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Making a (False) Impression: The Role of Business Experience in First Impressions of CEO Leadership Ability

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Abstract Recent studies have demonstrated that judgments of business leaders' faces predict their organizations' financial performance. To date, these predictions have been derived exclusively from the impressions of naïve perceivers. Here, we tested how perceivers' knowledge and experience in business might relate to their judgments of CEOs' leadership ability from nonverbal facial cues. In Study 1, business students performed similarly to non-business students when rating faces for leadership ability. Business professionals with many years of experience exhibited significantly lower accuracy than professionals without business experience in Study 2, however. Following previous research demonstrating that experience in a particular domain can ironically reduce the accuracy of individuals' judgments, our findings suggest that perceivers' experience in executive business management positions may inhibit them from accurately judging leadership ability from nonverbal information. Domain-specific knowledge may therefore impair the accuracy of first impressions.

Keywords Face perception · Perceiver effects · Expertise · Leader selection · Business managers · Decision-making

Introduction

Whether hiring someone for a job, meeting a new client, or simply choosing a register at the supermarket, people frequently and ubiquitously make quick evaluations of others. Often, these impressions rely on nonverbal information, and may contain "kernels of truth" (Berry 1990). For example, just glimpsing a photo of a person's face can allow one

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to infer his or her characteristics at levels that exceed chance guessing (see Perrett 2010; Re and Rule 2015; Zebrowitz 1997, for reviews). One of the more surprising domains in which minimal cues from facial appearance can lead to accurate impressions is leadership ability.

First impressions of faces both predict leadership selection and correlate with leadership success. For instance, perceivers' ratings of personality traits from the faces of politicians predict electoral results in a variety of nations (e.g., Antonakis and Dalgas 2009; Castelli et al. 2009; Rule et al. 2010; Todorov et al. 2005; Zebrowitz and Montepare 2005). Beyond political candidates' faces biasing voters' decisions, studies also show that leaders' facial appearance relates to how well their organizations actually perform. Several studies have found that participants' judgments of leadership ability from Chief Executive Officers' (CEOs) faces correlated with measures of their companies' financial performance (e.g., Pillemer et al. 2014; Rule and Ambady 2008). Inferences of the personality traits of law firm managing partners similarly predict various measures of their firms' profitability— even from photos taken decades before the leaders have attained their positions (Rule and Ambady 2011a, b). Moreover, CEOs' facial appearance predicts their companies' financial success when accounting for their firms' performance before the CEO was hired, suggesting that some aspect of CEOs' appearance correlates with their success in leading a company (Wong et al. 2011; see also Re and Rule 2016).

To date, the studies examining the relationship between CEOs' faces and measures of their success have sampled individuals without any formal knowledge of business leadership (e.g., Rule and Ambady 2008, 2009). These participants usually consist of undergraduate students or individuals recruited online through sites like Amazon's Mechanical Turk (MTurk). Critically, they are unfamiliar with the leaders' identities and are not told that the targets are business leaders; to the contrary, most such studies actively exclude participants who claim to recognize someone. Furthermore, these participants do not work in corporate business, have not had business training, and have presumably not had the opportunity to learn to associate particular physical features with success in business leadership. In this sense, participants in these studies on first impressions of leadership are truly naïve—they are unaware of the research hypotheses, do not know who the targets are (or that they are leaders), and have no experience with the industry in which the targets are employed. They therefore base their impressions of leadership ability, as instructed, on their "gut instinct" of what business leaders should look like. Thus, judgments of leadership ability tend to correlate with perceptions of traits that "should" belong to business leaders, such as competence and power (e.g., Rule and Ambady 2008, 2009). Yet it is possible that individuals with experience in business may evaluate leadership ability differently. Indeed, previous research has shown that experience in a domain may ironically *reduce* the accuracy of first impressions (Yates et al. 1991). We endeavored to explore these potential perceiver effects in the present research. Specifically, we tested whether experience in the business world and with real-world business leaders affects the accuracy of first impressions of leadership ability from facial appearance.

Naturally, formal training increases individuals' skills on most tasks. In terms of visual judgments, radiologists, pathologists, and dermatologists all become better diagnosticians with medical training (Crowley et al. 2003; Gerbert et al. 1998; Kundel et al. 2007). Person perception studies have shown that training in deception detection can improve a person's accuracy in spotting lies (e.g., Porter et al. 2000). Training and feedback are also required to internalize relevant cues that modify the formation of first impressions and improve accuracy (Blanch-Hartigan et al. 2012). Previous meta-analyses have found that feedback moderately improves deception detection (Hedge's $g = 0.19$; Hauch et al. 2014), and that

feedback across a range of domains can substantially affect performance (Cohen's $d = 0.41$, Kluger and DeNisi 1996). Critically, specific feedback, such as what a person does right or wrong when forming impressions, has a more meaningful influence than stating whether that person was simply correct or not (Hauch et al. 2014). Formal training can therefore increase perceivers' accuracy in specific situations.

Although one expects expertise to enhance a person's performance in most domains, previous research has shown that knowledge and experience can actually *impair* the accuracy of individuals' judgments in some cases. For example, one study found that undergraduate students in finance courses performed better than graduate students with business experience when predicting changes in company stock prices (Yates et al. 1991). The authors of that study theorized that students with more experience studying the financial market may be more likely to attend to "weak cues" that *seem* to cause an outcome, based on their personal experience, but that are actually unrelated. They reasoned that these experts' judgments might become increasingly idiosyncratic as they accumulate information from these weak cues, therefore undermining their accuracy. Thus, experienced judges may be less accurate than inexperienced individuals who have no personal experience to apply to the task and must therefore base their impressions on more obvious features. For example, business recruitment specialists perform less accurately than novices in judging the specific personality traits of job applicants (though they do better at identifying global personality profiles and deception; Schmid Mast et al. 2011), and knowledge and experience can reduce the accuracy of judgments in a variety of domains, including chess (Chase and Simon 1973), physics (Chi et al. 1981), and computer programming (Adelson 1984). Although training can sometimes improve accuracy (e.g., in first impressions; Blanch-Hartigan et al. 2012), these changes may require feedback before individuals internalize the use of correct cues. Familiarity within a domain may thus produce an "illusion of knowledge" whereby individuals overgeneralize their idiosyncratic experiences beyond their relevance, eroding their accuracy but increasing individuals' confidence about their judgments (e.g., Hall et al. 2007).

Similar effects occur in perceptions of people. Although individuals can sometimes become more interpersonally sensitive to nonverbal behavior with the right kind of training, feedback is essential to this process (Blanch-Hartigan et al. 2012). Without practice and feedback, training provides little improvement in interpersonal perception (Blanch-Hartigan et al. 2012). Crow (1957) found that medical students provided with instruction, but no practice or feedback, judged personality less accurately than students with no instruction at all. Furthermore, previous deception detection studies have found that lie-detection ability improved among participants told after each judgment whether the target person had lied, but not among participants who did not receive such feedback (Zuckerman et al. 1985). Thus, proper training that includes practice and feedback may improve perceivers' interpersonal sensitivity, but small samples of experience or knowledge about people in a particular domain may reduce accuracy due to a reliance on weak or irrelevant cues (Crow 1957).

In line with the previous literature, individuals who have experience with business leaders might possibly make worse judgments than those who have no experience with business leaders. Specifically, business executives' might rely on their idiosyncratic experiences with the leaders of their own companies, reducing the accuracy of impressions of leadership ability from facial appearance. We therefore examined whether business experience reduces accuracy in judgments of leadership performance by comparing the accuracy of individuals with no business knowledge (students and non-business professionals), to individuals with some conceptual business knowledge but limited business

experience (MBA students), and to individuals with considerable knowledge and experience (business executives). We thus asked individuals from each of these groups to estimate the leadership ability of CEOs from photos of their faces and measured how their judgments correlated with the CEOs' actual leadership success (as indicated by their company's success in achieving its goal of earning profits). Specifically, we hypothesized that experience with business leaders would induce idiosyncratic effects in judgments of leadership ability, reducing the accuracy of first impressions of CEOs' leadership ability.

Study 1

Previous studies have shown that naïve perceivers' inferences of CEOs' leadership ability correlate with their companies' financial performance (e.g., Rule and Ambady 2008). These studies have never tested participants with business experience, however. Here, we explored whether this relationship may vary according to the perceiver's level of business experience. In Study 1, we solicited two samples of graduate students: Master of Business Administration (MBA) students receiving formal training in business leadership, and a control group of graduate students sampled diversely from master, doctoral, and professional programs outside of business at the same university (e.g., arts, sciences, and engineering). In addition, we recruited a business-naïve undergraduate sample, as typically utilized in the preceding work. The formal training, interest in leadership, and previous work experience of the MBA students therefore allowed us to test whether domain-specific knowledge about business management might influence perceivers' ability to evaluate others' leadership ability from first impressions of their faces.

Method

Stimuli

We selected the 50 highest ranked companies from the 2006 listing of Fortune 500 companies (http://money.cnn.com/magazines/fortune/fortune500). We collected facial photographs of the companies' CEOs online from their companies' websites or online postings of their annual reports to shareholders. We did not include the CEO of the 49th-ranked company (Paul Otellini, Intel) because he was appointed CEO in May of 2005 and was therefore not the CEO for the full 2005 fiscal year (the year upon which the 2006 listings are based); we replaced him with the CEO of the 51st-ranked company (David B. Snow Jr., Medco Health Solutions). We cropped each image tightly around the CEO's head to remove as much information from the photo background and the CEO's clothing as possible. We also standardized the images in height so that no CEO appeared larger than any other and converted them to grayscale to remove color cues and to minimize differences in lighting between the photos. All of the CEOs were men, eliminating possible confounds in leadership judgments due to gender (Pillemer et al. 2014).

Fortune's website also provided information about company financial performance. Here, as in previous work (e.g., Pillemer et al. 2014), we used the companies' net profits as the criterion for measuring the CEOs' performance in leading their organizations. We averaged the profits for the 2005 fiscal year with those for the preceding (2004) and subsequent (2006) years to establish a more stable estimate of company performance (see

Rule and Ambady 2008).[1] Company profits were not normally distributed and were therefore transformed using the square root, which produced a normal distribution: Shapiro–Wilk's $W = .97$, $p = .29$. We then estimated the perceivers' accuracy in judging the CEOs' leadership ability by correlating their ratings of the CEOs with the profits earned by the companies under their leadership.

Participants

We recruited three samples of participants. The first consisted of 47 students (27 men, 20 women; $M_{age} = 28.45$ years, $SD = 3.09$) enrolled in the MBA program at the Rotman School of Management at the University of Toronto.

The second sample consisted of 41 students (22 men, 19 women; $M_{age} = 27.56$ years, $SD = 5.52$) from graduate departments outside of the school of management at the University of Toronto. All participants were enrolled in non-business-related programs (e.g., science, theology, etc.) and were within the first 3 years of their program (except one who was in his seventh year of graduate study).

The last sample consisted of 44 undergraduates (6 men, 38 women; $M_{age} = 18.68$ years, $SD = 1.43$) recruited from a first-year psychology course at the University of Toronto. Undergraduate students received partial course credit for participating whereas both business and non-business students were compensated with candy.

Procedure

We instructed the participants to "Imagine you work for a big company and you have a bunch of potential candidates to be the company's next CEO. The faces you'll be seeing are your candidates." Participants then viewed the 50 CEOs' faces in random order on a computer and indicated how successful they thought each would be at leading a company as a measure of their perceived leadership ability from 1 (*Not at all successful*) to 7 (*Very successful*). Although the task was self-paced, participants were encouraged to respond as quickly and accurately as possible via key-press. After completing the task, the participants reported their gender, age, program of study, year of study, and whether they recognized any of the CEOs (identifying them by name). Responses on trials where participants accurately identified a CEO were excluded from analysis (0.24 % of all trials).

Control Variables

We determined each CEO's age in 2006 by finding his year of birth within the executive biographies included on Google Finance (http://finance.google.com) or from Who's Who in Corporate America (http://www.marquiswhoswho.com). We used this information about age as a control variable in our analyses, as age may influence perceptions of leadership ability (Spisak 2012). Because facial attractiveness and affective expression also strongly influence perceivers' judgments (Dion et al. 1972; Zebrowitz et al. 2010), we asked 16 undergraduate psychology students to rate both how attractive and how happy each CEO looked using 7-point scales. Ratings were consistent across participants (both inter-rater reliability $\alpha s \geq .95$) and so we aggregated the ratings of each trait for every target. We used age, affect, and attractiveness as control variables in the analyses, as in previous work (e.g., Rule and Ambady 2008).

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[1] Profits strongly intercorrelated across the three years, all $rs \geq .86$, all $ps \leq .01$.

We also wanted to control for company performance before the current CEO was hired (although CEO facial appearance has been shown to predict company profit even when controlling for past company performance; Re and Rule 2016; Wong et al. 2011). We therefore collected and averaged each CEO's company's profits for the five-year period preceding his tenure. Six companies' profits could not be clearly determined for all 5 years; we therefore averaged profits only for the years that profit could be properly established. We excluded seven of the CEOs because they had either founded their company or were hired at the onset of a merger with another large company, leaving 43 companies for this supplemental analysis. As with profits from the current fiscal year, we transformed these aggregate values using the square root to produce a normal distribution prior to analysis, Shapiro–Wilk's $W = .95$, $p = .07$.

Results

Because we wanted to compare the accuracy of perceivers across the three groups, we analyzed the data using sensitivity correlations so that participants served as the unit of analysis (e.g., Rule and Ambady 2010). We therefore calculated the correlation between each participant's leadership judgments with the company net profits that corresponded to each CEO (our criterion variable for the leader's actual success) while controlling for the targets' ages and the consensus scores for affect and attractiveness. These partial sensitivity correlations were then converted to Fisher's z scores for analysis. Finally, we calculated the binomial effect size display (BESD; Rosenthal and Rubin 1982) for each correlation to express the accuracy levels as percentages for ease of interpretation.

One-sample t-tests revealed above-chance accuracy in leadership ratings for the MBA students ($M = .10$, $SD = .17$, 95 % CI [.06, .15]; $t(46) = 4.28$, $p < .01$, $d = 1.26$; $BESD = 55$ %), non-business graduate students ($M = .11$, $SD = .16$, 95 % CI [.06, .16]; $t(40) = 4.31$, $p < .01$, $d = 1.36$; $BESD = 55$ %), and undergraduate students ($M = .08$, $SD = .15$, 95 % CI [.04, .13]; $t(43) = 3.59$, $p < .01$, $d = 1.09$; $BESD = 54$ %). The confidence intervals for these effects overlap with those of bivariate sensitivity correlations between leadership and profits, suggesting similar relationships when age, affect and attractiveness are not controlled: $M_{MBA} = .07$, $SD = .15$, 95 % CI [.01, .11]; $BESD = 53$ %; $M_{Graduate} = .05$, $SD = .14$, 95 % CI [.03, .09]; $BESD = 52$ %; $M_{Undergraduate} = .01$, $SD = .14$, 95 % CI [−.03, .05]; $BESD = 51$ %. These effects all remained significant when controlling for past company performance for the 43 companies previously under a different CEO, both with and without controlling for age, affect, and attractiveness (all CIs > 0). Thus, all three groups of perceivers showed levels of accuracy significantly greater than chance.

More important, we wanted to test for differences in the accuracy of leadership ratings between the different groups of perceivers. We therefore conducted a one-way between-subjects ANOVA comparing the sensitivity correlations across the three groups. The omnibus effect revealed no significant difference, $F(2, 131) = 0.32$, $p = .73$, $\eta_p^2 < .01$, and Bonferroni-corrected post hoc analyses showed that accuracy did not differ between the MBA students, non-business graduate students, and undergraduates (all ps > .99).

Discussion

Both business and non-business students showed above-chance accuracy when rating CEOs' faces for leadership ability, similar to the naïve participants tested in previous studies (e.g., Rule and Ambady 2008). Furthermore, there was no difference in accuracy

between the groups. It is important to note that the business students who participated were in the early stages of their business careers and therefore had little experience working in the business world. Thus, the MBA students may not have had sufficient business experience to interfere with their judgments, as observed among experts in other domains in past work (e.g., Chase and Simon 1973). In a previous study, Yates et al. (1991) found that graduate students in finance were worse at forecasting stock price changes than undergraduate students. Most of those graduate students had professional business experience in a previous position, however. Thus, the MBA students sampled here may not have had enough experience working in the business sector to affect their perceptions of leadership ability. Regrettably, we did not formally inquire about their levels of experience during the study; however, anecdotally, many participants indicated little or no business experience prior to entering the MBA program at the university. In Study 2, we therefore investigated the role of business experience on first impressions of leadership more directly by employing a sample of experienced business executives.

Study 2

The business students in Study 1 evaluated CEOs' leadership ability from their faces with accuracy comparable to that of non-business students. As those MBA students were relatively young and had little professional business experience, they may have been similarly naïve as the non-business student controls. Thus, in Study 2, we recruited a sample of business professionals in upper-management positions (i.e., executives) and tested a separate sample of non-business professionals to serve as a control group.

Method

We hired a survey distribution company (Qualtrics Panels) to disseminate the study to business executives in upper-management positions. A total of 41 business executives participated, four of whom we excluded for providing uniform responses (final $N = 37$; 20 men, 17 women; $M_{age} = 43.32$ years, $SD = 13.78$). They all held upper-management positions (e.g., president, CEO, Chief Operating Officer, senior partner, etc.) within their place of employment at the time of testing and had several years of professional business experience ($M = 18.46$ years, $SD = 10.65$, range $= 3$–40 years). They received financial compensation from the survey company for their participation.

We wanted to compare business executives' accuracy in leadership ratings to other non-business professionals. We therefore recruited a separate sample of 36 participants online through Amazon's Mechanical Turk, one of whom we excluded for providing uniform responses (final $N = 35$; 23 men, 13 women; $M_{age} = 34.91$ years, $SD = 11.77$). All participants were previously or currently employed, though none had held upper-management business positions; these control participants also received financial compensation. Both groups completed the study online following procedures nearly identical to those of Study 1.

Results

We conducted the analyses as we had in Study 1. The executives' ratings of CEO leadership success did not significantly correlate with company profit ($M = .02$, $SD = .16$,

95 % CI $[-.03, .07]$; $t(36) = 0.82$, $p = .42$, $d = 0.27$; $BESD = 51$ %) and their years of business experience negatively but non-significantly correlated with their accuracy, $r_{Spearman's}(35) = -.06$, $p = .72$, 95 % CI $[-.39, .27]$. The non-business professionals' ratings of leadership success *did* significantly relate to company profit, however ($M = .12$, $SD = .15$, 95 % CI $[.07, .17]$; $t(34) = 4.68$, $p < .01$, $d = 1.60$; $BESD = 56$ %). The confidence intervals for these effects overlap with those of bivariate sensitivity correlations between leadership and profits, suggesting similar relationships when age, affect, and attractiveness are not controlled: $M_{Executives} = -.02$, $SD = .14$, 95 % CI $[-.07, .02]$; $BESD = 49$ %; $M_{Non\text{-}business} = .05$, $SD = .13$, 95 % CI $[.01, .09]$; $BESD = 52$ %. These effects remained significant when controlling for each CEO's company's performance for the 5 years prior to his tenure, both with and without controlling for age, affect, and attractiveness (CIs for the business executives contained 0, CIs for the non-business professionals exceeded 0). More important, an independent samples *t*-test confirmed that the executives were significantly less accurate than the non-business professional controls: $t(70) = 2.72$, $p = .01$, $d = 0.65$.

Given that the executives all held upper-management positions, it seemed possible that time constraints might have led them to work rapidly and pay less attention to the task. We therefore examined differences in test duration for the executives and non-business professionals. As task duration was not normally distributed and normality could not be achieved through data transformation, we conducted an independent samples *t*-test between the amount of time it took the executives ($M = 22.96$ min, $SD = 24.00$) and non-business professionals ($M = 19.49$ min, $SD = 28.00$) to complete the task with 5000 bootstrapped resamples. Results showed no difference between the two groups in how long they worked: $t(70) = 0.57$, $p = .57$, $d = 0.14$.

Discussion

The results of Study 2 indicated that leadership ratings made by executives were significantly less accurate than those made by control participants without business experience. This supported our hypothesis that business knowledge and experience may inhibit the accuracy of inferring corporate leadership success from nonverbal cues in faces. These findings are consistent with previous research in other domains suggesting that an excess of information can ironically lead individuals to make poorer judgments than those made by naïve perceivers. Thus, business experience might impair the accuracy of leadership judgments from photos of CEOs' faces.

General Discussion

As we hypothesized, business professionals were less accurate in evaluating leadership ability from CEOs' faces than were non-business-professionals and university students. These results align with theories on the deleterious effects of experience, supporting our hypothesis that this extends to the formation of first impressions of CEOs' leadership ability from nonverbal cues. Although training with proper practice and feedback can improve the accuracy of interpersonal perception (Blanch-Hartigan et al. 2012), small samples of experience or knowledge can inhibit it (Crow 1957). Previous work has demonstrated that experience in a particular domain leads individuals to make judgments based on abstract or unrelated knowledge, whereas those without experience base

impressions on more obvious characteristics (e.g., Chi et al. 1981). This usage of unrelated idiosyncratic information, or "weak cues," results in lower accuracy (e.g., Yates et al. 1991). In the current study, business executives—who have years of experience working under various company leaders—may have similarly applied their idiosyncratic sample of experience with managers when judging the CEOs' leadership ability, as opposed to relying on their first impressions, thereby reducing the accuracy of their judgments. Conversely, individuals with little experience working under business leaders might form more general impressions that relate to leadership success—for example, attributions of competence and power (Rule and Ambady 2008, 2009).

In Study 1, we found no difference in the accuracy of leadership ratings between business students and non-business students. This differs from Yates et al.'s (1991) findings that business graduate students performed worse in predicting stock price changes than business undergraduates. Predicting stock prices and assessing leadership ability from faces are rather different tasks, however, and it should be noted that most of the business graduate students in Yates et al.'s study had some prior professional experience—perhaps just enough to affect their predictions of stock price changes. Anecdotally, none of the MBA students in Study 1 reported experience in upper management business positions, they may therefore not have had sufficient experience to significantly alter their judgments of leadership, thus forming impressions in much the same way as non-business students and non-business professionals did.

Although several studies have demonstrated that perceptions of leadership ability from CEOs' faces predict company profits (e.g., Pillemer et al. 2014; Rule and Ambady 2008; Rule and Tskhay 2014), the causes for this may be multi-faceted. It is possible that a "kernel of truth" exists in the leadership ability expressed by CEOs' faces (Berry 1990). It is also possible that people who look powerful or dominant could have advantages in being promoted to leadership roles, creating a self-fulfilling prophecy (e.g., Mueller and Mazur 1996). Wong et al. (2011) found that CEOs' facial shape corresponded with their companies' performance uniquely during their tenure, and we found similar relationships for subjective judgments of CEOs' faces when controlling for their companies' past performance here (see also Re and Rule 2016). This suggests some validity to the relationship between nonverbal cues to CEOs' leadership ability and their actual success as leaders. Given that naïve perceivers have no information other than the CEOs' face upon which to base their judgments, their inferences of the CEOs' traits may more purely reflect this relationship between facial appearance and leadership outcomes. Thus, our observation that business managers' ratings of CEO appearance did *not* relate to company profit suggests that people in upper management positions in business may base their evaluations on other information that interferes with their ability to extract relevant cues from the face. As a result, business professionals may not evaluate the facial cues to leadership as objectively as naïve perceivers do.

The current research is not without caveats. First, the levels of accuracy in assessing CEO success should not be overstated. The binomial effect size displays (BESDs) for the non-executive groups demonstrate a practical effect size between 51–56 %. Although these values significantly exceeded chance, they do not suggest that facial appearance is always a clear index of leadership ability. Previous studies have shown that CEOs' facial appearance predicts roughly 9–14 % of the variance in their companies' financial performance (Harms et al. 2012; Rule and Ambady 2008); thus, leaders' faces do not always predict their firms' success. Accordingly, we would not advocate that firms, employers, or individuals alter their hiring practices to select candidates based on facial appearance—particularly as the

individuals with the most experience making such decisions showed the worst performance in this research.

Studies in social cognition have shown that experience can hinder the accuracy of one's judgments (e.g., Yates et al. 1991). The current results suggest that this extends to judgments about people as well. Specifically, perceivers' experience in a particular domain may hinder their judgments of domain-related stimuli, in turn reducing the accuracy of their impressions. Several studies have found that naïve perceivers' first impressions of business leaders' faces correlate with the CEOs' companies' financial success (e.g., Rule and Ambady 2008). Here, we observed that individuals with business experience were less accurate judges of CEOs' leadership ability from their faces compared to novices. Thus, the present findings suggest that the inhibitory effects of experience may extend to impressions of social traits based on nonverbal cues.

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