceptive statements are *more* detailed than truthful statements
2. Liars look their conversation partner(s) in the eyes *less* than truth tellers
   Liars look their conversation partner(s) in the eyes *more* than truth tellers
3. Liars move *less* than truth tellers
   Liars move *more* than truth tellers
4. Liars' voices are *lower* pitched than truth tellers
   Liars' voices are *higher* pitched than truth tellers
5. Liars fidget *less* than truth tellers
   Liars fidget *more* than truth tellers
6. Liars are *less* cooperative than truth tellers
   Liars are *more* cooperative than truth tellers
7. Deceptive statements are *less* plausible than truthful statements
   Deceptive statements are *more* plausible than truthful statements
8. Nonverbal behavior (body language) is *more* reliable than verbal content when judging truthfulness
   Verbal content is *more* reliable than nonverbal behavior when judging truthfulness
9. Liars experience *less* anxiety than truth tellers
   Liars experience *more* anxiety than truth tellers
10. Liars are *less* nervous than truth tellers
    Liars are *more* nervous than truth tellers
11. It takes *less* mental effort to lie than to tell the truth
    It takes *more* mental effort to lie than to tell the truth