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# Perceived Managerial (Remote Leader) Trustworthiness as a Moderator for the Relationship between Overall Fairness and Perceived Supervisory (Direct Leader) Trustworthiness

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**Abstract** We investigate the moderating effect of perceived managerial (remote leader) trustworthiness on the relationship between overall fairness and perceived supervisory (direct leader) trustworthiness by integrating fairness heuristic theory and attribution theory. By conducting a field study (Study 1) and an experimental study (Study 2), we found that perceived managerial trustworthiness attenuated the relationship between overall fairness and perceived supervisory trustworthiness. Additionally, pay-for-performance system functions, as a control variable, were positively related to both forms of perceived trustworthiness (Study 2). Our findings advance leader trust/trustworthiness research by proffering a novel view of perceived managerial trustworthiness as a moderator for a psychological process leading to perceived supervisory trustworthiness, rather than merely operating as a factor in parallel to perceived supervisory trustworthiness. Our findings advance fairness research by being the first to identify perceived managerial trustworthiness as a moderator for the fairness heuristic process. The current research also provides practical implications for managing perceived leader trustworthiness.

**Keywords** Supervisory trustworthiness · Managerial trustworthiness · Overall fairness · Fairness heuristic · Pay for performance

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Supervisory (direct leader) trustworthiness strongly and positively influences individual work attitudes and behaviors (Dirks and Ferrin 2002). By enhancing perceived leader trustworthiness, organizations can foster desirable employee attitudes and behaviors. Researchers have therefore long sought to identify the determinants of supervisory trustworthiness. One of the most important of these determinants is subordinate perceptions of overall fairness, which is a global assessment of fairness (Lind 2001; Van den Bos 2001; Van den Bos et al. 2001).

According to fairness heuristic theory, employees care about perceived fairness because it helps them make sense of their environment and manage uncertainty when assessing their leaders' trustworthiness (van den Bos et al. 1998). Less well understood are the factors that moderate the fairness heuristic processes that promote perceived leader trustworthiness. Jones and Martens (2009), for example, recently found that trust certainty (i.e., the degree to which individuals are confident about the accuracy of their trust evaluations) moderates the relationship between overall fairness, as a function of various forms of fairness, and trust in leader. We follow this line of inquiry and examine perceived managerial (remote leader) trustworthiness (i.e., perceptions of senior management's trustworthiness) as a moderator for the relationship between

overall fairness and perceived supervisory trustworthiness (i.e., perceptions of the supervisor's trustworthiness).[1]

The current research makes a number of theoretical contributions. First, we provide a relatively novel view of perceived managerial trustworthiness as a moderator for an important psychological process. Perceived managerial trustworthiness has largely been examined as a determining, mediating, or outcome variable in organizational research. Yet few studies, with rare exception (e.g., Grant and Sumanth 2009), have examined its moderating effect. By examining perceived managerial trustworthiness as a moderator, we can advance a more nuanced understanding of this factor. Second, we offer a novel view on the complex relationship between two distinct forms of perceived leader trustworthiness. We assert that perceived managerial trustworthiness plays a critical, moderating role in the formation of perceived supervisory trustworthiness that ensues from overall fairness. This contrasts with the common view that perceived supervisory trustworthiness and perceived managerial trustworthiness operate as parallel—or even singular—determining, mediating, or outcome variables. Thus, the current research is the first to identify perceived managerial trustworthiness as a moderator for the fairness heuristic process that characterizes the link between overall fairness and perceived supervisory trustworthiness, thereby extending fairness heuristic research. Third, we consider a novel and empirically derived construct—pay-for-performance (PFP) system functions—which we define as the *perceived* (positive versus negative) functions of a PFP system, as a system-related control variable determining interpersonal trust. In evaluating the cause of fairness, individuals distinguish between formal sources—such as organizational systems (e.g., rules and procedures)—and informal sources—such as the leaders who supervise or manage their work (e.g., supervisors and senior management) ultimately deciding whether the perceived fairness is caused by formal or informal sources (Blader and Tyler 2003). Formal sources, because they are codified and slow to change in nature, are likely to remain constant across individuals, time, and situations, whereas informal sources are idiosyncratic and dynamic in nature and thus likely to vary across individuals, time, and situations, depending on the perceiver

(employee), the leader (supervisor or senior management), and the perceiver-leader relationship (Blader and Tyler 2003; Wayne et al. 1997). Therefore, we control for PFP system functions as a formal source of fairness to demonstrate the robustness of our findings.

## Fairness Heuristic: Overall Fairness and Perceived Supervisory Trustworthiness

Employees' perceptions of supervisory trustworthiness are largely situated in their immediate environment such as interpersonal relationships (Smith and Conrey 2009). Individuals tend to identify more strongly with supervisors who provide fair treatment (Johnson and Chang 2008). Lind (2001) claimed that employees "use fairness judgment in much the same way that they would refer to feelings of trust—if they had an independent basis for forming trust—to decide how to react to demands in a long-standing personal relationship" (p. 65). According to fairness heuristic theory, individuals care about perceived fairness because it helps them make sense of their environment and deal with uncertainty about whether they can trust their leaders. Such fairness assessments have been shown to be particularly important when employees evaluate their supervisor, someone with whom they interact frequently and to whom they are they extremely vulnerable (Diekmann et al. 2004; Jones and Martens 2009; Lind 2001; Lind and van den Bos 2002; Van den Bos and Lind 2002). However, continually evaluating supervisory trustworthiness could prove exhausting, given that individuals have limited cognitive resources. Consequently, individuals are likely to take a cognitive shortcut and resort to their fairness perceptions when assessing their supervisor's trustworthiness (Jones and Martens 2009; Lind 2001; Lind and van den Bos 2002).

As Lind (2001) noted, fairness heuristic theory recognizes that virtually all relationships in organizational settings involve repeated interactions characterized by a fundamental social dilemma: on one hand, individuals contribute to their organization in order to extend their ability to achieve personally relevant goals and improve performance; however, on the other hand, they risk exploitation whenever they act first and make organizational contributions that may not necessarily be acknowledged or rewarded. This fundamental social dilemma makes trust/trustworthiness an important consideration for social interactions (cf. Rousseau et al. 1998) and explains why employees are highly motivated to assess supervisory trustworthiness. When fairness-relevant information is encountered in organizational settings, perceptions of overall fairness, based on "information from procedural, process, and distributive elements" (Lind 2001, pp. 68–69; Ambrose and Schminke 2009), are quickly formed and weighted heavily

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[1] Although many researchers use the terms "supervisor" and "management" interchangeably (e.g., Lavelle et al. 2009), others have found that employees do differentiate between their supervisor and senior management (e.g., Costigan et al. 1998; Costigan et al. 2004; Frazier et al. 2010; Mayer and Gavin 2005; Morgan and Zeffane 2003; Tan and Tan 2000). Consistent with Lavelle et al. (2007) multifoci approach to social exchange relationships, Whitener (1997) claimed that employee's trustworthiness perceptions should have at least two different foci: an immediate supervisor and senior management. Perceived supervisory trustworthiness is more circumscribed whereas perceived managerial trustworthiness is more general (Yang and Mossholder 2010). We conceptualize and test perceived managerial trustworthiness as a factor external to an employee-supervisor dyadic relationship and explore whether it moderates the fairness heuristic process leading to perceived supervisory trustworthiness.

in judgment (Lind et al. 2001; Van den Bos et al. 1997). Such "a global impression of fair treatment" (Lind and van den Bos 2002, p. 196), in turn, guides employees' judgment of their supervisor's trustworthiness (Jones and Martens 2009; Lavelle et al. 2007; Lind 2001). Dirks and Ferrin's (2002) meta-analytic findings support fairness heuristic theory, showing that distributive ($r = .49$), procedural ($r = .68$), and interpersonal fairness ($r = .64$) are all strongly correlated with supervisory trust (including perceived supervisory trustworthiness). Similarly, Colquitt and Rodell (2011) found that distributive, procedural, interpersonal, and informational fairness ($.46 \leq rs \leq .79$) are all positively correlated with perceived supervisory trustworthiness. Given that overall fairness is a global fairness-relevant evaluation (Ambrose and Schminke 2009; Jones and Martens 2009), we expect overall fairness to be positively related to perceived supervisory trustworthiness.

> Hypothesis 1: Overall fairness is positively related to perceived supervisory trustworthiness.

## Causal Attribution: Perceived Managerial Trustworthiness as a Moderator

Causal attribution theory posits that individuals make causal ascriptions in order to make sense of their environment; what they deem to be the cause of an event can affect how they respond psychologically or behaviorally (Weiner 1986). In short, causal attributions serve as "the underpinnings of further judgments, emotional reactions, and behavior" (Fiske and Taylor 1991, p. 54). Trustworthiness is an important outcome of causal attribution (Tomlinson and Mayer 2009; e.g., Kruglanski 1970). Individuals update their trustworthiness perceptions based on their perceptions of the current environment (Mayer et al. 1995). Yet, as we discussed, Dirks and Ferrin (2002) identified significant heterogeneity in the positive relationships between various forms of fairness and supervisory trust/trustworthiness. Such heterogeneity suggests the presence of a moderator for the relationship between overall fairness and perceived supervisory trustworthiness. We propose perceived managerial trustworthiness as one such moderator.

Following Lavelle et al. (2007) multi-foci approach, we argue that informal sources of overall fairness include the immediate supervisor and senior management. It is important to acknowledge, however, that these two informal sources of overall fairness exist in hierarchical relation to each other. As middle managers, supervisors must cultivate two distinct sets of relationships—one with more senior managers and one with subordinates. Their behaviors and decisions, moreover, are influenced by a variety of personal and organizational factors. For example, although supervisors might strive to adhere to their own principles and moral standards, they may face pressure from senior management to engage in ethically questionable practices, potentially leading them to make biased decisions regarding employees' performance and welfare. Alternatively, they may be tempted to act in self-interested ways, and yet be checked from doing so by managerial directives or clearly established organizational policies and practices. Stated simply, supervisors usually cannot make decisions as they wish; many, if not all, organizational decisions are approved or initiated by senior management. Given that supervisors' actions are frequently constrained, employees are likely to consider senior management when attributing overall fairness to their supervisor, and more specifically, rely on perceived managerial trustworthiness as an important social cue (Grant and Sumanth 2009).

In short, when perceiving overall fairness, employees engage in sense-making about its source, evaluating the degree to which their immediate supervisor is personally responsible for the perceived fairness and then forming perceptions of supervisory trustworthiness accordingly. In contexts where employees perceive low managerial trustworthiness (low benevolence, integrity, and ability), they are unlikely to attribute overall fairness to senior management. Instead, they are more apt to look to their immediate supervisor as the logical cause, in part because their supervisor has to exert greater control (Tomlinson and Mayer 2009)—either by going against senior management's decisions and directives or going out of his or her own way—in order to promote overall fairness. Such effort requires their supervisor to be not only a person of character, but also capable and benevolent. Thus, when their supervisor can be unambiguously credited as an informal source of overall fairness, overall fairness serves as a strong heuristic for perceived supervisory trustworthiness. In contrast, when perceived managerial trustworthiness is high, it is more likely that some set of appropriately designed, consistently applied and favorably regarded managerial initiatives, policies and practices guide supervisory decisions. In this case, it is likely to be less clear to employees whether overall fairness is a consequence of their supervisor's competence, benevolence and integrity, of their senior management's competence, benevolence and integrity, or of these two factors in combination. Because their supervisor cannot clearly be credited as an informal source of overall fairness in the face of such ambiguity, overall fairness serves as a weak heuristic for perceived supervisory trustworthiness. We therefore propose the following hypothesis.

> Hypothesis 2: Perceived managerial trustworthiness moderates the relationship between overall fairness and perceived supervisory trustworthiness, such that this relationship is strengthened as perceived managerial trustworthiness decreases.

# Study 1

## Method

**Participants** We chose Federal Government agencies as our empirical context because employees' perceptions of their first-line supervisors' trustworthiness and organizational justice have been noted as critical issues across Federal Government agencies (U.S. Merit Systems Protection Board 2007). We used their archival data for analysis. Specifically, we included 12,283 non-supervisor employees (50.1 % female) from 59 Federal Government agencies who completed the Merit Principles Survey 2005 conducted by the U.S. Merit Systems Protection Board. Survey participants provided complete, anonymous responses regarding perceived supervisory trustworthiness, perceived managerial trustworthiness, overall fairness, PFP system functions, age, and gender. Respondents' age ranged from 20 to 80 years, with a mean of 47.56 ($SD$ = 9.72).

## Measures

**Perceived Supervisory Trustworthiness** Participants indicated the extent to which they disagreed or agreed with five items specifically assessing perceived supervisory trustworthiness on a three-point scale ($\alpha$ = .91). The five items include: (1) "support me in pay and award discussions with upper management," (2) "clearly communicate conduct expectations," (3) "act with integrity," (4) "refrain from favoritism," and (5) "keep me informed."

**Perceived Managerial Trustworthiness** Participants indicated the extent to which they disagreed or agreed with four items specifically assessing perceived managerial ("managers above my immediate supervisor") trustworthiness on a three-point scale ($\alpha$ = .90). The five items include: (1) "clearly communicate organizational performance expectations," (2) "act with integrity," (3) "refrain from favoritism," and (4) "keep the organization informed."

**Overall Fairness** Participants indicated the extent to which they disagreed or agreed with each of the six aspects of the fair treatment they had received *in the past two years*: (1) awards, (2) training, (3) performance appraisals, (4) job assignments, (5) discipline, and (6) pay on a three-point scale ($\alpha$ = .83).

**Control Variables** In addition to age, gender, and agency affiliation as control variables, we included an empirically derived construct—PFP system functions. Federal Government agencies strive for better alignment between PFP and cultivating a performance-oriented (versus tenure-oriented) culture (U.S. Merit Systems Protection Board 2006). Participants indicated their perceptions of PFP system functions by indicating the extent to which they disagreed or agreed with six items on a three-point scale: (1) "would increase my pay"; (2) "would help my agency retain high performers"; (3) "encourages teamwork"; (4) "results in unfair treatment of employees" (reverse-scored); (5) "increases employee morale"; and (6) "makes employees more vulnerable to political coercion" (reverse-scored) ($\alpha$ = .81). A larger (smaller) aggregated score indicated the more positive (negative) perceived PFP system functions.

**Measurement Model** Prior to testing our hypotheses, we performed a confirmatory factor analysis to assess our measurement model using LISREL 8.80 (Jöreskog and Sörbom 1996). Specifically, following previous research (e.g., Rich et al. 2010), we distinguished among the four key factors—perceived supervisory trustworthiness, perceived managerial trustworthiness, overall fairness, and PFP system functions (see Table 1). Model fit was assessed with chi-square ($\chi^2$), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). A model typically considered as fitting the data well has a CFI value of .95 or above, a RMSEA value of .08 or less, and a SRMR value of .06 or less (Browne and Cudeck 1993; Kline 2005). The four-factor model had a satisfactory fit: $\chi^2$ = 10,670.25, df = 183, CFI = .97, RMSEA = .07, and SRMR = .04. All factor scores loading onto the corresponding latent variables exceeded the conventional cutoff value |.40|. We then compared the four-factor model to more parsimonious, three-factor models and found that the four-factor model fit the data significantly better than any of the three-factor models ($\Delta\chi^2$s ≥ 11,529.13, dfs = 3, $p$s < .001, $\Delta$CFIs ≥ .04). Accordingly, these four constructs were distinct from one another.

**Analysis** Given that participants were nested within agencies, multilevel random coefficient modeling (Bliese and Hanges 2004; Nezlek 2001) was used because it accounted for the within-agency interdependence (Hofmann 1997; Hofmann et al. 2000) and modeled fixed effects and random errors simultaneously (Raudenbush and Bryk 2002; Nezlek 2001). Multilevel analysis methods such as multilevel random coefficient modeling provide the most accurate analysis of a multilevel data structure even though the effects of higher-level variables (e.g., gross variables of cultures/climates) are not of interest (Bliese and Hanges 2004; Nezlek 2001; Raudenbush and Bryk 2002). We used HLM 7.0 (Raudenbush and Bryk 2002) to perform the analysis. The individual level was Level 1 and the agency level was Level 2. For the interaction hypothesis (Hypothesis 2) at the individual level, the significance of its $t$-test result provided direct evidence (DeRue et al. 2009; Hofmann et al. 2000). Given that within-agency comparison was not of interest, all Level-1 predictors were

**Table 1** Results of Confirmatory Factor Analysis (Study 1)

| Measurement Model | $\chi^2$ | df | $\Delta\chi^2$ (3) | CFI | RMSEA | SRMR |
|---|---|---|---|---|---|---|
| Four-factor model (PST, PMT, OFA, PFP) | 10,670.25 | 183 | – | .97 | .07 | .04 |
| Three-factor model (PST-PMT, OFA, PFP) | 28,067.23 | 186 | 17,396.98 | .91 | .12 | .07 |
| Three-factor model (PST-OFA, PMT, PFP) | 22,199.38 | 186 | 11,529.13 | .93 | .11 | .07 |
| Three-factor model (PST-PFP, PMT, OFA) | 32,390.66 | 186 | 21,720.41 | .90 | .13 | .11 |
| Three-factor model (PST, PMT-OFA, PFP) | 26,096.43 | 186 | 15,426.18 | .92 | .13 | .08 |
| Three-factor model (PST, PMT-PFP, OFA) | 31,349.97 | 186 | 20,679.72 | .90 | .13 | .10 |
| Three-factor model (PST, PMT, OFA-PFP) | 32,436.67 | 186 | 21,766.42 | .90 | .13 | .11 |

$N$ (maximum) = 12,821. PST represents perceived supervisory trustworthiness; PMT represents perceived managerial trustworthiness; OFA represents overall fairness; and PFP represents pay-for-performance system functions. All $\chi^2$s and $\Delta\chi^2$s are significant at the level of .001. Each $\Delta\chi^2$ was calculated by contrasting the alternative three-factor model against the four-factor model

centered to their respective grand means (Bickel 2007; Bommer et al. 2007; Kreft et al. 1995). To account for between-agency effects, we included the agency means of all individual-level predictors at Level 2, which were also centered to their respective grand means (Raudenbush and Bryk 2002).

## Results

Table 2 presents the descriptive statistics and correlations at the individual level. Perceived supervisory trustworthiness was positively correlated with perceived managerial trustworthiness ($r = .56$, $p < .001$) and overall fairness ($r = .55$, $p < .001$), but less so with PFP system functions ($r = .20$, $p < .001$). Overall fairness was also more strongly correlated with perceived supervisory trustworthiness than with perceived managerial trustworthiness ($r = .46$, $p < .001$).

Tables 3 and 4 present the results of multilevel analysis. Overall fairness was positively related to perceived supervisory trustworthiness (Table 2, Model 1a: $\gamma = .59$, $SE = .01$, $t(58) = 60.71$, $p < .001$), supporting Hypothesis 1. So were PFP system functions (Table 2, Model 1a: $\gamma = .14$, $SE = .01$, $t(58) = 12.03$, $p < .001$). Our exploratory analysis indicated that the interaction of overall fairness and PFP system functions was negatively related to perceived supervisory

trustworthiness (Table 2, Model 2a: $\gamma = -.07$, $SE = .02$, $t(58) = -3.75$, $p < .001$). A simple slope test (Preacher et al. 2006) suggested that overall fairness was more strongly related to perceived supervisory trustworthiness when PFP system functions were negative ($-1$ $SD$) (simple slope = .63, $SE = .01$, $z = 50.36$, $p < .001$) than when PFP system functions were positive ($+1$ $SD$) (simple slope = .56, $SE = .01$, $z = 38.09$, $p < .001$) (see Fig. 1). However, we did not find a significant interaction effect of overall fairness and PFP system functions on perceived managerial trustworthiness (Table 2, Model 2b: $\gamma = -.02$, $SE = .02$, $t(58) = -.87$, $p = .39$).

In testing Hypothesis 2, we found that the interaction of overall fairness and perceived managerial trustworthiness (Table 4: $\gamma = -.14$, $SE = .01$, $t(58) = -11.20$, $p < .001$) was negatively related to perceived supervisory trustworthiness, even when the interaction of overall fairness and PFP system functions was included (Table 3: $\gamma = -.02$, $SE = .02$, $t(58) = -1.21$, $p = .23$). A simple slope test (Preacher et al. 2006) indicated that overall fairness was more strongly related to perceived supervisory trustworthiness when perceived managerial trustworthiness was low ($-1$ $SD$) (simple slope = .51, $SE = .01$, $z = 41.20$, $p < .001$) than when perceived managerial trustworthiness was high ($+1$ $SD$) (simple slope = .31, $SE = .01$, $z = 22.94$, $p < .001$) (see Fig. 2). Therefore, Hypothesis 2 was also supported.

**Table 2** Descriptive Statistics and Correlations (Study 1)

| Level-1 Variable | $n$ | $M$ | $SD$ | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 1. Perceived supervisory trustworthiness | 12,787 | 2.43 | .67 | | | | | |
| 2. Perceived managerial trustworthiness | 12,797 | 2.25 | .72 | .56*** | | | | |
| 3. Overall fairness | 12,783 | 2.21 | .60 | .55*** | .46*** | | | |
| 4. PFP system functions | 12,704 | 2.19 | .54 | .20*** | .24*** | .15*** | | |
| 5. Female | 12,679 | .51 | .50 | -.00 | .03** | .05*** | .07*** | |
| 6. Age | 12,418 | 47.60 | 9.73 | -.05*** | -.04*** | -.09*** | -.02* | -.08*** |

$N$ (maximum) = 12,821. * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

**Table 3** Multilevel Analysis Predicting Perceived Supervisory Trustworthiness and Perceived Managerial Trustworthiness (Study 1)

| | Perceived Supervisory Trustworthiness | | | | Perceived Managerial Trustworthiness | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Model 1a | | Model 2a | | Model 1b | | Model 2b | |
| Fixed effects | $\gamma$ (SE) | t (df) | $\gamma$ (SE) | t (df) | $\gamma$ (SE) | t (df) | $\gamma$ (SE) | t (df) |
| **Level-1 (Individual)** | | | | | | | | |
| Intercept ($\gamma_{00}$) | 2.43 (.01) | 332.51 (54)*** | 2.44 (.01) | 326.90 (54)*** | 2.25 (.01) | 259.02 (54)*** | 2.25 (.01) | 253.28 (54)*** |
| Age ($\gamma_{10}$) | -.00 (.00) | -.03 (58) | .00 (.00) | .08 (58) | .00 (.00) | .29 (58) | .00 (.00) | .23 (58) |
| Female ($\gamma_{20}$) | -.06 (.01) | -5.51 (58)*** | -.06 (.01) | -5.43 (58)*** | -.01 (.01) | -.85 (58) | -.01 (.01) | -.85 (58)* |
| PFP system functions ($\gamma_{30}$) | .14 (.01) | 12.03 (58)*** | .13 (.01) | 11.65 (58)*** | .23 (.02) | 14.29 (58)*** | .23 (.02) | 14.43 (58)*** |
| Overall fairness ($\gamma_{40}$) | .59 (.01) | 60.71 (58)*** | .59 (.01) | 59.58 (58)*** | .51 (.01) | 42.58 (58)*** | .51 (.01) | 43.20 (58)*** |
| Overall fairness × PFP system functions ($\gamma_{50}$) | | | -.07 (.02) | -3.75 (58)*** | | | -.02 (.02) | -.87 (58) |
| **Level-2 (Agency)** | | | | | | | | |
| Agency-mean of age ($\gamma_{01}$) | .00 (.00) | 1.41 (54) | .00 (.00) | 1.48 (54) | -.00 (.00) | -.11 (54) | -.00 (.00) | -.04 (54) |
| Agency-mean of female ($\gamma_{02}$) | .02 (.06) | .31 (54) | .01 (.06) | .24 (54) | .05 (.07) | .68 (54) | .05 (.07) | .74 (54) |
| Agency-mean of PFP system functions ($\gamma_{03}$) | .03 (.06) | .41 (54) | .05 (.06) | .81 (54) | -.00 (.08) | -.05 (54) | -.00 (.08) | -.06 (54) |
| Agency-mean of overall fairness ($\gamma_{04}$) | .11 (.07) | 1.47 (54) | .11 (.07) | 1.52 (54) | .37 (.09) | 4.15 (54)*** | .36 (.09) | 4.04 (54)*** |
| Random effects | SD | $\chi^2$ (df) | SD | $\chi^2$ (df) | SD | $\chi^2$ (df) | SD | $\chi^2$ (df) |
| $u_0$ | .04 | 88.41 (53)** | .04 | 91.80 (53)*** | .05 | 95.31 (53)*** | .05 | 96.06 (53)*** |
| $u_1$ | .00 | 34.10 (57) | .00 | 33.94 (57) | .04 | 74.10 (57) | .00 | 73.41 (57) |
| $u_2$ | .02 | 49.48 (57) | .02 | 50.83 (57) | .00 | 67.72 (57) | .04 | 67.18 (57) |
| $u_3$ | .05 | 80.86 (57)* | .04 | 82.42 (57)* | .09 | 115.77 (57)*** | .08 | 116.32 (57)*** |
| $u_4$ | .03 | 56.18 (57) | .04 | 62.39 (57) | .05 | 79.61 (57)* | .05 | 73.77 (57) |
| $u_5$ | | | .06 | 79.23 (57)* | | | .06 | 62.03 (57) |
| Deviance | 20,063.12 | | 20,043.45 | | 22,934.95 | | 23,126.35 | |
| N (parameter) | 16 | | 22 | | 16 | | 22 | |
| Log-likelihood | -10,031.56 | | -10,021.73 | | -11,562.55 | | -11,563.18 | |

Level 1 $N$ (maximum) = 12,821 and Level 2 $N$ (maximum) = 59. * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

**Table 4** Perceived Managerial Trustworthiness as a Moderator for the Relationship between Overall Fairness and Perceived Supervisory Trustworthiness (Study 1)

| | Perceived Supervisory Trustworthiness | |
|---|---|---|
| Fixed effects | $\gamma$ (SE) | t (df) |
| *Level-1 (Individual)* | | |
| Intercept ($\gamma_{00}$) | 2.46 (.01) | 359.69 (53)*** |
| Age ($\gamma_{10}$) | -.00 (.00) | -.13 (58) |
| Female ($\gamma_{20}$) | -.06 (.01) | -5.90 (58)*** |
| Overall fairness ($\gamma_{30}$) | .41 (.01) | 40.08 (58)*** |
| PFP system functions ($\gamma_{40}$) | .06 (.01) | 5.68 (58)*** |
| Overall fairness × PFP system functions ($\gamma_{50}$) | -.02 (.02) | -1.21 (58) |
| Perceived managerial trustworthiness ($\gamma_{60}$) | .34 (.01) | 31.45 (58)*** |
| Overall fairness × perceived managerial trustworthiness ($\gamma_{70}$) | -.14 (.01) | -11.20 (58)*** |
| *Level-2 (Agency)* | | |
| Agency-mean of age ($\gamma_{01}$) | .00 (.00) | 1.44 (53) |
| Agency-mean of female ($\gamma_{02}$) | -.00 (.05) | -.05 (53) |
| Agency-mean of overall fairness ($\gamma_{03}$) | -.06 (.09) | -.63 (53) |
| Agency-mean of PFP system functions ($\gamma_{04}$) | .03 (.06) | .46 (53) |
| Agency-mean of perceived managerial trustworthiness ($\gamma_{06}$) | .08 (.09) | .93 (53) |
| Random effects | SD | $\chi^2$ (df) |
| $u_0$ | .03 | 78.08 (52)* |
| $u_1$ | .00 | 39.74 (57) |
| $u_2$ | .02 | 48.54 (57) |
| $u_3$ | .04 | 73.59 (57)** |
| $u_4$ | .04 | 73.94 (57) |
| $u_5$ | .06 | 71.67 (57) |
| $u_6$ | .06 | 114.61 (57)*** |
| $u_7$ | .04 | 58.25 (57) |
| Deviance | 17,734.33 | |
| N (parameter) | 37 | |
| Log-likelihood | -8867.17 | |

Level 1 N (maximum) = 12,821 and Level 2 N (maximum) = 59. * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

## Discussion

Using the archival data of over 12,000 employees in 59 Federal Government agencies, we provided initial empirical support for our hypotheses. Specifically, consistent with fairness heuristic theory, overall fairness (in the past two years) was positively related to perceived supervisory trustworthiness, and consistent with our causal attribution perspective, this relationship was attenuated by perceived managerial trustworthiness. Yet when the interaction of overall fairness and perceived managerial trustworthiness was simultaneously considered, PFP system functions did not moderate the relationship between overall fairness and perceived supervisory trustworthiness, suggesting that individuals attributed overall fairness to informal sources (e.g., the supervisor and/or senior management) rather than formal sources (e.g., PFP system functions). Moreover, the bivariate correlation between overall fairness and perceived supervisory trustworthiness was slightly stronger than that between overall

fairness and perceived managerial trustworthiness, indicating that overall fairness is more likely to serve as a heuristic for perceived supervisory trustworthiness than for perceived managerial trustworthiness.

There are several limitations worth noting, which motivated us to conduct Study 2. First, like many other studies on fairness and trust/trustworthiness (e.g., Aryee et al. 2002; Brockner et al. 1997; Colquitt et al. 2012; Cropanzano et al. 2002), our measures of overall fairness and perceived trustworthiness were self-reported, thus raising the concern of common method bias. However, this bias should not threaten the validity of the findings for the following reasons. First, statistically, we used Harman's single-factor test (Podsakoff et al. 2003) to estimate the degree of common method bias among the four key variables—PFP system functions, perceived supervisory trustworthiness, perceived managerial trustworthiness, and overall fairness. The results indicated that the extracted single factor, using promax-rotated, maximum likelihood estimation, accounted for less than 35 % of the
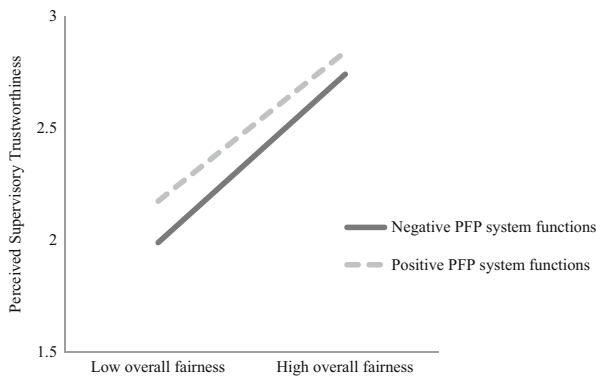
**Fig. 1** PFP system functions as a moderator for the relationship between overall fairness and perceived supervisory trustworthiness (Study 1)

variance. Second, common method bias is unlikely to inflate the hypothesized moderation effect of perceived managerial trustworthiness (cf. Evans 1985; Siemsen et al. 2010). Third, Colquitt et al. (2012) noted that self-reported fairness captures true variance in objective treatment based on prior laboratory, field, and meta-analytic evidence. Common-method correlations can be accurate representations of their true-score counterparts (Conway and Lance 2010; e.g., Yang and Mossholder 2010). Fourth, the magnitudes of the correlations between perceived supervisory trustworthiness and overall fairness and between perceived managerial trustworthiness and overall fairness in the current research were similar or comparable to those reported in previous meta-analytic studies (Cohen-Charash and Spector 2001; Dirks and Ferrin 2002).

A second limitation is that we could not draw a definitive conclusion regarding the causality from overall fairness to perceived supervisory trustworthiness, though overall fairness should be a determinant of perceived supervisory trustworthiness, according to fairness heuristic theory and prior research (e.g., Ambrose and Schminke 2003; Aryee et al. 2002; Brockner et al. 1997; Colquitt et al. 2012; Dirks and Ferrin 2002; Folger and Konovsky 1989; Jones and Martens 2009; Konovsky and Pugh 1994). In order to address both the first and second study limitations, we conducted an experimental
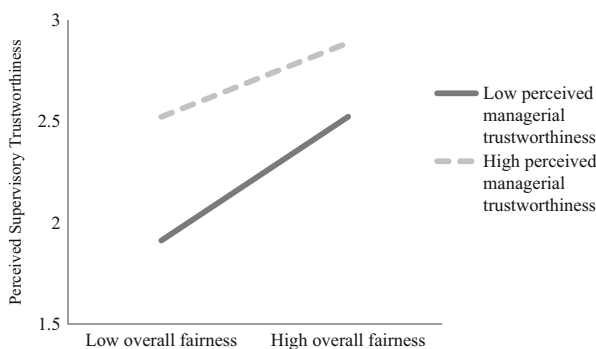


**Fig. 2** Perceived managerial trustworthiness as a moderator for the relationship between overall fairness and perceived supervisory trustworthiness (Study 1)

study (Study 2), in which we manipulated overall fairness and perceived managerial trustworthiness and measured perceived supervisory trustworthiness. Our design of Study 2 was similar to that of Bianchi et al.'s (2015) scenario study.

A third limitation is that the items of overall fairness and perceived trustworthiness were created specifically for the Merit Principles Survey 2005 rather than for academic research. In Study 2, we used the measures created by Kim and Leung (2007) and Mayer and Davis (1999) to replicate the findings of Study 1 and show that our findings were not affected by this measurement concern either.

## Study 2

### Method

**Participants** A total of 218 U.S. participants recruited via Amazon's Mechanical Turk (Buhrmester et al. 2011) completed the online study in exchange for pecuniary compensation. They were from various work organizations in the U.S. Only those who were employed at the time, living in the U.S., fluent in English, and 18 years old or above (via screening questions) were eligible for the study. Considering that researchers have raised the concern regarding the quality of data collected via the Internet or specifically via MTurk (see Buhrmester et al. 2011), we included an attention check question; 202 participants (92.7 %) passed the attention check and were included in the final sample (51 % female). Their average age was 35.51 years ($SD$ = 12.12). Their average work experience was 14.88 years ($SD$ = 12.31) and their average tenure in their current work organization was 5.31 years ($SD$ = 6.41).

**Design and Procedure** We employed a 2 (overall fairness: high vs. low) × 2 (perceived managerial trustworthiness: high vs. low) between-subjects design. Participants were randomly assigned to an experimental condition and read a scenario in which they were asked to put themselves into the shoes of the main character (see the Appendix). The instructions were adapted from those of Hitlan et al. (2006) and part of the scenario was adapted from Bianchi et al. (2015) scenario study. Similar to Bianchi et al. (2015), we provided concluding sentences pertaining to managerial trustworthiness, telling participants that their senior management had been either untrustworthy or trustworthy. Likewise, in manipulating high versus low overall fairness, we explicitly told participants that the treatment they had received was either fair or unfair in all aspects (distributively, procedurally, and interpersonally). After reading the scenario, participants were asked to briefly describe what they had read about the scenario in one or two sentences, such that we could ensure that they actually read and comprehended the scenario. All participants provided correct description based on the information provided in the

scenario. Participants then indicated their perceptions of overall fairness (manipulation check), perceived managerial trustworthiness (manipulation check), and perceived supervisory trustworthiness (dependent variable).

**Measures** Participants responded to all the items on a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*) unless indicated otherwise.

**Overall Fairness (Manipulation Check)** Participants indicated the degree to which they agreed or disagreed with each of the three items adapted from Kim and Leung (2007) ($\alpha$ = .99). The items are: "In general, I have been fairly treated in this organization"; "All in all, this organization has treated me fairly"; and "Overall, I believe I have received fair treatments from this organization."

**Perceived Managerial Trustworthiness (Manipulation Check)** Participants indicated the degree to which they agreed or disagreed with each of the seventeen trustworthiness items adapted from Mayer and Davis (1999) ($\alpha$ = .99). Sample items are: "My senior management is well-qualified" (perceived competence); "My senior management is very concerned about my welfare" (perceived benevolence); and "My senior management has a strong sense of justice" (perceived integrity).

**Perceived Supervisory Trustworthiness** Participants responded to seventeen items adapted from Mayer and Davis (1999) ($\alpha$ = .99). Sample items are: "My supervisor is well-qualified" (perceived competence); "My supervisor is very concerned about my welfare" (perceived benevolence); and "My supervisor has a strong sense of justice" (perceived integrity).

**Results**

**Manipulation Checks** As expected, the manipulations of overall fairness and perceived managerial trustworthiness were effective. Participants in the high overall fairness condition ($M$ = 4.36, $SD$ = .75, $n$ = 96) perceived a significantly higher level of overall fairness than those in the low overall fairness condition ($M$ = 1.59, $SD$ = .79, $n$ = 106), $t(200)$ = 25.36, $p$ < .001. Participants in the high perceived managerial trustworthiness condition ($M$ = 3.94, $SD$ = .69, $n$ = 103) perceived a significantly higher level of managerial trustworthiness than those in the low perceived managerial trustworthiness condition ($M$ = 1.71, $SD$ = .67, $n$ = 99), $t(200)$ = 23.24, $p$ < .001.

**Hypothesis Testing** Using the univariate analysis of variance (see Table 5, Step 1), we found overall fairness had a significant main effect on perceived supervisory trustworthiness,

$F(1, 199)$ = 432.85, $p$ < .001, partial $\eta^2$ = .69. Participants assigned in the high overall fairness condition indicated significantly higher perceived supervisory trustworthiness than those assigned in the low overall fairness condition, $t(200)$ = 20.72, $p$ < .001. Therefore, Hypothesis 1 was supported again. On the other hand, perceived managerial trustworthiness, as an experimental manipulated factor, did not have a significant main (halo) effect on perceived supervisory trustworthiness, indicating that perceived managerial trustworthiness is more likely to be a moderator than overall fairness.

The interaction effect of overall fairness and perceived managerial trustworthiness on perceived supervisory trustworthiness was also significant (see Table 2, Step 2), $F(1, 198)$ = 5.26, $p$ < .05, partial $\eta^2$ = .03. Figure 3 presents the means of the four conditions. A simple effect test (Hayes 2013) indicated the difference in perceived supervisory trustworthiness between the high overall fair condition ($M$ = 4.11, $SD$ = .59, $n$ = 47) and the low overall fairness condition ($M$ = 1.66, $SD$ = .58, $n$ = 52) ($t(97)$ = 20.93, $p$ < .001) when perceived managerial trustworthiness was low ($-1$ $SD$) (simple effect =2.46, $SE$ = .15, $t$ = 16.36, $p$ < .001) was significantly larger than that between the high overall fairness condition ($M$ = 4.04, $SD$ = .81, $n$ = 49) and the low overall fairness condition ($M$ = 2.06, $SD$ = .93, $n$ = 54) ($t(101)$ = 11.44, $p$ < .001) when perceived managerial trustworthiness was high ($+1$ $SD$) (simple effect =1.98, $SE$ = .15, $t$ = 13.41, $p$ < .001). Therefore, Hypothesis 2 was supported again.

**Discussion**

Study 2 replicated the findings of Study 1, using the conventional measures of overall fairness (Kim and Leung 2007) and perceived trustworthiness (Mayer and Davis 1999). We also addressed the methodological limitations of Study 1. Specifically, we experimentally manipulated overall fairness and perceived managerial trustworthiness instead of relying on self-reported measures, thus eliminating common-method bias and establishing the causality from overall fairness to perceived supervisory trustworthiness.

**General Discussion**

The results of our field (Study 1) and experimental (Study 2) studies, using samples of employed professionals, showed that overall fairness was positively related to perceived supervisory trustworthiness, and this relationship was attenuated by perceived managerial trustworthiness. Our two studies are complementary to each other in that Study 1 had limited internal validity but demonstrated external validity whereas Study 2 demonstrated strong internal validity but had limited external validity. The consistency of the results across the

**Table 5** Results of Univariate ANOVA (Study 2)

| DV: Perceived supervisory trustworthiness | Mean Square | df | $F$ | $p$ | partial $\eta^2$ |
|---|---|---|---|---|---|
| *Step 1* ($R^2$ = .69) | | | | | |
| Intercept | 1771.22 | 1 | 3108.54 | < .001 | .94 |
| Overall fairness | 246.63 | 1 | 432.85 | < .001 | .69 |
| Perceived managerial trustworthiness | 1.58 | 1 | 2.77 | .10 | .02 |
| Error | .57 | 199 | | | |
| *Step 2* ($R^2$ = .70) | | | | | |
| Intercept | 1771.49 | 1 | 3175.54 | < .001 | .94 |
| Overall fairness | 247.61 | 1 | 443.85 | < .001 | .69 |
| Perceived managerial trustworthiness | 1.37 | 1 | 2.45 | .12 | .01 |
| Overall fairness × perceived managerial trustworthiness | 2.93 | 1 | 5.26 | < .05 | .03 |
| Error | .56 | 198 | | | |

studies using different methods shows that our findings are reliable and robust rather than artifacts derived from either the field or experimental study design (also see Bianchi et al. 2015). Our findings provide several theoretical implications for leader trust/trustworthiness and fairness research as well as practical implications for managing perceived leader trustworthiness.

## Theoretical Implications

**Perceived Trustworthiness of Different Foci** The current research has empirically demonstrated the distinction between perceived supervisory trustworthiness and perceived managerial trustworthiness, not only with the confirmatory factor analysis result in Study 1, but also with the non-significant main effect of experimentally-manipulated perceived managerial trustworthiness on perceived supervisory trustworthiness in Study 2. Tangentially, the non-significant interaction effect of overall fairness and PFP system functions on perceived managerial trustworthiness, in contrast to the significant interaction effect of overall fairness and PFP system functions on

perceived supervisory trustworthiness (see Table 3), also supports the distinction between perceived supervisory trustworthiness and perceived managerial trustworthiness.

In addition, as noted earlier, little research has examined the moderating effect of perceived managerial trustworthiness in organizational settings. By showing the moderating effect of perceived managerial trustworthiness on the relationship between overall fairness and perceived supervisory trustworthiness, the current research distinguishes itself from previous studies that conceptualized supervisory trust/trustworthiness and managerial trust/trustworthiness as parallel factors. It reveals the limitations associated with viewing these two forms of trust/trustworthiness as operating only in parallel and stresses the need for a better understanding of the complex relationship between these two forms of trust/trustworthiness. Supervisors appear more psychologically meaningful to employees than senior management, presumably because employees interact with their immediate supervisor more frequently and are more vulnerable to their immediate supervisor than senior management. Thus, employees are likely to view senior management as important factors external to their

**Fig. 3** Perceived supervisory trustworthiness as a joint function of overall fairness and perceived managerial trustworthiness (Study 2)
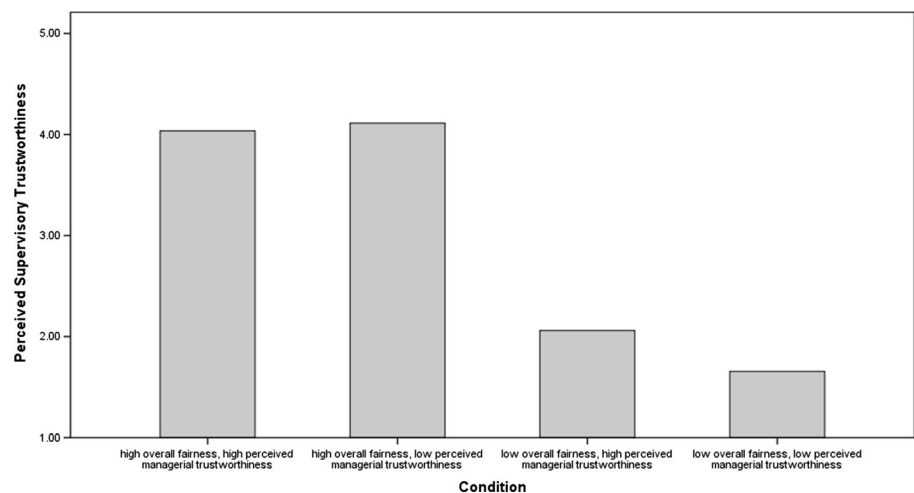
dyadic relationships with their supervisor and to their fairness heuristic process leading to perceived supervisory trustworthiness.

**Fairness Heuristic Theory** The current research also contributes to fairness heuristic theory. As noted earlier, relatively little is known regarding what factors moderate fairness heuristic processes leading to perceived supervisory trustworthiness. To our knowledge, the current research is among the few attempts to examine a moderator for a fairness heuristic process. It is the first to integrate causal attribution theory and identify perceived managerial trustworthiness as a moderator for the fairness heuristic processing that leads to perceived supervisory trustworthiness, thus advancing a more nuanced understanding of fairness heuristic.

It is worth noting that one theoretical framework which guides the investigation of moderators for fairness heuristic processes is uncertainty management theory (an updated version of fairness heuristic theory). Uncertainty management theory posits that perceived uncertainty increases individuals' motivation to use fairness as a heuristic for perceived leader trustworthiness (Lind and van den Bos 2002). When perceiving great uncertainty, individuals will "be particularly motivated to determine whether [their supervisors] can be trusted" (Brockner et al. 1997, p. 579), and thus, are more likely to rely on overall fairness to form perceptions of supervisory trustworthiness. Our findings are consistent with uncertainty management theory in that perceived managerial trustworthiness is likely to reduce perceived uncertainty of the work environment (e.g., Colquitt et al. 2012), and thus, attenuates the relationship between overall fairness and perceived supervisory trustworthiness.

**PFP Systems and Trustworthiness** Although we did not hypothesize the role of PFP system functions (an empirically derived construct) in the current research, PFP systems are used extensively in the private sector (Gerhart et al. 2009). Over the years, PFP systems have been increasingly used in the public sector as well. Our exploratory findings show that a PFP system, as an integral part of human resource systems, has important implications for perceived supervisory and managerial trustworthiness, and deserves more research attention. To our knowledge, the present research is the first to explore the role of PFP system functions in the process of trust/trustworthiness formation. More broadly speaking, PFP system functions may provide scaffolding that is critical for trust to take root and develop. Theorists have long argued that trust can arise outside of a specific relationship, more impersonally on the basis of systems and institutions (Nooteboom 2002; Shapiro 1987; Zucker 1986). Rousseau et al. (1998) noted that systemic/institutional trust also serves as the foundation of interpersonal trust. Consistent, uniform application of rules within a system of structured roles and relations

promotes interpersonal trust and collaboration, even between "strangers," by making other organization members' behaviors more predictable and reliable (Bigley and Pearce 1998; Pearce et al. 2000; Zucker 1986). Thus, interpersonal trust can be formed beyond idiosyncratic relationships, and alternatively, be based on the perceived system functions.

## Practical Implications

The current research proposes a dilemma to supervisors. On one hand, their effort to promote overall fairness increases their subordinates' perceptions of their trustworthiness, and on the other hand, their subordinates' perceptions of their boss's (senior management's) trustworthiness attenuates the effect of overall fairness on their subordinates' perceptions of supervisors' own trustworthiness. To address this dilemma and boost their trustworthiness in the eye of their subordinates, supervisors should focus on promoting overall fairness. Although supervisors may manipulate their subordinates' perceptions of managerial trustworthiness, this behavior is ethically questionable and may negatively influence other factors that contribute to organizational effectiveness.

Additionally, we urge managers to improve their organization's PFP system. When an effective PFP system is lacking, employees are likely to deem their supervisors and managers untrustworthy and thus withdraw their effort for organizational effectiveness, but when such systems are in place, employees are likely to deem their leaders trustworthy and thus exert their effort for organizational effectiveness.

## Limitations and Directions for Future Research

As with all studies, the present research comes with some caveats. For instance, given our interest in the relationship between overall fairness and perceived supervisory trustworthiness, moderated by perceived managerial trustworthiness, we did not include any supervisor-rated employee performance or behavior. Numerous empirical studies and several meta-analytic studies have shown the benefits of trust/trustworthiness to performance and cooperative behaviors (Colquitt et al. 2007; Cohen-Charash and Spector 2001; Dirks and Ferrin 2001, 2002).

We suggest several promising directions for future research. First, we urge researchers to continue understanding the differential roles that perceived supervisory trustworthiness and perceived managerial trustworthiness play in organizational settings and examining their complex relationship in lieu of treating them as parallel factors. In so doing, future research may also incorporate performance or behavioral variables. Such empirical efforts would enrich our understanding of perceived leader trustworthiness within the multi-foci framework. Second, we encourage researchers to examine the determinants of perceived managerial trustworthiness. In

the current research, we treated it as an exogenous variable. Yet, as a perceptual variable, perceived managerial trustworthiness is situated in the immediate environment (Smith and Conrey 2009) and is likely to be influenced by a range of environmental factors (e.g., PFP system functions). Third, future research can examine the nature of PFP system functions more systematically and develop a better measure. Also, more research on the role of PFP system functions would enhance our understanding of the role that financial systems play in work relationships and respond to a broader call for a better understanding of how environmental factors shape cognition and behaviors in organizational settings (Cappelli and Sherer 1991; Rousseau and Fried 2001; Salancik and Pfeffer 1978). Finally, future research can replicate our findings in different countries.

## Conclusion

By integrating fairness heuristic theory and causal attribution theory, we proffered a novel view of perceived managerial trustworthiness as a moderator for the relationship between overall fairness and perceived supervisory trustworthiness in lieu of a factor parallel to perceived supervisory trustworthiness. We conducted a field study using archival data of over 12,000 employees in 59 U.S. Federal Government agencies and an experimental study using a sample of over 200 U.S. employees, and found that perceived managerial trustworthiness attenuated the relationship between overall fairness and perceived supervisory trustworthiness. Parenthetically, PFP system functions were positively related to both perceived supervisory trustworthiness and perceived managerial trustworthiness. Taken together, our findings proffer a more nuanced view on perceived leader trustworthiness and overall fairness as well as practical guidance regarding how to manage perceived leader trustworthiness.

**Appendix: Study 2 Scenario**  Please take your time and read the following scenario carefully and thoughtfully. Put yourself into the shoes of the main character. Think about how you would be feeling if this were you. The results of the study are valid only if you really think about how you would be feeling if you were the main character. After you have finished reading the story, you will be asked a series of questions regarding it.

You are a full-time salaried employee in a company, working under a supervisor who reports to the senior management of the organization.

**High overall fairness, high perceived managerial trustworthiness**  In the past few years, you have been treated fairly in all aspects. Your organization has rewarded you fairly. Rules and procedures are used consistently and reliably within the organization to address various issues fairly. And, in interactions with you, your supervisor has treated you fairly, with dignity and respect. In addition, your senior management has been trustworthy. It is known for being conscientious and competent at its work. Your senior management also keeps promises, does not abuse power, and cares about employees' needs and welfare.

**High overall fairness, low perceived managerial trustworthiness**  In the past few years, you have been treated fairly in all aspects. Your organization has rewarded you fairly. Rules and procedures are used consistently and reliably within the organization to address various issues fairly. And, in interactions with you, your supervisor has treated you fairly, with dignity and respect. However, your senior management has been untrustworthy. It is not known for being either conscientious or competent at its work. Your senior management also does not keep promises, abuses power, and does not care about employees' needs and welfare.

**Low overall fairness, high perceived managerial trustworthiness**  In the past few years, you have been treated unfairly in all aspects. Your organization has not rewarded you fairly. Rules and procedures are neither consistently nor reliably used within the organization to address various issues fairly. And, in interactions with you, your supervisor has treated you unfairly, without dignity or respect. However, your senior management has been trustworthy. It is known for being conscientious and competent at its work. Your senior management also keeps promises, does not abuse power, and cares about employees' needs and welfare.

**Low overall fairness, low perceived managerial trustworthiness**  In the past few years, you have been treated unfairly in all aspects. Your organization has rewarded you unfairly. Rules and procedures are neither consistently nor reliably used within the organization to address various issues fairly. And, your supervisor has treated you unfairly, without dignity or respect. In addition, your senior management has been untrustworthy. It is not known for being either conscientious or competent at its work. Your senior management also does not keep promises, abuses power, and does not care about employees' needs and welfare.

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