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Examining the trade-off between confidence and optimism in future forecasts

Olga Stavrova [ID] | Anthony M. Evans

Department of Social Psychology, Tilburg University, Tilburg, the Netherlands

Correspondence
Olga Stavrova, Department of Social Psychology, Tilburg University, PO Box 90153 5000 LE Tilburg, the Netherlands.
Email: o.stavrova@uvt.nl

Abstract

Confident business forecasters are seen as more credible and competent ("confidence heuristic"). We explored a boundary condition of this effect by examining how individuals react to the trade-off between confidence and optimism. Using hypothetical scenarios, we examined this trade-off from the perspectives of judges (i.e., business owners who hired analysts to make sales predictions) and forecasters (i.e., the analysts hired to make predictions). Participants were assigned to the role of either judges or forecasters and were asked to rate 2 potential forecasts. In the "no trade-off" condition, the 2 forecasts were aligned in optimism and confidence (the more confident forecast was also more optimistic); in the "trade-off" condition, the more confident forecast was less optimistic. In Experiment 1, judges were more likely to positively evaluate confident forecasters when confident forecasters were the more (vs. less) optimistic ones. Experiment 2 demonstrated that forecasters were aware of judges' preferences for optimism and strategically relied on methods that resulted in more optimistic (but less reliable) predictions. Experiment 3 directly compared the perspectives of judges and forecasters, revealing that forecasters overestimated judges' preferences for optimism over confidence. The present studies show that forecasters and judges have different views of the trade-off between confidence and optimism and that forecasters may unnecessarily sacrifice accuracy for optimism.

KEYWORDS

advice giving, confidence heuristic, forecasts, optimism, warmth, morality, and competence

1 | INTRODUCTION

When making important decisions, people often rely on advisors for help with forecasting, that is, estimating the probabilities of different future outcomes (Bonaccio & Dalal, 2006; Hadar & Fischer, 2008). For example, estimates of rain probability by weather forecasters determine farming activities; earnings forecasts of securities analysts affect investors' decisions; and sales forecasts of business consultants inform the development strategies of managers. In short, forecasts (and how people respond to them) play an important role in economic and organizational decision making (Silver, 2012; Tetlock, Mellers, Rohrbaugh, & Chen, 2014).

What factors shape perceptions of forecasts and forecasters? Advice-taking research has shown that advisor confidence is a primary factor in perceptions of advisor credibility (Price & Stone, 2004; Sniezek & Van Swol, 2001; Van Swol & Sniezek, 2005). Confidence may serve as a cue to the advisor's expertise: People might trust confident advisors more because they assume that confidence is a direct consequence of expertise—the phenomenon labeled "confidence heuristic" (Price & Stone, 2004).

But what happens when forecasters face a trade-off between confidence and optimism? How do clients react when a confident advisor makes a prediction that is at odds with their hopes? For example, what happens when an advisor predicts poor future earnings or a stock price decline? Decades of research on motivated reasoning suggest that people are more likely to trust information that is consistent (vs. inconsistent) with their desires and goals (Kunda, 1990). Yet advice-taking research has not considered how forecast valence affects perceived credibility and the general evaluation of the advice giver. Does making a pessimistic forecast cause a confident advisor to appear less reliable? And do advisors strategically select forecasting methods that ensure optimistic forecasts for their clients, even at the cost of confidence?

The present studies were designed to answer these questions. Following previous research on likelihood judgment (Price & Stone, 2004) and advice taking (Bonaccio & Dalal, 2006), we focused on forecasts that are made by one person (forecaster) to facilitate the decision making by another (judge). First, we examined how judges evaluate forecasters: When there is a trade-off between confidence and optimism, do judges always prefer a more confident forecaster? Second, we asked if forecasters sacrifice confidence for optimism. In other words, we asked if forecasters would rely on methods that result in more optimistic, but less accurate, predictions. Finally, we compared the perspectives of judges and forecasters: Do forecasters overestimate or underestimate judges' desire to forgo confidence for optimism? The present research has implications for understanding how forecasters calibrate their predictions to the desires of clients, and whether forecasters (unnecessarily) sacrifice accuracy for optimism.

2 | CONFIDENCE AND OPTIMISM IN THE EVALUATION OF FORECASTERS

Confidence can represent a cue to knowledge, competence, or status. Confident individuals are often more likely to attain higher status and become influential within their groups (Anderson, Brion, Moore, & Kennedy, 2012; Zarnoth & Sniezek, 1997). Confidence also affects credibility in the legal domain (Brewer & Burke, 2002) and in the context of financial advice taking (Price & Stone, 2004; Sniezek & Van Swol, 2001; Van Swol & Sniezek, 2005). For example, advisors who predicted that a particular stock price will increase in value with a stronger degree of confidence (e.g., those who were 95% confident) were seen as more knowledgeable and even more accurate in their prediction than advisors who predicted the same outcome with a lower degree of confidence (e.g., those who were only 75% confident; Price & Stone, 2004). In the absence of any other information, people tend to equate confidence with accuracy. Interestingly, confidence backfires when it is associated with low accuracy (Sah, Moore, & MacCoun, 2013; also see Tenney, MacCoun, Spellman, & Hastie, 2007).

We propose that forecast valence is another factor that might override judges' reliance on advisor confidence. Psychological research on unrealistic optimism suggests that outcome desirability biases judgments of future events (Shepperd, Klein, Waters, & Weinstein, 2013; Weinstein, 1980). For example, people tend to overestimate the likelihood that they will experience positive (vs. negative) life events (Weinstein, 1980). Similarly, research on motivated reasoning has shown that individuals tend to process new information in biased ways, by overweighting preference-consistent and discounting preference-inconsistent information (Edwards & Smith, 1996; Kunda, 1990). Motivated reasoning guides political attitudes, beliefs about climate change, and trust in science (Bolsen, Druckman, & Cook, 2014; Kahan et al., 2012; Kahan, Peters, Dawson, & Slovic, 2017). For example, participants who were randomly assigned to receive a negative (vs. positive) medical diagnosis were more likely to question the validity of the diagnosis and took more time to accept it (Ditto, Munro, Apanovitch, Scepansky, & Lockhart, 2003).

Distrust of undesirable information also undermines evaluations of the information source. Studies on the "kill-the-messenger" effect suggest that people do not like those who give them bad news (Gawronski & Walther, 2008; Manis, Cornell, & Moore, 1974; Walther, Nagengast, & Trasselli, 2005). In line with the associative transfer of valence models (Walther, 2002), it has been proposed that the communicator is "contaminated" by the valence of the information he/she transmits, which has downstream consequences for his or her evaluation. For example, individuals randomly assigned to summarize a political speech were judged more favorably by listeners who agreed with the speech's content (Manis et al., 1974).

3 | PERCEPTIONS OF WARMTH, MORALITY, AND COMPETENCE

Advice-taking research has focused on evaluations of advisor competence and credibility. Yet decades of research on social perception have shown that other dimensions of person perception—warmth and morality—might be more important than competence (Abele, Cuddy, Judd, & Yzerbyt, 2008; Brambilla & Leach, 2014; Brambilla, Rusconi, Sacchi, & Cherubini, 2011; Leach, Ellemers, & Barreto, 2007). Warmth refers to perceptions of friendliness and likeability, and morality refers to perceptions of honesty and trustworthiness. Recent research has proposed that not only perceptions of competence but also perceptions of warmth and morality are associated with the attribution of status (Bai, 2017; Hartley et al., 2016). For example, people are more easily influenced by group members who care about the group (Willer, 2009) and are more likely to vote for warm political candidates (Adams & Mullen, 2013). Appearing warm (but not competent) can compensate for a foreign origin and contribute to an increased likelihood of getting invited for a job interview (Agerström, Björklund, Carlsson, & Rooth, 2012).

In the area of future business forecasts, valence might affect perceptions of warmth and morality. A generally optimistic worldview and smiling behavior are associated with perceptions of warmth and morality (Evans & van de Calseyde, 2017; Vollmann, Renner, & Weber, 2007; Wang, Mao, Li, & Liu, 2017). Thus, optimistic forecasters may be seen as more friendly, likeable, and well-intentioned. As warmth and morality have been shown to dominate impression formation (Abele & Bruckmüller, 2011; Goodwin, Piazza, & Rozin, 2013), optimism might be important for the general evaluation of the advisor. Taken together, these findings imply that both optimism and confidence influence evaluations of forecasters.

4 | CONFIDENCE AND OPTIMISM IN FORECASTERS' CHOICES

It is also important to understand forecasters' beliefs about how their predictions will affect the downstream evaluations of clients. The literature on feedback giving suggests that forecasters might be well-aware of judges' preferences for optimism and that forecasters might strategically use this knowledge. When people have to give negative feedback, they often stonewall or modify the feedback to make it sound more positive (DePaulo & Bell, 1996; Harber, Stafford, & Kennedy, 2010). This effect is particularly strong in face-to-face (vs. indirect) communication (Waung & Highhouse, 1997) and among individuals with a strong need to belong and be liked by others (Jeffries & Hornsey, 2012). In organizations, reluctance to give negative feedback can result in an organization-wide withholding of problems and issues, undermine performance, and damage clients' well-being (Henriksen & Dayton, 2006; Morrison & Milliken, 2000). We propose that forecasters strategically select methods that result in more optimistic predictions for their clients, even when these methods are known to produce less reliable estimates.

We also explore forecasters' beliefs about how judges will react to their predictions and ask whether forecasters accurately anticipate judges' preferences. Even though forecasters might be aware of judges' preferences for positive predictions, they might still underestimate judges' willingness to "punish" a pessimistic forecaster. In fact, recent research on lay theories of decision making suggests that people hold a general assumption of rationality (optimality) when explaining other people's choices (Johnson & Rips, 2015). The assumption of rationality implies that judges should evaluate forecasters based on the quality and certainty of their forecasts. As a result, forecasters might underestimate the degree to which judges are biased by their desire for good news.

At the same time, people also believe that common decision-making biases (for example, a self-serving or a desirability bias) affect other people's judgment more than their own judgment (Pronin, Gilovich, & Ross, 2004). For example, although people might believe that others' evaluation of a validity of a test is biased by the positivity of these test's results, they consider their own judgment to be immune to motivated reasoning. In addition, studies have shown that people tend to make cynical attributions of others' behavior (Critcher & Dunning, 2011; Miller, 1999). As a result, forecasters might overestimate the extent to which judges' evaluations are based on perceptions of likeability, rather than competence. Taken together, these findings suggest that forecasters might overestimate the degree to which judges' evaluations are affected by forecast positivity.

5 | OVERVIEW OF THE STUDIES

Three experiments examined judges' and forecasters' reactions to the trade-off between confidence and optimism. Experiment 1 explored how introducing a trade-off between confidence and optimism influenced judges' perception of forecasters. We asked if judges would prefer a more confident (but less optimistic) forecaster or a less confident (but more optimistic) forecaster. Experiment 2 focused on forecasters, examining whether they prefer forecasting methods that produce optimistic or certain predictions. To conclude, Experiment 3 compared the perspectives of judges and forecasters to determine whether forecasters underestimate or overestimate judges' willingness to sacrifice confidence for optimism.

Study materials and data for all three studies can be downloaded from the project's Open Science Framework page (https://osf.io/8ecg6/?view_only=844cbf02823d45e89d38bd0f2df16762).

5.1 | Experiment 1: Judges' judgment

Previous research has emphasized that judges evaluate confident forecasters more favorably. Our first study investigated whether introducing the trade-off between confidence and optimism influences this preference. We predicted that in the absence of a trade-off, judges would evaluate more confident advisors positively. However, introducing a trade-off between forecast confidence and optimism (whereby confident forecasts were less optimistic) would reduce or even eliminate judges' preference for confident forecasters.

5.1.1 | Method

Participants

To be able to detect a small-to-medium effect with a two-tailed test and a statistical power of .80, we aimed to recruit 75 participants per cell. One hundred fifty-one adult Americans completed the study on Amazon Mechanical Turk (MTurk). Seven did not respond correctly to an attention check question (s. below) and were removed, resulting in a final sample of 144 individuals (M_{age} = 36.46, SD_{age} = 12.51, 49.3% male).[1]

Procedure

This study had a between-subjects design with two conditions. Participants were asked to imagine that they owned a small clothing business and hired two independent business analysts to make next year's sales forecast. Both analysts made forecasts and provided information on how certain they are in their forecasts.

In the "no trade-off condition," forecaster A projected a 1% sales increase and was 76% certain in the forecast, whereas forecaster B projected a 5% sales increase and was 80% certain. That is, the forecaster who made a more optimistic forecast was also more confident than the forecaster who made a less optimistic forecast.

In the "trade-off condition," forecaster A projected a 5% sales increase and was 76% certain in the forecast, whereas forecaster B projected a 1% sales increase and was 80% certain. That is, a more optimistic forecast was less confident than a less optimistic forecast.

After having read the scenario, participants indicated which analyst they would rely on to make business development and personnel decisions (1 = A, 9 = B) and indicated whether they believed analyst A (= 1) or B (= 9) to be warmer (friendly, warm, and likeable; Cronbach's α = .90), more moral (honest, well-intentioned, and sincere; Cronbach's α = .79), and more competent (competent, skilled, and intelligent, Cronbach's α = .91), and who they would hire again (1 = A, 9 = B). As an attention check question, participants were asked which analyst (A or B) projected a 5% increase, indicated how familiar they are with sales forecasts (1 = not at all, 9 = very much), and responded to basic sociodemographic questions.

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[1]The results do not depend on whether these participants are removed from the analyses or not (see Supporting Information).

TABLE 1 Means, standard deviations, and zero-order correlations among the variables, Study 1

| | Rating dimensions | No trade-off condition (n = 74) | | Trade-off condition (n = 70) | | | | | |
		M	SD	M	SD	1	2	3	4
1	Choice	6.61	2.14	5.31	2.20	–	–	–	–
2	Willingness to hire	6.46	2.11	5.40	2.58	.88***	–	–	–
3	Warmth	5.64	1.32	4.78	1.35	.34***	.32***	–	–
4	Morality	5.31	1.47	5.29	1.37	.49***	.58***	.53***	–
5	Competence	5.82	1.36	5.28	1.78	.67***	.75***	.42***	.69***

Note. All rating dimensions are coded such that higher scores correspond to a stronger preference for the more confident forecaster.

***$p < .001$, **$p < .01$, *$p < .05$.

5.1.2 | Results

Means, standard deviations, and zero-order correlations among the variables are shown in Table 1. The mean ratings by condition are shown in Figure 1.

First, we examined the effect of forecast valence by comparing mean ratings between the two conditions. Note that higher scores indicate stronger preferences for the more (vs. less) confident forecast and forecaster.

Choice and willingness to hire

Introducing the trade-off between confidence and optimism reduced judges' relative preferences for confidence (no trade-off condition: $M = 6.61$, $SD = 2.14$; trade-off condition: $M = 5.31$, $SD = 2.20$), $t(142) = 3.58$, $p < .001$, $d = .60$. The trade-off also made judges less willing to hire a more confident advisor (no trade-off condition: $M = 6.46$, $SD = 2.11$; trade-off condition: $M = 5.40$, $SD = 2.58$), $t(142) = 2.71$, $p = .008$, $d = .45$. In fact, comparing participants' ratings to the point of indifference (scale midpoint = 5) revealed that introducing the confidence and optimism trade-off eliminated judges' preference for confidence (choice: $t(69) = 1.20$, $p = .24$, $d = .14$; willingness to hire: $t(69) = 1.30$, $p = .20$, $d = .16$).

Perceptions of warmth, morality, and competence

When there was a trade-off between optimism and confidence, more (vs. less) confident advisors were seen as less warm (trade-off: $M = 5.64$, $SD = 1.32$; no trade-off: $M = 4.78$, $SD = 1.35$; $t(142) = 3.83$, $p < .001$, $d = .64$) and less competent (trade-off: $M = 5.82$, $SD = 1.36$; $M = 5.28$, $SD = 1.78$; $t(142) = 2.07$, $p = .041$, $d = .34$), but not less moral ($p = .92$, $d = .01$). Comparing participants' ratings with the scale midpoint (5) showed that, in the trade-off condition, a more positive but less confident forecaster and a less positive but more confident forecaster were rated as equally warm and competent (warmth: $t(69) = 1.35$, $p = .18$, $d = .16$; competence: $t(69) = 1.30$, $p = .20$, $d = .16$).

5.1.3 | Discussion

Judges preferred confident forecasters, but only insofar as the confident forecasters' predictions were consistent with the judges' desires for a positive outcome. That is, only when confident forecasters painted an optimistic picture of the future. Introducing a trade-off between confidence and optimism led judges to trust a more positive (but less confident) and a more confident (but less positive) forecasters to the same extent, eliminating judges' preferences for confidence.

5.2 | Experiment 2: Forecasters' judgment

In Experiment 2, we took the perspective of forecasters and examined whether they were aware of judges' preference for optimism and whether forecasters were willing to sacrifice confidence to make more optimistic forecasts for their clients.

5.2.1 | Participants

Following Study 1, the sample size was set at 75 participants per condition. One hundred forty-eighty MTurk workers completed the study. Workers who participated in Experiment 1 were not eligible for Experiment 2. Fifteen participants did not respond correctly to an attention check question (the same question we used in Study 1) and were removed, resulting in a final sample of 133 individuals ($M_{age} = 34.48$, $SD_{age} = 9.87$, 48.9% male).[2]

5.2.2 | Procedure

The study used the same procedure as Study 1, except that participants were now asked to imagine the scenario from the perspective of the forecaster: They were instructed to imagine that they worked as independent business consultants and were hired by a small clothing company to make the company's sales forecast for the next year. They also learned that their forecast would be used to make business development and personnel decisions. They further read that they had used two different forecasting methods that produced different results.

In the "no trade-off condition," participants learned that Method A projected a 1% sales increase with a 76% certainty, whereas Method B projected a 5% sales increase with an 80% certainty. In the "trade-off condition," Method A projected a 5% sales increase with a 76% certainty, whereas Method B projected a 1% sales increase with an 80% certainty.

Participants then indicated which method they would rely on to make the forecast (1 = A, 9 = B). We also asked participants which method (1 = A, 9 = B) would make clients judge them as warmer (friendly, warm, and likeable; Cronbach's α = .90), more moral (honest, well-intentioned, and sincere; Cronbach's α = .79), and more competent (competent, skilled, and intelligent, Cronbach's α = .91). Finally, we asked which method would increase their chances of getting hired by the client again (1 = A, 9 = B). In contrast to the judges (Experiment 1), forecasters additionally indicated the forecast based on which

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[2]The results do not depend on whether these participants are removed from the analyses or not (see Supporting Information).
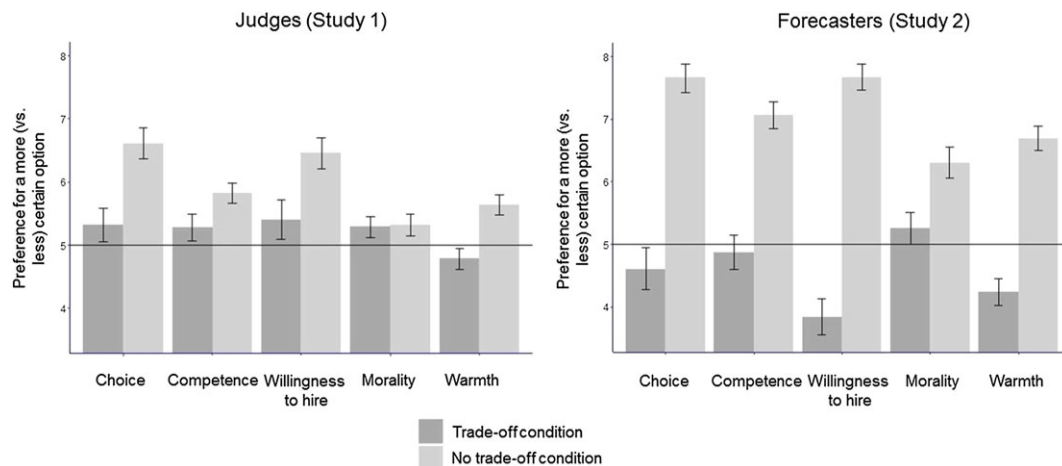
FIGURE 1 Mean ratings (1 = *stronger preference for a less certain option*, 9 = *stronger preference for a more certain option*), Studies 1 and 2. The horizontal line indicates the scale midpoint (that is, point of indifference between the two options). Error bars are standard errors [Colour figure can be viewed at wileyonlinelibrary.com]

method (1 = A, 9 = B) is more likely to come true (accuracy perception). At the end, they responded to an attention check question (the same as in Study 1), indicated how familiar they are with sales forecasts (1 = *not at all*, 9 = *very much*), and answered basic sociodemographic questions.

5.2.3 | Results

Means, standard deviations, and zero-order correlations among the variables are shown in Table 2. The mean ratings by condition are shown in Figure 1.

Choice and inferred willingness to hire
Introducing the trade-off between confidence and optimism made forecasters less likely to select the more certain forecasting method (no trade-off: $M = 7.66$, $SD = 1.89$; trade-off condition: $M = 4.60$, $SD = 2.66$), $t(110) = 7.56$, $p < .001$, $d = 1.44$. Comparing participants' responses with the scale midpoint showed that in the trade-off condition, participants did not have a preference for a more confident option any longer, $t(62) = 1.18$, $p = .24$, $d = .15$. Moreover, forecasters believed that they would be less likely to be hired for making a confident forecast when doing so involved a trade-off between confidence and optimism (no trade-off: $M = 7.67$, $SD = 1.72$; trade-off: $M = 3.84$, $SD = 2.26$), $t(115) = 10.92$, $p < .001$, $d = 2.01$. When the forecast

produced by a more confident method was less optimistic, forecasters believed that relying on a more confident method would reduce their clients' willingness to hire them again, $t(62) = 4.07$, $p < .001$, $d = 1.03$.

Inferred perceptions of warmth, morality, and competence
Forecasters believed that making confident forecasts would have stronger positive effects on judges' perceptions of warmth, competence, and morality in the absence (warmth: $M = 6.70$, $SD = 1.67$; competence: $M = 7.07$, $SD = 1.82$, morality: $M = 6.30$, $SD = 2.05$) versus presence (warmth: $M = 4.24$, $SD = 1.72$; competence: $M = 4.87$, $SD = 2.21$; morality: $M = 5.25$, $SD = 2.05$) of a trade-off between confidence and optimism (warmth: $t(131) = 8.38$, $p < .001$, $d = 1.46$; competence: $t(131) = 2.95$, $p = .004$, $d = 1.09$; morality: $t(120) = 6.23$, $p < .001$, $d = .51$). When a more confident method was presented as giving a less optimistic estimate than a less confident method, participants believed that selecting a more confident method would not bring them any benefits in terms of competence and morality ratings (competence: $t(62) = .48$, $p = .64$, $d = .06$; morality: $t(62) = .98$, $p = .33$, $d = .12$) and would lead them to be perceived as less warm, $t(62) = 3.51$, $p = .001$, $d = .91$.

Accuracy perception
Including the trade-off between optimism and confidence decreased forecasters' belief that a more confident forecast was more accurate

TABLE 2 Means, standard deviations, and zero-order correlations among the variables, Study 2

	Rating dimensions	No trade-off condition (n = 70)		Trade-off condition (n = 63)		1	2	3	4	5
		M	SD	M	SD					
1	Choice	7.66	1.89	4.60	2.66	–	–	–	–	–
2	Inferred willingness to hire	7.67	1.72	3.84	2.26	.70***	–	–	–	–
3	Inferred perception of warmth	6.70	1.66	4.24	1.72	.65***	.71***	–	–	–
4	Inferred perception of morality	6.30	2.05	5.25	2.05	.67***	.49***	.69***	–	–
5	Inferred perception of competence	7.07	1.82	4.87	2.21	.85***	.64***	.70***	.71***	–
6	Accuracy perception	7.17	2.08	6.40	2.30	.56***	.27**	.38***	.61***	.57***

Note. All rating dimensions are coded such that higher scores correspond to a stronger preference for the more certain method.

***$p < .001$, **$p < .01$, *$p < .05$.

FIGURE 2 Effects of condition on rating dimensions in judges (Study 1) and forecasters (Study 2). The estimates represent Cohen's d effect sizes, error bars—standard errors

than a less confident forecast (no trade-off: $M = 7.17$, $SD = 2.08$; trade-off condition: $M = 6.40$, $SD = 2.30$), $t(131) = 2.04$, $p = .044$, $d = .35$. This result most probably represents an instance of a desirability bias; in other words, people tend to believe that positive or desirable events more likely to occur than negative or undesirable events (Krizan & Windschitl, 2009).

5.2.4 | Discussion

Forecasters were sensitive to judges' preferences for optimism and strategically used them in their forecasts. Forecasters' preferences for certain methods vanished once a more certain method produced a less optimistic prediction for their clients. In fact, forecasters believed that using a more certain method would make their clients perceive them as less warm and less likely to hire them again, if certainty was associated with a less optimistic prediction.

5.3 | Joint analyses of Experiments 1 and 2

The results of our first two studies hint at the possibility that forecasters might overestimate the impact of optimism on clients' judgments. In Study 1, comparing the ratings in the trade-off condition with the scale midpoint revealed that clients did not differentiate between a more optimistic but less confident forecaster and a less optimistic but more confident forecaster: They were perceived as being equally warm, moral, and competent; and they were equally likely to be relied on and get hired again. However, in Study 2, forecasters tended to think that producing a less positive but more confident (vs. more positive but less confident) forecast would make their clients see them as less warm and less likely to hire them again.

To test whether the effect of the experimental condition was indeed stronger in the sample of forecasters than in the sample of judges, we used the Fisher r-to-z transformation and compared the effect of the condition on all dependent variables from Experiments 1 (judges) and 2 (forecasters). Across all dependent measures, the effect of condition (trade-off vs. no trade-off) was significantly stronger in forecasters than in clients (z between -5.29 [$p < .001$] and -2.03 [$p = .042$]). These results are shown on Figure 2. That is, forecasters were not only sensitive to clients' preferences for optimism in business forecasts, they tended to overestimate them. In fact, forecasters believed that forgoing certainty to be able to provide a more optimistic forecast would make their clients see them as more friendly and likeable, and also more likely to hire them again.

5.4 | Experiment 3: A joint examination of judges and forecasters

We conducted a third experiment to replicate and extend our results. Experiment 3 was designed to address two limitations of our previous experiments: First, in Experiments 1 and 2, different numbers were used to manipulate optimism (1% vs. 5% increase in sales) and confidence (76% vs. 80% levels of certainty). Even though the absolute difference between 1% and 5% is the same as the difference between 76% and 80%, the two comparisons may have been perceived differently by participants (e.g., the difference between 1 and 5% may have seemed more extreme than the difference between 76% and 80%). Therefore, in Experiment 3, we used a scenario in which optimism and confidence were manipulated using the same metric. Second, Experiment 3 sought to replicate the findings using a different forecasting scenario and included both the forecasters and judges conditions, allowing for a direct comparison.

5.4.1 | Method

Participants

To be able to detect a medium-sized two-way interaction effect with 80% power and a two-tailed test, we initially decided to recruit 50 participants per cell (at least 200 overall). Thus, our first sample consisted of 232 adult Americans completed the study on MTurk. Thirty-three participants did not correctly answer an attention check question and 28 (85%) of those were in the trade-off condition. We noticed that the attention check question could have been easily misinterpreted by the participants in the trade-off condition.[3] Therefore, we decided to keep these participants in the analyses (notice that removing them does not result in substantially different results, see Supporting Information).

To be certain in our conclusions, we collected an additional 230 observations (this time, we removed the ambiguous attention check

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[3]In this study, the manipulation of optimism involved an 80% versus 60% chance of meeting the sales target and the manipulation of confidence involved an 80% versus 60% certainty. As an attention check question, participants indicated which forecast had an 80% certainty. We assumed that participants confused an 80% certainty with an 80% chance (which referred to the same option in the no trade-off condition and different options in the trade-off condition). As the decision to recruit an additional set of data was made after we analyzed the first subsample, it is important to note that all the effects that we consider "significant" are associated with p values below the "peeking-adjusted" value of .025 (and most p values are below .002).

question). Therefore, the final sample consisted of 462 participants (M_{age} = 35.20, SD_{age} = 11.31, 60.6% male). The results of the analyses conducted with only the first and only the second set of participants are presented in the Supporting Information.

Procedure

This study had a 2 (trade-off vs. no trade-off) × 2 (forecaster vs. judge) between-subjects design. In the "forecaster conditions," participants were asked to imagine that they owned a small clothing business and hired two independent business analysts to make predictions about whether or not they will meet their sales goals for the next year. In the "judge conditions," participants imagined that they worked as independent business analysts and were hired by a clothing company to make a prediction about whether or not the company will meet its sales goals for the next year. They were also informed that they used two different forecasting methods that produced different results.

In the "no trade-off conditions," analyst A (or method A, in the forecaster condition) predicted that there is an 80% chance the company will meet its goals and was 80% certain about this prediction. Analyst B (or method B, in the forecaster condition) predicted that there was a 60% chance the company will meet its goals and was 60% certain about this prediction.

In the "trade-off conditions," analyst (vs. method) A predicted that there is an 80% chance the company will meet its goals and was 60% certain about this prediction. Analyst (vs. method) B predicted that there was a 60% chance the company will meet its goals and was 80% certain about this prediction. In other words, in the no trade-off condition, a more confident forecast was a more optimistic one, whereas in the trade-off condition, a more confident forecast was a less optimistic one.

After having read the scenario, participants indicated which analyst (vs. method) they would rely on (1 = A, 9 = B). Participants assigned to play a role of judges indicated which analyst (A = 1 or B = 9) they believed to be warmer (friendly, warm, and likeable; Cronbach's α = .88), more moral (honest, well-intentioned, and sincere; Cronbach's α = .86), and more competent (competent, skilled, and intelligent, Cronbach's α = .95), and who they would hire again (1 = A, 9 = B). Participants assigned to play a role of forecasters indicated what method choice (1 = A, 9 = B) will make their client judge them as warmer (friendly, warm, and likeable; Cronbach's α = .93), more moral (honest, well-intentioned, and sincere; Cronbach's

α = .85), and more competent (competent, skilled, and intelligent, Cronbach's α = .95) and will increase their chances of getting hired by this client again (1 = A, 9 = B).

5.4.2 | Results

Zero-order correlations among the variables are shown in Table 3 and mean responses by condition are plotted in Figure 3.

We estimated a 2 (trade-off vs. no trade-off) × 2 (forecaster vs. judge) MANOVA with choice, willingness to hire, warmth, morality, and competence ratings as dependent variables. The omnibus test revealed significant main effects of the two manipulated factors (trade-off/no trade-off factor: Pillai's Trace $F(5,454)$ = 24.45, p < .001, $\eta^2_{partial}$ = .21; forecaster/judge factor: Pillai's Trace $F(5,454)$ = 16.16, p < .001, $\eta^2_{partial}$ = .15) and a significant interaction (Pillai's Trace $F(5,454)$ = 9.87, p < .001, $\eta^2_{partial}$ = .10).

Choice

The effect of the trade-off/no trade-off factor was significant, $F(1,458)$ = 5.76, p = .017, $\eta^2_{partial}$ = .012. This effect was qualified by a significant interaction with the forecaster/judge factor, $F(1,458)$ = 6.40, p = .012, $\eta^2_{partial}$ = .014. Forecasters were less likely to select the more certain option when it was less (vs. more) optimistic (no trade-off: M = 7.79, SD = 1.81; trade-off condition: M = 6.82, SD = 2.30, $F(1,458)$ = 12.20, p = .001, $\eta^2_{partial}$ = .03). As indicated by a comparison with the scale midpoint, forecasters still preferred a more certain to a less certain option, $t(114)$ = 8.49, p < .001. On the opposite and in contrast to the results of Study 1, judges preferred the more confident forecaster, regardless of whether he was more or less optimistic (no trade-off: M = 6.47, SD = 2.24; trade-off condition: M = 6.49, SD = 2.14, $F(1,458)$ = .01, p = .927, $\eta^2_{partial}$ = .00).

Willingness to hire

The main effect of the trade-off/no trade-off condition and its interaction with the forecaster/judge factor reached significance, $F(1,458)$ = 21.74, p < .001, $\eta^2_{partial}$ = .05 and $F(1,458)$ = 35.67, p < .001, $\eta^2_{partial}$ = .07, respectively. Consistent with the findings of Study 2, forecasters believed that if they make a more confident forecast that is also more (vs. less) optimistic, judges would be more likely to hire them again (no trade-off: M = 7.87, SD = 1.83; trade-off condition: M = 5.70, SD = 2.49, $F(1,458)$ = 56.79, p < .001, $\eta^2_{partial}$ = .11).

TABLE 3 Means, standard deviations, and zero-order correlations among the variables, Study 3

		Judges		Forecasters					
		No trade-off condition (n = 116) M (SD)	Trade-off condition (n = 114) M (SD)	No trade-off condition (n = 117) M (SD)	Trade-off condition (n = 115) M (SD)	1	2	3	4
1	Choice	6.47 (2.24)	6.49 (2.14)	7.79 (1.81)	6.82 (2.30)	–	–	–	–
2	Willingness to hire	6.28 (2.38)	6.54 (2.12)	7.87 (1.73)	5.70 (2.49)	.75***	–	–	–
3	Warmth	5.66 (1.35)	5.00 (1.41)	6.86 (1.61)	4.96 (1.87)	.31***	.43***	–	–
4	Morality	5.40 (1.43)	5.69 (1.52)	7.14 (1.56)	6.46 (1.95)	.55***	.51***	.61***	–
5	Competence	5.94 (1.62)	5.93 (1.52)	7.51 (1.49)	6.31 (2.12)	.65***	.64***	.57***	.80***

Note. All rating dimensions are coded such that higher scores correspond to a stronger preference for the more certain option.
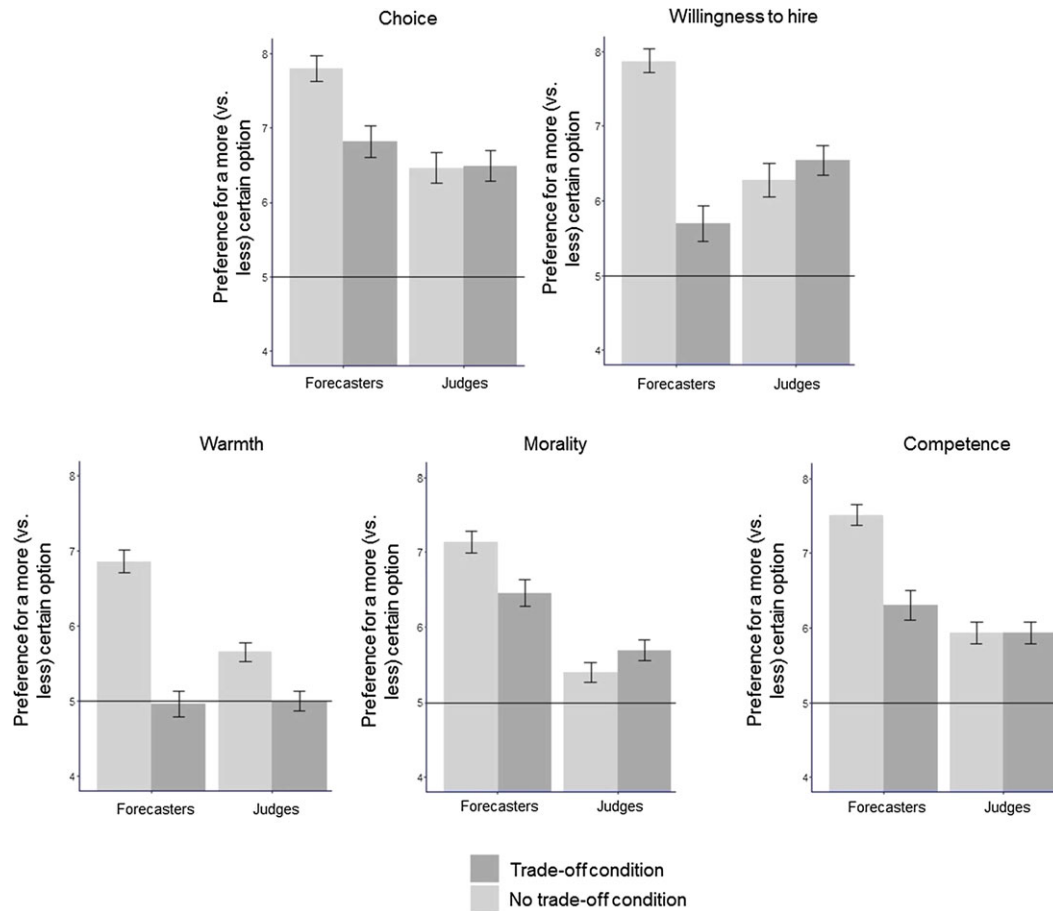
***p < .001.

FIGURE 3 Mean ratings (1 = *stronger preference for a less certain option*, 9 = *stronger preference for a more certain option*), Study 3. The horizontal line indicates the scale midpoint (that is, point of indifference between the two choices). Error bars are standard errors [Colour figure can be viewed at wileyonlinelibrary.com]

Yet in contrast to forecasters, judges indicated that they would hire the analyst who made a more confident forecast regardless of how positive this forecast was (no trade-off: $M = 6.28$, $SD = 2.38$; trade-off condition: $M = 6.54$, $SD = 2.12$, $F(1,458) = .85$, $p = .356$, $\eta^2_{partial} = .002$). That is, although forecasters were sensitive to the trade-off between confidence and optimism in both sets of studies, judges' reactions differed across the studies.

Warmth

The main effect of the trade-off/no trade-off factor reached significance, $F(1,458) = 76.13$, $p < .001$, $\eta^2_{partial} = .14$. Both judges and forecasters associated a more confident forecast with higher ratings of warmth in the absence ($M = 6.26$, $SD = 1.60$) versus presence ($M = 4.98$, $SD = 1.66$) of a trade-off between confidence and optimism, replicating the findings of Studies 1 and 2. Comparing participants' ratings with the scale midpoint showed that, in the presence of a trade-off, both judges' and forecasters' preference for confidence disappeared ($t(113) = 0.00$, $p = 1.00$ and $t(114) = 0.23$, $p = .82$, respectively). The main effect of the trade-off factor was further qualified by a significant interaction with the forecaster/judge factor, $F(1,458) = 18.13$, $p < .001$, $\eta^2_{partial} = .04$. Forecasters' believed judges' ratings to be more affected by the presence of a trade-off ($M_{dif} = 1.90$, $F(1,458) = 84.65$, $p < .001$, $\eta^2_{partial} = .16$) than they actually were ($M_{dif} = 0.66$, $F(1,458) = 9.94$, $p = .002$, $\eta^2_{partial} = .02$).

Morality

There was a significant main effect of the forecaster/judge factor, $F(1,458) = 86.54$, $p < .001$, $\eta^2_{partial} = .13$, such that forecasters believed that judges would ascribe them higher morality ratings ($M = 6.80$, $SD = 1.79$) than they actually did ($M = 5.69$, $SD = 1.52$). As indicated by a significant interaction, $F(1,458) = 10.39$, $p = .001$, $\eta^2_{partial} = .02$, forecasters believed that judges would rate them more moral in the no trade-off than in the trade-off condition ($M_{dif} = 0.68$, $F(1,458) = 10.10$, $p = .002$, $\eta^2_{partial} = .02$), whereas judges' evaluation of forecasters' morality was not affected by the presence of the trade-off ($M_{dif} = -0.29$, $F(1,458) = 1.87$, $p = .172$, $\eta^2_{partial} = .004$). Comparing the responses with the scale midpoint revealed that both forecasters and judges associated a more certain option with a higher level of morality, even when it was less optimistic ($t(114) = 8.04$, $p < .001$ and $t(113) = 4.86$, $p < .001$, respectively).

Competence

The effect of the trade-off/no trade-off factor was significant, $F(1,458) = 14.41$, $p < .001$, $\eta^2_{partial} = .03$. It was further qualified by a significant interaction with the forecaster/judge factor, $F(1,458) = 14.22$, $p < .001$, $\eta^2_{partial} = .03$. Forecasters thought that judges would ascribe them a higher level of competence in the no trade-off ($M = 7.51$, $SD = 1.49$) than in the trade-off condition ($M = 6.31$, $SD = 2.12$, $F(1,458) = 28.75$, $p < .001$, $\eta^2_{partial} = .06$),

whereas judges were indifferent to the presence/absence of the trade-off (M_{dif} = 0.004, $F(1,458)$ = 0.00, p = .99, $\eta^2_{partial}$ = .00). Both forecasters and judges associated a more certain option with higher competence, even when it was less optimistic ($t(114)$ = 6.60, $p < .001$ and $t(113)$ = 6.53, $p < .001$, respectively).

5.4.3 | Discussion

Corroborating our previous studies, Experiment 3 revealed an asymmetry in how judges and forecasters value optimism versus confidence. Forecasters tended to assume that making a more confident but less optimistic forecast will make them appear less favorably to their clients (that is, judges) and will make their clients less likely to hire them again. In turn, forecasters' preferences for prediction methods were guided by the likelihood of producing a more optimistic forecast. Yet judges' preferences for more confident forecasters were barely affected by how optimistic they were. Whereas judges perceived more confident forecasters to be warmer when they produced more (vs. less) optimistic predictions, they were still more likely to trust and hire a more confident forecaster even when he was less (vs. more) optimistic.

6 | GENERAL DISCUSSION

Despite the practical importance of forecasts, psychological research on the perception of and evaluation of forecasts and forecasters has remained relatively scarce (Bonaccio & Dalal, 2006). Forecaster confidence is one factor that consistently affects forecast credibility. More confident forecasters are perceived as more competent and trustworthy than less confident forecasters—a phenomenon referred to as the confidence heuristic (Price & Stone, 2004). Bringing together these findings with the literature on motivated reasoning (Kunda, 1990), we explored how forecasters and their clients (or "judges") react to a trade-off between confidence and optimism.

When there was a trade-off between confidence and optimism (and the more confident forecaster predicted an undesirable outcome), judges' positive perceptions of the confident forecaster were diminished. This pattern was strongest for attributions of warmth. In both Experiments 1 and 3, judges considered more (vs. less) optimistic forecasters warmer, even when they were less confident. These results are in line with previous work documenting the positive effect of dispositional optimism on inferences of warmth (e.g., Evans & van de Calseyde, 2017). Optimism may be related to the perception of warmth for multiple reasons: Optimists may be seen as having a strong desire to avoid hurting other people's feelings, which represents a central aspect of interpersonal warmth. Additionally, judges might think that optimists have stronger beliefs in the business owner's ability and competence, which could also inform perceptions of warmth. The results of Experiment 1 (but not 3) further showed that judges' propensity to trust and establish long-term business relationships with confident forecasters vanished when the more confident forecaster made a less optimistic forecast.

Experiment 2 demonstrated that forecasters anticipate judges' preference for optimism and use optimistic forecasting methods that are likely to please their clients. Forecasters strategically selected methods likely to result in optimistic, rather than pessimistic, predictions. This pattern of behavior is an example of withholding negative information, a widely documented behavior in organizations (Henriksen & Dayton, 2006). For example, managers soften negative feedback for the sake of avoiding conflicts and to maintain positive relationships with their subordinates (Fisher, 1979; Larson, 1986). This willingness to sacrifice certainty for optimism can be explained by practical considerations: Forecasters believed that bringing positive news to their clients, even if the news was uncertain, would lead their clients to see them as more friendly and likeable and would increase their chances of getting hired again.

Importantly, comparing the results of Experiment 1 (judges) and Experiment 2 (forecasters) suggests that forecasters overestimate the degree to which judges are affected by forecast valence. This pattern of results was further obtained in Experiment 3, which included a direct comparison of forecasters' and judges' preferences. Forecasters believed that their clients ("judges") were more willing to sacrifice confidence for optimism than the clients ("judges") actually were. In other words, forecasters overestimated the degree to which their clients were subjects to motivated reasoning. This finding is consistent with previous research showing that individuals generally tend to overestimate other people's susceptibility to judgment biases (Pronin et al., 2004).

Such knowledge asymmetries are common in advisor–judge dyads (Rader, Larrick, & Soll, 2017). For example, judges' limited access to the reasons behind advisors' recommendation is seen as a source of their tendency to discount others' advice in decision making (Yaniv & Kleinberger, 2000). Advisors' limited access to their clients' risk preferences results in their advice being guided by their own, rather than their clients', risk preferences (Hadar & Fischer, 2008). The present studies contribute to this literature by showing that advisors' lack of insight into their clients' preferences (specifically, the overestimation of their clients' preferences for optimism) can undermine advice quality.

We propose that forecasters' willingness to forgo certainty for optimism results from their desire to please clients. Could it represent an instance of motivated reasoning instead? Forecasters could have genuinely believed that, at an equal level of certainty, more optimistic methods are also more likely to be more accurate. Indeed, forecasters in Experiment 2 believed that optimistic predictions were more likely to come true. That is, both judges and forecasters themselves could have been subjects to motivated reasoning. This is not unlikely: Even though forecasters were formally independent from their clients, their future earnings depended on whether their clients would have the funds to hire them again, rendering a bias-free judgment challenging.

Yet this account predicts that the tendency to use motivated reasoning should have been stronger among judges than forecasters (after all, judges were the direct beneficiaries of positive forecasts). However, we found the opposite: The effects of optimism were stronger for forecasters than judges. Even though forecasters might have been subjects to motivated reasoning, their willingness to forgo certainty to make a positive prediction for their clients is more likely to be the result of their desire to please their clients. More studies are needed to pinpoint the precise processes underlying forecasters' preference for optimism. For example, if forecasters are driven by a desire

to please the clients and ensure future commissions, then increasing forecasters' motivation to make accurate predictions should reduce their preferences for optimism.

Whereas forecasters' preferences for optimistic predictions emerged consistently across studies, judges' preferences for more optimistic forecasters depend on the specifics of the forecasting scenario. Judges traded-off certainty for optimism when optimism reflected a 4% stronger increase in sales (Experiment 1), but not when optimism reflected a 20% higher chance of meeting sales target (Experiment 3). We speculate that the difference in predicted sales growth could have felt more natural, objective, and easy to grasp than the difference in a predicted chance of meeting one's sales target. It is also possible that failing to meet one's self-set sales target did not feel particularly threatening to the judges—after all, they had the power to adjust their target. Finally, being subject to motivated reasoning, judges could have shown an optimistic bias in interpreting the predicted chance of meeting their sales target: For example, they could have interpreted a forecast predicting a 60% (vs. 80%) chance of meeting their sales target as implying a 60% (vs. 80%) chance of missing their target by a small amount (e.g., having a 4.9% instead of a 5% sales growth).

In contrast, for forecasters, predicting a lower chance that their clients' will meet their sales target implies giving their clients a negative feedback regarding their ability and competence—feedback they may be unwilling to give (Harber et al., 2010; Waung & Highhouse, 1997). We propose that developing a manipulation of optimism that would feel the same for both judges and forecasters (while at the same time being comparable in strength with the manipulation of confidence) is an important prerequisite for establishing the relative importance of optimism. For example, it might be informative to capitalize on participants' comparative thinking and frame both optimism and confidence relative to a certain reference point, such as participants' expectations. Manipulating the role (forecasters vs. judges) within-subjects by asking participants to respond to the same scenarios as both forecasters and judges might represent another way of addressing these issues. At a more general level, the above discrepancies point at the importance of testing our findings' generalizability across different scenarios.

The hypothetical nature of the scenarios we used is a potential limitation of the present research. Hypothetical scenarios are usually less personally relevant for the participants. As motivated reasoning has been shown to increase with personal relevance and importance (e.g., Leeper, 2014), our studies could have underestimated participants' willingness to sacrifice confidence for optimism. We hope that future research will shed light on whether forecasters' and judges' preferences for optimism are indeed stronger in more personally relevant scenarios. In addition, although we have shown that expressing less optimism can negatively affect the evaluation of a confident forecaster, it might be interesting to explore whether expressing less confidence can soften the negative impact of a pessimistic forecaster. On a related note, it might be worthwhile to investigate how much confidence individuals are willing to sacrifice for optimism and how much more confident a pessimistic forecast should be (compared with an optimistic one) to be accepted.

Additionally, although our participants were willing to forgo confidence for optimism, it is less clear whether this tendency will persist in a long-term context. Will judges reconsider their evaluation of optimistic forecasters when having access to the information about forecast accuracy? Sah et al. (2013) showed that giving judges access to the information about advice accuracy can undermine their reliance on the confidence heuristic in assessing the credibility of their advisors. In a similar vein, it is worthwhile to explore whether judges will update their evaluation of optimistic versus pessimistic forecasters in response to accuracy information. Individuals are more likely to update their beliefs in response to positive than to negative information—a phenomenon labeled asymmetric updating (Sharot & Garrett, 2016; Sharot, Korn, & Dolan, 2011; Shepperd et al., 2013). Hence, it might be interesting to explore individuals' propensity to adjust their beliefs based on recently obtained forecasts that differ in both optimism and certainty. Finally, existing research has shown that the degree to which people utilize others' advice largely depends on the adviser's expertise (Meshi, Biele, Korn, & Heekeren, 2012). Therefore, although our studies were based on a scenario depicting expert advice, it might be informative to explore whether individuals' would also trade-off confidence for optimism when the adviser is a novice.

The present findings have practical implications. When providing an accurate prediction means delivering bad news, forecasters face a conflict of interest between their desire to please the client (as a way of maintain a long-term relationship) and their professional obligation to give accurate advice. Such conflicts of interests arise when the consumer of the advice is the same party that hires the advisor and pays his/her fees (Bazerman & Sezer, 2016; Moore, Tetlock, Tanlu, & Bazerman, 2006). For example, accounting firms hired and paid by the firms they audit have incentives to deliver positive auditing results, a practice often mentioned as playing a central role in many recent corporate scandals (Bazerman & Sezer, 2016). Similarly, security analysts were shown to be optimistically biased in their earnings forecasts, such that even during a 2000 stock market crash, 99% of brokerage analysts continued issuing "strong buy," "buy," or "hold" recommendations to their clients (Moore et al., 2006). Advisors' desire to please the clients can result in organization-wide suppression of problems, a phenomenon referred to as organizational silence (Henriksen & Dayton, 2006). Costs can be high. Observation studies in the health context demonstrated that individuals' tendency to withhold negative information might result in direct harm to the patients (Maxfield, Grenny, McMillan, Patterson, & Switzler, 2005).

7 | CONCLUSION

Given the importance of advice in economic and organizational decision making, finding ways to improve advice quality represents an important endeavor for future research. Our findings suggest that advisors' desires to please their clients might undermine the quality of their advice, and we hope that future studies will find ways to address this problem.

ORCID

Olga Stavrova 🔟 http://orcid.org/0000-0002-6079-4151

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Olga Stavrova is an assistant professor of social psychology at Tilburg University. Her research interests include psychology of cynicism and trust, subjective well-being, and social decision making.

Anthony M. Evans is an assistant professor of social psychology at Tilburg University. His research examines the social cognitive processes underlying trust and cooperation in social decision making.

SUPPORTING INFORMATION

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