Equal or Equitable Pay?: Individual Differences in Pay Fairness Perceptions

TAE-YEOL KIM
China Europe International Business School (CEIBS)
699 Hongfeng Road, Pudong, Shanghai 201206, PRC
Tel: (86) 21-2890-5643
e-mail: *tykim@ceibs.edu*

JIE WANG (Corresponding author)
University of Nottingham Ningbo China
199 Taikang East Road, Ningbo 315100, PRC
Tel: (86) 574-88180000-1459
e-mail: *Jie.Wang@nottingham.edu.cn*

TINGTING CHEN
Lingnan University
8 Castle Peak Road, Tuen Mun, New Territories, HK
e-mail: *tingtingchen@ln.edu.hk*

YUE ZHU (Corresponding author)
Zhejiang Gongshang University
Hangzhou 310018, Zhejiang, PRC
e-mail: *carolzhuyue@hotmail.com*

RUI SUN
Rokid Corporation Ltd.
e-mail: *oliviaruisun@163.com*

Biographical sketch

Tae-Yeol Kim (Ph.D., University of North Carolina-Chapel Hill) is Philips Chair in Management and the Department Chair in Organizational Behavior and Human Resource Management Department, China Europe International Business School. His current interests include creativity, leadership, proactivity, person-environment fit, and cross-cultural management. His papers have appeared in the *Academy of Management Journal*, *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Journal of Management*, *Journal of Organizational Behavior*, *Human Relations*, and *MIT: Sloan Management Review* among others.

Jie Wang (Fifi) is an Associate Professor in Organizational Behavior at the University of Nottingham Ningbo China. Her current research is in the areas of interpersonal harmony, social exchange, and creativity. Her papers have appeared in *Human Resource Management*, *Human Relations*, *Journal of Organizational Behavior*, and *Journal of Business Ethics*, among others.

Tingting Chen is an Assistant Professor of management at Lingnan University, Hong Kong. She received her PhD in management from City University of Hong Kong. Her research interests include creative and innovative performance at the individual and team levels, as well as mechanisms of leadership influence and leadership development.

Yue Zhu is an Associate Professor of Human Resource Management at Zhejiang Gongshang University, China. She received her PhD in management from City University of Hong Kong. Her research interests include leadership, trust, and prosocial motivation.

Rui Sun received her Master of Psychology from Shaanxi Normal University. She previously worked as a Research Assistant at Arizona State University-Embody Cognition Lab, a Senior Research Assistant at CEIBS, a Senior Operation Analyst at Alibaba, and now works at Rokid as a Senior User Experience Researcher. She mainly focuses on AI & AR products research, leading the user research of the new product, conducting longitudinal study of user experience, and continuously exploring new human-machine interaction modes to enhance the key nodes of user experience.

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Abstract

This study examined how social comparison (i.e., comparing one's pay to similar others' pay) and deserved comparison (i.e., comparing one's pay to one's deserved pay) affect pay fairness perceptions, and the individual differences in the comparison processes. Results based on a field study with a sample of 167 employees showed that pay fairness was low when employees received lower pay than a similar other (or what they deserved), increased as their pay exceeded that of a similar other (or deserved pay) to some extent, and then decreased when overpayment was considerable. Second, pay fairness increased as one's actual and similar others' pay levels both increased while pay fairness remained the same as one's actual and the deserved pay levels both increased. In addition, the "threshold" that people start to perceive overpayment as less fair occurred more quickly for those with higher preference for consistency in social comparison and for those with higher preference for the merit principle in deserved comparison. We also conducted experiments, and the results generally replicated the findings in the field study. These findings offer theoretical implications regarding organizational justice, as well as practical implications for designing and executing compensation system.

Keywords: social comparison, deserved comparison, pay fairness, preference for consistency, preference for the merit principle

Pay is a critical influencer on the quality and effectiveness of human capital (Gupta & Shaw, 2014), and pay fairness perceptions matter in explaining a range of employees' work attitudes and behaviors in organizations (He, Long, & Kuvaas, 2016; Kwon, Kim, Kang, & Kim, 2008; van Dierendonck & Jacobs, 2012). Management researchers have devoted much attention to the factors affecting pay fairness perceptions. One important work is Adams's (1965) seminal article on equity theory, which delineates the cognitive process that people engage to form pay fairness perceptions. Equity theory focuses on pay fairness perceptions formed by comparing one's pay against that of similar others (i.e., social comparison, Greenberg, Ashton-James, & Ashkanasy, 2007; Peters, van den Bos, & Bobocel, 2004; van den Bos & Lind, 2001). On the other hand, a line of recent justice research posits that pay fairness perceptions can also be affected by the comparison of their pay against a standard of what they believe they deserve (i.e., deserved comparison), and transgression of this standard is perceived as unfair (Folger & Cropanzano, 2001; Leung & Tong, 2003; Luna-Arocas & Tang, 2015; Skitka & Mullen, 2002).

Both lines of research enhance the understanding on how people make pay fairness perceptions, but several important issues remain unaddressed. A first question that has surprisingly been omitted from prior research regarding pay fairness dynamics is: how are employees' pay fairness perceptions influenced when their pay level exceeds what similar others receive (or deserved pay level) and when they view their pay level relative to that of similar others (or deserved pay level) to be both low or both high? The literature mainly adopts experiments to manipulate the underpayment and overpayment scenarios without examining the effects of the continuous degree of pay discrepancy (e.g., Clay-Warner, Robinson, Smith-Lovin, Rogers, & James, 2016; De Cremer & Van Kleef, 2009; Liu & Brockner, 2015; Peters, van den Bos, & Karremans, 2008; van den Bos, Peters, Bobocel, & Ybema, 2006). As an exception, Kim,

Edwards, and Shapiro (2015) treated pay discrepancy as a continuum and unveiled the complexity regarding the joint effects of one and similar others' pay level on pay fairness. Kim et al. (2015) found a non-symmetrical curvilinear relationship among Chinese, Japanese, and Korean employees, such that pay fairness increased as one's pay increases toward that of similar others, continued to increase as one's pay level exceeded what similar others received, and then decreased when the overpayment became excessive; pay fairness increased as one's and similar others' pay level both increased. However, we do not know how the comparison of one's actual pay level to the deserved pay level dynamically relates to pay fairness. In particular, we are unsure whether a non-symmetrical curvilinear relationship also applies in deserved comparison and how pay fairness changes as one's actual and the deserved pay levels both increase. Whether the non-symmetrical curvilinear relationship between social comparison and pay fairness can be generalized in other cultural contexts (e.g., the United States) also remains unclear. In addition, theoretically driven research that integrates individual differences and justice perceptions remains scarce, despite the call for further studies on individual differences and justice (Colquitt & Greenberg, 2003; Colquitt, Scott, Judge, & Shaw, 2006; Major & Deaux, 1982; Rupp & Bell, 2010). No research examines in detail how the effects of social/deserved comparison on pay fairness can vary across individuals.

To address these research gaps, we theorize and test a non-symmetric curvilinear relationship between social/deserved comparison and pay fairness by employing social and deserved comparisons processes (discussed in our Literature Review section) among American employees. We also examine how pay fairness changes as one's actual pay level and a similar other's pay level (or the deserved pay level) both increase. In addition, this study explores individual differences as contingent factors for the non-symmetric curvilinear relationship

between social/deserved comparison and pay fairness. We specifically study how the preference for consistency, which focuses on the sensitivity of people to consistent outcomes (Nail et al., 2001), and the preference for the merit principle, which focuses on the sensitivity of people to equitable allocations (Major, Kaiser, O'Brien, & McCoy, 2007), affect the relationships between social/deserved comparison and pay fairness. We constructively replicate the findings obtained from the survey by using scenario-based experiments, which provide evidence of causality implied in our hypothesized relationships and enhance the internal validity of our research.

Our study provides three important contributions to the justice literature. First, we integrate the two types of cognitive appraisals (i.e., social and deserved comparisons) in one theoretical model, thus providing a comprehensive understanding of how pay fairness perceptions are formed. We can also respond to Cropanzano, Goldman, and Folger's (2003, p. 1022) call for a new research agenda to explore "cognitive processing mechanisms for generating justice judgments." Second, by examining the non-symmetric curvilinear relationship between social/deserved comparison and pay fairness, we delineate the pattern of how pay fairness perceptions are affected by the continuum from underpayment to overpayment with greater precision than previous studies. Third, investigating the moderating effects of individual differences in the relationships between social/deserved comparison and pay fairness helps us specify the boundary conditions of justice effects and provides insights into relevant justice theories. Our study sheds light on how and why people react differently to social/deserved comparison processes in forming pay fairness perceptions. In addition, our study helps practitioners understand how employees' comparisons of their actual pay to that of similar others and to their internal standards on how they should be treated can influence their pay fairness perceptions. Specifically, this study offers precise understanding of how pay fairness perceptions

change in facing a continuum of pay discrepancy situations (i.e., underpayment vs. overpayment) and why employees respond to the same pay level differently.

Theoretical Background and Hypotheses

One fundamental principle in the justice literature is that individuals form pay fairness perceptions by comparing their work experiences with those of similar others to yield *social comparison* (Chen, Choi, & Chi, 2002; Greenberg, 1983). Adams (1965) argues that when making pay fairness judgments, individuals evaluate their pay relative to their inputs and then compare that ratio to the ratio of similar others. In a similar vein, Folger and Cropanzano (2001) posit that people judge the fairness of an event by imagining how the event will turn out if experienced by a similar other. These arguments have received some empirical support. For example, Austin, McGinn, and Susmilch (1980) found that fairness perceptions were significantly affected by the rewards relative to the ones a similar other receives. There are a number of important extensions of this line of research. For example, van den Bos and his colleagues examined pay fairness judgments under special situations, such as not knowing similar others' pay or when cognitive processing was limited (van den Bos, Lind, Vermunt, & Wilke, 1997; van den Bos et al., 2006).

In addition to social comparison, the justice literature indicates that justice judgments can be affected by *deserved comparison* (i.e., the comparison between how a person is treated and what he/she believes he/she deserves, Folger & Cropanzano, 2001; Leung & Tong, 2003; Luna-Arocas & Tang, 2015; Skitka & Mullen, 2002). Deserved comparison should be distinguished from social comparison. As a referent to evaluate actual pay for pay fairness judgments, deserved comparison focuses on internal standards such as moral mandates or job-related inputs while social comparison uses similar others (Berkowitz, Fraser, Treasure, & Cochran, 1987). Deserved

comparison can be as important as social comparison in employees' fairness judgments. Building upon the deontic model of justice (Folger & Cropanzano, 2001), Leung and Tong (2003) propose a normative model of justice. This model posits that people hold internalized deserved standards of appropriate conduct, which is derived from their moral mandates and ethical orientation (Cropanzano & Rupp, 2002). These deserved standards provide the yardstick to make fairness judgments, and "complying with internal justice standards … is an end and satisfying in and of itself" (Leung & Tong, 2003, p. 105). Although this set of deserved standards has moral connotations, it is broader than merely morality concerns (Leung & Tong, 2003). This set is also based on job-related inputs (contributions), the market value of one's work, and perceived social consensus (e.g., shared guidelines of acceptable rewards). When their pay deviates from what they believe they deserve, people tend to perceive unfairness.

Deserved comparison differs from social comparison in two main aspects. First, while with social comparison people evaluate whether they are fairly treated based on the comparison with similar others, with deserved comparison people decide what a fair return is based on their internal standards (i.e., deserved treatment, Berkowitz et al., 1987). In addition, social comparison is mainly motivated by self-interests as justice provides an effective method to avoid exploitation in a group, whereas deserved comparison is largely driven by deontic motives and morality needs because justice is the right thing to do (Cropanzano & Rupp, 2002). Revealing the effects of both social and deserved comparison on pay fairness delineates a more comprehensive picture of how people form distributive justice perceptions.

Taking stock of current literature on social and deserved comparisons associated with pay fairness, several important issues have to be addressed. For example, the social comparison literature has mainly adopted an experimental design to manipulate the underpayment and

overpayment scenarios without examining the effects of the continuous degree of pay discrepancy (e.g., Clay-Warner et al., 2016; De Cremer & Van Kleef, 2009; Liu & Brockner, 2015; Peters et al., 2008; van den Bos et al., 2006). However, in real-life organizational settings, pay discrepancy is a continuum.

Second, related to the experimental design, the existing studies on social comparison paid little attention to examining the complexity regarding the influence of the continuous degree of pay discrepancy, which involves the interplay of one's actual pay and pay that similar others receive on the formation of pay fairness perceptions. As discussed previously, most studies on the effects of social comparison on justice perceptions (e.g., Chen et al., 2002; Leung, Smith, Wang, & Sun, 1996) do not explicitly examine how employees' pay fairness perceptions are influenced when their pay level exceeds what similar others receive nor examine how pay fairness perceptions differ at the pay congruence situations with different absolute pay levels (i.e., high versus low).

Third, despite the initial conceptualization of deserved comparison (Folger & Cropanzano, 2001; Leung & Tong, 2003; Luna-Arocas & Tang, 2015; Skitka & Mullen, 2002), there is a lack of theoretical and empirical work on the effects of deserved comparison on pay fairness. In particular, we are unsure whether the non-symmetrical curvilinear relationship associated with social comparison found in Kim et al. (2015) will also occur in deserved comparison and how pay fairness changes as one's actual and the deserved pay levels both increase. In addition, current social and deserved comparisons literature has been restrictive in examining the individual differences in the effects of social/deserved comparison on pay fairness.

To capture the potential complexities of the effects of social and deserved comparisons

on pay fairness, we examine how actual and comparative pay (i.e., pay that a similar other receives or that one believes he/she deserve to receive) jointly influence pay fairness. The joint effects can be examined by answering the following questions (cf., Edwards & Rothbard, 1999): (1) does pay fairness increase or decrease as individuals' pay exceeds what similar others receive (or what they believe they should receive); and (2) does pay fairness remain the same when one's pay is equal to what similar others receive (or what they believe they deserve to receive) at different absolute pay levels? We developed several hypotheses by answering these questions.

Social Comparison and Pay Fairness

We expect that pay fairness increases as individuals' pay increases toward what similar others (i.e., peers who have similar job responsibilities with similar levels of education and experiences they bring to the job in the same organization) receive. First, when one and others are similar in terms of inputs (e.g., education, training, and experiences), the pay that is disadvantageous to one is perceived as unfair (Feinberg, 1974). That is, when making negatively discrepant comparisons to similar others, individuals feel unjustly deprived of something they desire that others have, thus resulting in perceived unfairness (Chen et al., 2002; Crosby, 1976).

When individuals' pay level exceeds that of similar others, pay fairness will continuously increase to some extent. Justice scholars (e.g., Adams, 1965; Chen et al., 2002; Cropanzano & Ambrose, 2015; Greenberg, 1983; Lind, Kray, & Thompson, 1998) have noted that people possess an "egocentric" bias in making justice judgments. That is, individuals see an outcome allocation favoring them as fair and do not perceive their advantageous pay compared with similar others as relatively unfair. Consistent with this finding, Adams (1965) posited that "the threshold would be higher presumably in cases of over-reward, for a certain amount of incongruity in these cases can be acceptably rationalized as 'good fortune' without attendant

discomfort" (p. 282). However, a very excessive pay as compared with similar others will intensify cognitive dissonance (e.g., self-interest conflicts with the belief that they and similar others should be treated equally [Adams, 1965]), which will make one feel uneasy or guilty (Homans, 1961). Consequently, such perception creates a sense of injustice (Weiss, Suckow, & Cropanzano, 1999). The foregoing discussion leads us to propose a non-symmetric curvilinear relationship between social comparison (i.e., comparison one's pay level to that of similar others) and pay fairness. That is, we expect that:

> *Hypothesis 1a: The social comparison between one's pay level and that of a similar other has a non-symmetric curvilinear relationship with pay fairness, such that pay fairness increases as one's pay level increases toward that of a similar other, continues to increase as one's pay level exceeds that of a similar other, and then decreases when the excess is considerable.*

Although justice is generally achieved when the same amount of pay is given to similar others regardless of whether such a pay is excellent or poor (Feinberg, 1974), we expect that perceived pay fairness is higher when one and similar others both receive high payment than low payment. The literature demonstrates that the favorability of one's own pay level strongly influences one's pay fairness (Ambrose, Kulik, & Harland, 1991). In addition, when the absolute level of pay is low, people tend to perceive low pay fairness despite similar others receiving the same low amount of pay (Tyler & Lind, 1992). One account for this perception of unfairness is that people tend to view activities that violate their sacred human rights as unjust (Feinberg, 1974). Folger, Cropanzano, and Goldman (2005) argue that violating the sacred human rights of anyone (not just one's self) can provoke a sense of injustice. The human rights focus in the justice literature suggests that when employees and their similar others receive low pay, in

comparison to when both receive high pay, they are more likely to perceive such a pay level as violating their rights and being unfair. Supporting this reasoning, Kim et al. (2015) showed that distributive justice increased when the outcomes (i.e., pay, promotion, and job security) of one and similar others increased from low to high among East Asians (i.e., Chinese, Japanese, and South Koreans). Thus, we propose that:

> *Hypothesis 1b: Pay fairness is higher when the pay level received by one and a similar other are both high than when both are low.*

Deserved Comparison and Pay Fairness

We expect that pay fairness will increase as one's actual pay level increases toward his/her deserved pay level. Deserved pay level refers to the level of pay that people believe they should receive based on their internal standards such as job-related contributions, and such a standard is relatively independent of what others receive (Berkowitz et al., 1987; Rice, Phillips, & McFarlin, 1990). When individuals receive a lower pay level than what they believe they deserve, they feel a fair share is not provided and perceive the pay level as unfair (Porter, 1962). Therefore, receiving a pay level that is worse than what one believes he/she deserves can drive a person to hold someone or an entity accountable for not satisfying the deserved standards, thus inducing a feeling of injustice (cf. Folger & Cropanzano, 2001).

When one's actual pay level exceeds one's deserved pay level, pay fairness will continuously increase. As discussed above, people tend to have an egocentric bias, such that a favorable pay level higher than deserved pay would be positively associated with pay fairness. Similarly, Feinberg (1974) posited that excessive pay does not decrease pay fairness because the recipients have not been wronged, and they have no personal grievance. However, if the overpayment is excessive as compared to the deserved pay, people may feel uneasy or guilty

because the overpayment requires organizations or supervisors to sacrifice something in giving

it, thus provoking a sense of injustice (Folger & Glerum, 2015; Weiss et al., 1999). For example,

excessive rewards may hurt organizations as these unwarranted incentives deprive them the

opportunity to use the resources for other purposes (e.g., rewarding other employees). The

foregoing discussion leads us to propose that the pay level individuals receive relative to a

deserved pay level is related to pay fairness in a non-symmetric curvilinear curve, which is

consistent with the "too much of a good thing" effect (Pierce & Aguinis, 2013). Hence, we

hypothesize that:

> *Hypothesis 2a: The deserved comparison between one's actual pay level and one's*
>
> *deserved pay level has a non-symmetric curvilinear relationship with pay fairness, such*
>
> *that pay fairness increases as one's actual pay level increases toward one's deserved pay*
>
> *level, continues to increase as one's actual pay level exceeds one's deserved pay level,*
>
> *and decreases when the excess is considerable.*

We further propose that pay fairness is the same when both actual pay level and deserved

pay level are high and when both are low. As discussed previously, justice is achieved by giving

people what they believe they deserve (Feinberg, 1974). That is, the pay that satisfies ones' due

is perceived to be fair regardless of the absolute level. Skitka and Mullen (2002) posit that people

perceive high fairness if their pay is consistent with their internalized norms of their deserved

pay, thus validating their self-respect and self-esteem. Therefore, individuals who receive a

relatively low-level pay and believe that they deserve such an amount perceive the same level of

pay fairness as those who receive a relatively high-level pay and believe that they deserve such

an amount (Heuer, Blumenthal, Douglas, & Weinblatt, 1999).

> *Hypothesis 2b: Pay fairness is the same when one's actual and deserved pay levels are*

both high as when both are low.

Moderating Effects of Preference for Consistency

So far, we have discussed how social and deserved comparisons are associated with pay fairness judgments. We now discuss how individuals differ from one another in terms of the effects of social and deserved comparisons on their pay fairness judgments. Preference for consistency is one individual difference that can strengthen or mitigate the non-symmetric curvilinear effects of social comparison associated with pay fairness judgments. Preference for consistency refers to the sensitivity of individuals to consistency, regularity, and coherence (Cialdini, Trost, & Newsom, 1995; Nail et al., 2001). Although people generally prefer to be predictable, stable, and consistent, they have different levels of preference for consistency (Guadagno, Asher, Demaine, & Cialdini, 2001). Individuals with a high preference for consistency are highly vulnerable to inconsistency, dissonance, uncertainty, and different outcomes across people, whereas those with a low preference for consistency tend to favor spontaneity, change, unpredictability, and uncertainty (Cialdini et al., 1995; Guadagno et al., 2001; Nail et al., 2001). As such, people with a higher preference for consistency tend to be more sensitive to whether their pay is consistent with that of similar others (i.e., a high equity sensitivity, attending to whether their outcome/input ratios equal to those of similar others, Huseman, Hatfield, & Miles, 1987), and are more liable to experiencing the dissonance and psychological distress caused by inconsistency.

As a result, they quickly notice being over-rewarded and experience the negative sense of dissonance and discomfort. It follows that they tend to quickly perceive their advantageous pay level compared with that of similar others as too excessive and unfair. By contrast, people with a lower preference for consistency are less susceptible to the dissonance feelings caused by

inconsistency and perceive advantageous payment to themselves as impartial. Thus, the "threshold" that they start to feel overpayment as unfair will occur later than those with higher preference for consistency. That is, individuals with high preference for consistency would be more sensitive to overpayment in relation to similar others (i.e., fairness-related information). As a result, the "threshold" that they start to feel overpayment as unfair will occur more quickly than those with low preference for consistency. Taken together, we hypothesize the following:

Hypothesis 3: Preference for consistency moderates the curvilinear relationship between social comparison and pay fairness predicted by Hypothesis 1a, such that the bend in the curvilinear relationship occurs more quickly when preference for consistency is high rather than low.

Moderating Effects of Preference for the Merit Principle

Preference for the merit principle is an individual trait that can affect the sensitivity of people to deserved comparison associated with fairness judgments. The merit principle refers to "a pay fairness rule that prescribes that an individual's relative outcomes (e.g., pay) should be allocated in proportion to his or her relative inputs (e.g., effort)" (Son Hing et al., 2011, p. 493). Individuals who highly value the merit principle believe that only contributions or inputs can influence outcome allocations (Aberson, 2007; Major et al., 2007). They are strongly opposed to potentially merit-violating practices (Son Hing et al., 2011). As a result, when they receive more favorable outcomes than what they believe they deserve, individuals who believe outcomes ought to be distributed on the basis of merit may perceive the over-favorable pay as undue and judge that it is an unfair treatment. In other words, individuals with a high preference for merit principle will be less influenced by an egocentric bias and more quickly to reach the "threshold." By contrast, individuals with a low preference for the merit principle are less sensitive to merit-

violating issues in the overpayment situations (Aberson, 2007; Major et al., 2007; Son Hing, Bobocel, & Zanna, 2002), thus being more likely to exhibit the egocentric bias and less likely to feel guilt or uneasiness when they receive a more favorable pay than what they deserve.

Hypothesis 4: Preference for the merit principle moderates the curvilinear relationship between deserved comparison and pay fairness as predicted by Hypothesis 2a, such that the bend in the curvilinear relationship occurs more quickly when preference for the merit principle is high rather than low.

Figure 1 depicts a theoretical model that proposes the moderating effects of preference for consistency and preference for the merit principle on the non-symmetric curvilinear social and deserved comparisons processes. To test the research model, we conducted two studies. Study 1 used a survey design to examine how social/deserved comparison—based on the respondents' perceptions on their pay, similar others' pay, and deserved pay—would be related to pay fairness, and how preference for consistency and preference for the merit principle would moderate these relationships. In Study 1, we applied polynomial regression and response surface methodology (Edwards & Parry, 1993) to directly test our research questions. Study 2 involved two scenario-based experiments in which participants were part-time MBA students at a university. Study 2 manipulated one's own pay, a similar other's pay, and deserved pay to demonstrate their causal effects on pay fairness. These two studies complement each other and provide compelling evidence for the non-symmetric curvilinear relationships between social/deserved comparison and pay fairness and the moderating effects of preference for consistency and preference for the merit principle.

[Insert Figure 1 about here]

Study 1: Survey Design

Method

Participants and Procedures

The data were collected from 167 employees working in various sectors of the United States, including finance, technology, food service, insurance, government, retail, medical, and manufacturing. To recruit participants, researchers sent an electronic message to 312 students in upper-level management courses and provided them with the opportunity to help with a study for extra credit. Students who worked at least 20 hours per week in a job were allowed to participate in the study; if they did not, they were asked to invite a friend or family member to complete the survey. To ensure the anonymity of the respondents, they were not asked to place their names anywhere on the questionnaire. All questionnaires began by asking the respondents to assess their preference for consistency and preference for the merit principle. The participants were then asked to assess how much pay they receive, how much pay a similar other (i.e., who performs a similar job with similar qualifications, such as education and skills) receives, and how much they deserve to receive. After assessing the pay, the participants were asked to evaluate the fairness of the pay that they receive and to report demographic information.

A total of 167 respondents participated in the survey, thus yielding a 54% response rate. The respondents were 47.2% female and 51.2% Caucasian (17.1% Hispanic, 11.0% Asian American, and 10.4% African–American). Their average age was 25.1 years, and their average experience in the organization was 3.1 years.

Measures

Level of one's pay. To determine the level of pay the employees receive, we used Edwards, Cable, Williamson, Lambert, and Shipp's (2006) three-item scale in assessing pay as one of the important job dimensions. The respondents assessed the amount of pay that they

receive at work on the basis of three items (i.e., "Salary level," "The amount of pay," and "The opportunity to become financially wealthy") on a seven-point Likert-type scale (where 1 = "A small amount" and 7 = "A very great amount").

Level of a similar other's pay. To assess the level of pay that a similar other receives, we utilized the measure of Edwards et al. (2006) as described above, but this time we provided the following instruction: "How much do your peers have at work? By peers, we mean people who have similar job responsibilities with similar levels of education and experiences they bring to the job in your organization." An assumption that must be met in the polynomial regression analysis is that the two predictor variables must be commensurate (Edwards, 2002). That is, the predictors must represent the same conceptual domain and be measured with the same items and graded on the same scales. Thus, a similar other's pay should be assessed with the same items and graded on the same scale as one's pay but with a different referent (i.e., similar others' pay).

Level of one's deserved pay. To assess the level of deserved pay, we used the measure of Edwards et al. (2006) as described above with the same scale again. This time the respondents were asked to assess level of their deserved pay based on the following instruction: "How much should you have at work? By should, we mean your own belief about how much you deserve."

Pay fairness. We assessed perceived pay fairness following Kim et al. (2015). The respondents were asked to assess the extent to which they perceived their pay (i.e., "Salary level," "The amount of pay," and "The opportunity to become financially wealthy") to be fair on a seven-point Likert-type scale (where 1 = "Not at all fair" and 7 = "Extremely fair").

Preference for consistency. We adopted the 18-item scale of Cialdini et al. (1995) to measure the preference for consistency. We omitted 12 items from this measure in order to reduce the length of the survey, and because they assess how much a focal person prefers to

behave consistently *toward others*, which may not relate to the focal person's pay fairness

perceptions based on social comparison. The six items that we used assess how much a focal

person prefers to be treated consistently *from others*, which can directly relate to how the focal

person reacts to social comparison on their own pay and that of a similar other. Sample items

include "I prefer to be around people whose reactions I can anticipate," and "I want my close

friends to be predictable." We assessed them on a seven-point Likert-type scale (where 1 =

"Strongly disagree" and 7 = "Strongly agree").

       Preference for the merit principle. We assessed preference for the merit principle using

the scale of Davey, Bobocel, Son Hing, and Zanna (1999). Among its 15 items, we deleted five

that are worded negatively and thus could potentially be a source of method bias (Idaszak &

Drasgow, 1987; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In addition, presenting a long

survey could demotivate the respondents and reduce the accuracy of their responses. Sample

items include "The efforts that a worker puts into a job should be reflected in the size of the raise

he/she receives," "In life, people should get what they deserve," and "The members of a work

team should receive different amounts of pay depending on the amount that they contribute to

the organization." We assessed them on a seven-point Likert-type scale (where 1 = "Strongly

disagree" and 7 = "Strongly agree").

       Control variables. Consistent with previous research on pay fairness (e.g, Kim et al.,

2015), we controlled for the respondents' demographics of age, sex, and organizational tenure.

We also controlled for similar others' pay and its interactive terms with one's pay when we

tested the effects of deserved comparison on pay fairness because one's sense of what one

deserves could be tied to the social comparison with similar others. In a similar vein, we

controlled for deserved pay and its interactive terms with one's pay when we tested the effects of

social comparison on pay fairness.

Analytical Strategies

To test how congruence and incongruence between one's pay and the pay what similar

others receive (or what they believe they should receive) affect pay fairness, we employed

polynomial regression (Edwards & Parry, 1993). It has been used in organizational justice (e.g.,

Ambrose & Schminke, 2007; Kim et al., 2015), and has been frequently applied to other

management areas such as person-environment fit (e.g., Edwards & Shipp, 2009) and work and

family conflict (e.g., Edwards & Rothbard, 1999). In addition, we tested the moderating effects

of preference for the merit principle and consistency on the relationships between

social/deserved comparison and pay fairness using hierarchical regression analysis (Cohen,

Cohen, West, & Aiken, 2003). The five terms for social/deserved comparison were multiplied by

preference for the merit principle (or consistency), and the increment in R^2 yielded by these

terms was tested while controlling for preference for the merit principle (or consistency) and the

other three items related to other comparison effects. If the increment in R^2 was statistically

significant, we showed the effects of social and deserved comparisons on pay fairness based on

the levels of preference for consistency (or the merit principle).

Results

We tested whether the key variables (i.e., one's pay, similar other's pay, deserved pay,

pay fairness, preference for consistency, and preference for the merit principle) are distinct by

running confirmatory factor analyses (CFAs). We assessed the model fit using the chi-square

statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root-mean

square error of approximation (RMSEA). The result shows that the six-factor model did not fit

the data well (i.e., χ^2 (167, 120) = 573.88, $p < .01$, TLI = .70, CFI = .77, and RMSEA = .15),

mainly due to high correlations among one's pay, similar other's pay, deserved pay, and pay fairness perceptions. Nevertheless, these results are expected because, from a conceptual standpoint, the measures should be highly correlated. For example, most people think that the pay they receive is similar to that received by others because they bring similar inputs to their jobs. Also, due to egocentric bias (Chen et al., 2002; Greenberg, 1983; Lind et al., 1998), one's pay level would be highly correlated to pay fairness perceptions. In addition, we methodologically utilized the same items to measure levels of one's pay, a similar other's pay, and one's deserved pay owing to the requirements of polynomial regression analysis (i.e., measurement commensuration) as well as pay fairness. For scales with such identical item stems, researchers suggest using the correlated uniqueness (CU) model (Gaspard, Häfner, Parrisius, Trautwein, & Nagengast, 2017; Marsh, 1989; Marsh & Hau, 1996; Nagengast, Trautwein, Kelava, & Ludtke, 2013; Schütte, Zimmermann, & Köller, 2017). Empirical studies employing polynomial regression analysis also utilized the CU model to conduct the CFAs (e.g., Schütte et al., 2017). Following these suggestions, we ran the CU model that correlated the residual terms for those measures collected using different evaluation standards for pay (i.e., one's pay, similar other' pay, one's deserved pay, and pay fairness). The CU model fits to the data well (i.e., χ^2 (167, 102) = 129.06, $p < .01$, TLI = .98, CFI = .99, and RMSEA = .04). These analyses suggest that the measures of the constructs are consistent with the nature of the constructs[1].

Descriptive Statistics

The descriptive results, reliabilities, and correlations of the measures are shown in Table I. As expected, one's actual pay was more strongly correlated with pay fairness than a similar other's and one's deserved pay (r = .61, .43, and .18, respectively).

[Insert Table I about here]

Hypothesis Testing

Hypothesis 1a proposes that pay fairness increases as one's pay increases toward what a similar other receives, continues to increase as one's pay exceeds what a similar other receives, and decreases when one's pay exceeds a certain threshold. Table II shows a positive value for b_1-b_2 (.40, $p < .05$) and a significant negative value for $b_4-b_5+b_7$ (−.44, $p < .01$), which represent a significant negative (i.e., downward) curvature along the $I = -O$ line. These results suggest that employees perceive low pay fairness when they receive a lower pay than their peers, perceive high pay fairness when they receive better outcomes than their peers up to a point, then perceive low pay fairness when their overpayment reaches high levels. Thus, Hypothesis 1a is supported.

[Insert Table II about here]

Hypothesis 1b proposes that pay fairness increases as one's and a similar other's pay increases from low to high. Table II shows a positive and significant value for b_1+b_2 (.54, $p < .01$) and a non-significant value for $b_4+b_5+b_7$ (−.08, $n.s.$). This finding indicates that pay fairness increases as the pay received by one and a similar other also increases from low to high. Therefore, Hypothesis 1b is supported.

Figure 2 illustrates that along the $I = -O$ line, pay fairness had a non-symmetric curvilinear relationship with one's and a similar other's pay. Specifically, pay fairness increased as one's pay increased toward that of a similar other, leveled off as one's pay exceeded that of a similar other, and decreased when the overpayment was excessive. In addition, along the $I = O$ line, pay fairness linearly increased as both one's and a similar other's pay increased simultaneously.

[Insert Figure 2 about here]

Hypothesis 2a proposes that pay fairness increases as one's actual pay increases toward

one's deserved pay, continues to increase as one's actual pay exceeds one's deserved pay, and decreases when the actual pay exceeds a certain threshold. Table II shows that the slope of the surface was positive along the I = –D line at point I = 0, D = 0 ($b_1 - b_3 = .81$, $p < .01$). In addition, the downward curvature along this line was negative and significant ($b_4 - b_6 + b_8 = -.32$, $p < .05$). This finding shows that people perceive high fairness when their pay exceeds what they deserve up to a point, but then perceive low fairness when their overpayment reaches high levels. Therefore, Hypothesis 2a is supported.

Hypothesis 2b states that pay fairness remains the same when one's actual and deserved pay are both high and low. Table II shows non-significant values for $b_1 + b_3$ and $b_4 + b_6 + b_8$ (.13, *n.s.*; –.17, *n.s.*, respectively). This finding indicates that pay fairness does not statistically differ when actual and deserved pay are both high and low. Therefore, Hypothesis 2b is supported.

Figure 3 illustrates that pay fairness increased as one's actual pay increased toward one's deserved pay, continued to increase as one's actual pay exceeded one's deserved pay, and decreased when the overpayment was excessive. Also, along the I = D line, pay fairness did not significantly increase when the actual and deserved pay both increased from low to high[2].

[Insert Figure 3 about here]

Hypothesis 3 states that preference for consistency would moderate the curvilinear relationship between social comparison and pay fairness predicted by Hypothesis 1a, such that the bend in the curvilinear relationship occurs more quickly when preference for consistency is high rather than low. Consistent with Hypothesis 3, a hierarchical regression analysis revealed a significant moderating effect of preference consistency on the relationship between social comparison and pay fairness ($\Delta R^2 = .04$, $p < .05$). Specifically, the location of the bend in the inverted U-shaped relationship between social comparison and pay fairness predicted by

Hypothesis 1a was further above the point of balance among the individuals with low (rather than high) preference for consistency. Figure 4, which depicts the surfaces for the effects of social comparison on pay fairness at two levels of preference for consistency, illustrates these results. Thus, Hypothesis 3 was supported.

[Insert Figure 4 about here]

Hypothesis 4 predicts that preference for the merit principle would moderate the curvilinear relationship between deserved comparison and pay fairness predicted by Hypothesis 2a, such that the bend in the curvilinear relationship occurs more quickly when preference for the merit principle is high rather than low. Consistent with Hypothesis 4, a hierarchical regression analysis revealed a significant moderating effect of preference for the merit principle on the relationship between deserved comparison and pay fairness ($\Delta R^2 = .05$, $p < .01$). Specifically, the location of the bend in the inverted U-shaped relationship between deserved comparison and pay fairness predicted by Hypothesis 1a was further above the point of balance among the individuals with low (rather than high) preference for the merit principle. Figure 5, which depicts the surfaces for the effects of deserved comparison on pay fairness at two levels of preference for the merit principle, illustrates these results. Thus, Hypothesis 4 was supported.

[Insert Figure 5 about here]

Study 2: Scenario-Based Experiments

In Study 1, although we observed non-symmetric curvilinear relationships between social/deserved comparison and pay fairness and the moderating effects of preference for consistency and preference for the merit principle, some limitations exist. First, we cannot establish causality in the relationships among the variables because our data are cross-sectional. Second, our measurements of one's pay, similar others' pay, and deserved pay were perceptually

based, while not including objective measures, such as actual pay or a formative index based on different pay forms. Third, to what extent the respondents had good data on the pay of others in the organization was unclear.

To address these issues, we replicated our findings in Study 1 using scenario-based experiments. Specifically, we manipulated the experimental scenarios with different levels of pay incongruence (i.e., underpayment, pay congruence, and overpayment) between one's actual pay and a similar other's pay (or deserved pay); we also assessed pay fairness perceptions across the scenarios, following previous studies (e.g., Melamed, Park, Zhong, & Liu, 2014; Peters et al., 2004; van den Bos et al., 1997; van den Bos et al., 2006). We conducted two separate experiments to test our research hypotheses on social comparison processes (i.e., Hypotheses 1a and 3) and deserved comparison processes (i.e., Hypotheses 2a and 4), respectively.

Method

Participants and Procedures

Ninety-three (49 women and 44 men; M_{age} = 32.75 years old, SD = 5.13; M_{tenure} = 9.91 years, SD = 5.52) and 92 (51 women and 41 men; M_{age} = 31.59 years old, SD = 4.62; M_{tenure} = 8.81 years, SD = 4.67) part-time MBA students at a university located in Eastern China participated in Experiment 1 and 2, respectively for extra credit. Participants were instructed in both experiments that the study was to explore the factors influencing pay fairness perceptions in different scenarios. Following Melamed et al. (2014), participants were asked to imagine being as an "archiator" – an occupation that most of participants were presumed to not know. This practice ensured that participants were not be influenced by referential salary standards in reality. Participants then were asked whether they knew "archiator," and those who knew this occupation would be excluded from the final sample. All participants were retained in this study based on

this question.

Experiment 1 had a 5 (pay incongruence between one's and similar others' pay) × 3 (preference for consistency: low vs. moderate vs. high) mixed design with "pay incongruence scenario" as a within-subjects factor and "preference for consistency" as a between-subjects factor. To partial out the potential impact of absolute salary levels on one's pay fairness, this experiment followed previous studies (e.g., Peters et al., 2004; van den Bos et al., 1997; van den Bos et al., 2006) to fix the participants' salary and to vary the salaries of similar others (i.e., peers who have similar job responsibilities with similar levels of education and experiences they bring to the job in the same organization). In the five scenarios, participants' actual monthly salary was set to RMB7,500, whereas the monthly salary levels of five similar other archiators were RMB 4,500, RMB 5,500, RMB 6,500, RMB 7,500, and RMB 8,500, respectively[3].

The scenario with similar other's pay as RMB 7,500 (i.e., the pay congruence scenario) was the baseline situation, the scenario with similar other's pay as RMB 8,500 as the underpayment situation, and the scenarios with similar other's pay as RMB 6,500, RMB 5,500, and RMB 4,500 as the overpayment situations. We set one underpayment scenario to replicate the finding that pay fairness perceptions in underpayment situations are lower than in the pay congruence situation as established in the literature. We set three scenarios with different levels of overpayment to investigate whether pay fairness perceptions do not differ significantly between mild overpayment situations and the pay congruence situation due to ego-centric bias, but are significantly lower in the situations that overpayment is excessive. The scenarios were presented in the survey randomly to minimize the potential ordering effects (Bond, Leung, & Wan, 1982). One case of the scenarios on social comparison was:

My basic monthly salary is RMB 7,500. The basic monthly salary of similar other A

(who has similar job responsibilities with similar levels of education and experiences

he/she bring to the job in my organization) is RMB 8,500.

Following each scenario, the participants responded to one question on pay incongruence

manipulation check (i.e., "Compared to similar other's basic salary, how would you evaluate

your salary?") on a seven-point Likert-type scale (1 = "Much lower" to 7 = "Much higher").

Then, they assessed pay fairness perceptions across the scenarios (average Cronbach's $\alpha = .76$ in

the five scenarios, ranging from .73 to .85) and their preference for consistency (Cronbach's $\alpha =$

.76) with the same measures used in Study 1.

In Experiment 2, the procedure and the instruction were the same as in Experiment 1 with

one exception: we replaced a similar other's salary with the deserved pay level. While the

perceived deserved pay level of a job refers to an internal standard, it is not formed in a vacuum

but socially induced and is based on one's experience and knowledge about the job (Törnblom &

Kazemi, 2015). In our experiment, following Melamed et al. (2014), we instructed the

participants to imagine that they are an "archiator"—an occupation that the participants retained

in the study did not know. By doing so, the participants would not be influenced by referential

salary standards in reality. However, because the participants had no experience and knowledge

about the archiator job, they could not determine the deserved pay level of this job. To address

this issue, following previous studies (Bond et al., 1982; Zhou & Martocchio, 2001), we

specified the deserved pay level for the subjects. Experiment 2 had a 5 (pay incongruence

between one's and deserved pay) × 3 (preference for the merit principle: low vs. moderate vs.

high) mixed design with "pay incongruence scenario" as a within-subjects factor and "preference

for the merit principle" as a between-subjects factor. One case of the scenarios on deserved

comparison was:

My basic monthly salary is RMB 7,500. Based on the quality and quantity of my work outputs and contributions, I believe that my deserved monthly salary should be RMB 8,500.

Following each scenario, the participants responded to one question on pay incongruence manipulation check (i.e., "Compared to the quality and quantity of your work outputs and contributions, how would you evaluate your salary?") on a seven-point Likert-type scale (1 = "Much lower" to 7 = "Much higher"). Then, they assessed pay fairness perceptions across the scenarios (average Cronbach's α = .92 in the five scenarios, ranging from .91 to .94) and their preference for the merit principle (Cronbach's α = .71) with the same measures used in Study 1.

Manipulation Check

Scenarios significantly impacted our pay incongruence manipulation check (Experiment1: F (4, 368) = 419.17, p < .01; Experiment 2: F (4, 364) = 333.64, p < .01). That is, the higher a similar other's pay (or deserved pay) is, the lower the participants rated their actual pay relative to the similar other's pay (or deserved pay).

Results

To test our hypotheses on social comparison, we conducted a 5 (pay incongruence scenarios) × 3 (preference for consistency) repeated measures ANOVA. This analysis shows that social comparison had a significant impact on pay fairness (F (4, 360) = 54.07, p < .01, η^2 = .38), and the interaction effect of social comparison and preference for consistency was significant (F (8, 360) = 2.89, p < .01, η^2 = .06). The means of pay fairness in the five scenarios are presented in Table 3. As shown in Table 3, as expected, pay fairness in the underpayment scenario (i.e., the scenario with RMB 8,500) (M_{8500} = 3.26) was lower than that in the baseline scenario (i.e., the scenario with RMB 7,500) (M_{7500} = 4.72, mean difference = 1.46, p < .01). In addition, compared

to baseline scenario, pay fairness in all the three overpayment scenarios were significantly lower ($M_{6500} = 4.14$, mean difference = .58, $p < .01$; $M_{5500} = 3.74$, mean difference = .98, $p < .01$; M_{4500} = 3.42, mean difference = 1.3, $p < .01$). These results show a non-symmetric curvilinear pattern of pay fairness across the underpayment, baseline, and overpayment scenarios given that pay fairness in all the three overpayment scenarios were higher than the underpayment scenario (Mean = 4.14, 3.74, and 3.42 vs. 3.26), consistent with Hypothesis 1a.

[Insert Table 3 about here]

In addition, to test our hypotheses on deserved comparison, we conducted a 5 (pay incongruence scenarios) × 3 (preference for the merit principle) repeated measures ANOVA. This analysis shows a significant main effect of deserved comparison on pay fairness (F (4, 356) = 45.85, $p < .01$, $\eta^2 = .34$), and a significant interaction effect between deserved comparison and preference for the merit principle (F (8, 356) = 3.01, $p < .05$, $\eta^2 = .06$). The means of pay fairness in the five scenarios are presented in Table 3. Pay fairness in the underpayment scenario (i.e., the scenario with RMB 8,500) ($M_{8500} = 3.08$) was lower than that in the baseline scenario ($M_{7500} = 4.46$, mean difference = 1.38, $p < .01$). Pay fairness in the three overpayment scenarios was indifferent from that in the baseline scenario ($M_{6500} = 4.49$, mean difference = .03, $n.s.$; M_{5500} = 4.51, mean difference = .05, $n.s.$; $M_{4500} = 4.40$, mean difference = .06, $n.s.$, respectively), but was higher than that in the underpayment scenario (mean difference = 1.41, 1.43, and 1.32, respectively, $p < .01$). These results show the ego-centric bias implied in Hypothesis 2a.

Given that preference for consistency and the merit principle are continuous variables, and the data in this study involved between- and within-person levels, we conducted a multi-level analysis using Mplus 7.3 (Muthén & Muthén, 2012). First, we generated four dummy variables to represent the five pay incongruence scenarios with the scenario with RMB 7,500 as

the baseline scenario. Then, we mean-centered preference for consistency and the merit principle and generated four interaction terms based on the dummy variable and the mean-centered moderators.

For the moderating effects of preference for consistency, the –2loglikelihood test shows that adding the four interaction terms significantly improved the model fit (–2loglikelihood = 1186.95, d.f. = 16) compared to the model with the four dummy variables and preference for consistency (–2loglikelihood = 1202.64, d.f. = 8; $\Delta\chi^2(8) = 15.68$, $p < .05$), suggesting a significant moderating effect of preference for consistency. Also, the interaction terms for scenarios with RMB 4,500, RMB 5,500, RMB 6,500, and RMB 8,500 were significant ($\gamma = -.24$, $p < .05$; $\gamma = -.23$, $p < .01$; $\gamma = -.12$, $p < .05$; $\gamma = -.24$, $p < .01$, respectively). Specifically, as shown in Figure 6a, for the participants with high preference for consistency, pay fairness decreased more substantially when they receive more pay than similar others than did those with low preference for consistency, supporting Hypothesis 3.

For the moderating effects of preference for the merit principle, the –2loglikelihood result show that adding the four interaction terms significantly improved the model fit (–2loglikelihood = 1300.85, d.f. = 16) compared to the compared to the model with the four dummy variables and preference for consistency (–2loglikelihood = 1327.80, d.f. = 8; $\Delta\chi^2(8) = 26.95$, $p < .01$), suggesting a significant moderating effect of preference for the merit principle. Also, the interaction term for the scenario with RMB 4,500 was significant ($\gamma = -.50$, $p < .05$), whereas other interaction terms were not significant ($\gamma = -.21$, *n.s.*; $\gamma = -.05$, *n.s.*; $\gamma = -.08$, *n.s.*, for scenarios with RMB 5,500, RMB 6,500, and RMB 8,500, respectively). Specifically, as shown in Figure 6b, for the participants with high preference for the merit principle, pay fairness decreased when they received more pay than deserved, whereas for those with low preference for

the merit principle pay fairness still increased when they received more pay than deserved. These results suggest that individuals with a low preference for the merit principle are less likely to feel guilty or uneasy when they receive a more favorable pay than what they deserve, providing support for Hypothesis 4.

[Insert Figure 6a and 6b about here]

Discussion

Theoretical Implications

Our findings provide several important theoretical implications for equity theory. First, we demonstrated that both social and deserved comparisons significantly affected pay fairness in general. The current justice theories devote little attention to examining the comparison processes in justice judgments. According to Mussweiler (2003, p. 472), "human judgment is comparative in nature." That is, individuals evaluate a target or experience by comparing the evaluated target or experience with comparison referents, such as internal (e.g., desires, values, or beliefs) and external standards (e.g., similar others). Theories of justice were originally rooted in comparison processes (e.g., Adams, 1965), but the emphasis of the field shifted to perceptions of "fairness" without explicitly examining the comparison processes underlying such perceptions. This article brought comparison processes back into the picture, addressed the cognitive aspects of such comparisons, and examined how they influence pay fairness.

On the one hand, our findings are important to developing and refining research literature that reveals the important role of deserved comparison in pay fairness perceptions (Folger & Cropanzano, 2001; Leung & Tong, 2003; Luna-Arocas & Tang, 2015; Skitka & Mullen, 2002). To our best knowledge, this study is the first to examine how deserved comparison affects pay fairness using the cognitive appraisal approach. More importantly, by using the same approach to

examine the different comparison standards associated with pay fairness (i.e., social and deserved standards), this study sheds light on the potential for this approach to be applied to other comparison standards, thus increasing our understanding of the psychological processes by which people form pay fairness perceptions. For example, in a field study, we found a non-symmetric curvilinear relationship between social comparison and pay fairness for pay incongruence consistent with Kim et al. (2015), and a similar result with deserved comparison. However, we theorized different reasons for why people feel unfairness with overpayment for social comparison (i.e., cognitive dissonance) and deserved comparison (i.e., feeling uneasy or guilty to use organizational resources excessively). Future research needs to test the different underlying reasons for social and deserved comparisons associated with pay incongruence.

It is also noteworthy that in the experiment for deserved comparison, the pay fairness even in the largest overpayment scenario was not significantly lower than that in the baseline scenario, despite a declining tendency. A plausible explanation is that the psychological discomfort due to a sense of guilt created by overpayment for deserved comparison in the experiment is not strong. We suggest that future research should design the levels of overpayment scenarios more carefully and creates contexts (e.g., types of jobs and organization) that can affect individual reactions to overpayment more clearly to cross-validate our survey findings. Also, a closer examination for the exact threshold that people start to perceive overpayment as less fair provides an avenue for future research.

In addition, for pay congruence conditions, we found that social and deserved comparison affect pay fairness differently. Unlike social companion in which pay fairness increased as one's actual and similar others' pay levels both increased, in deserved comparison pay fairness remained the same as one's actual and the deserved pay levels both increased. This finding

confirms our proposition that social comparison is largely motivated by self-interests whereas deserved comparison is mainly driven by deontic motives and morality needs. Future research should explicitly test these different underlying mechanisms.

On the other hand, our study offers new insight into the social comparison process underlying the formation of pay fairness. Recent empirical studies seek to extend the social comparison by adopting a social network perspective and directly testing the influence of referent networks on pay fairness (e.g., Melamed et al., 2014). Consistent with Melamed et al. (2014), we found that pay fairness was lower when one's reward level was different from (i.e., higher or lower) that of similar others in the referent networks. Extending their finding, however, we found a non-symmetric curvilinear relationship between social comparison and pay fairness in the field study, that is, pay fairness increased even after one's pay exceeded that of a similar other until a certain point in the survey design. Our findings, therefore, delineate a more fine-grained picture of how perceived pay fairness varies with social and deserved comparisons. Moreover, our findings suggest that Kim et al.'s (2015) results showing that Chinese, Japanese, and Korean employees perceive higher fairness when they and similar others both receive higher pay instead of lower pay can be generalized to American employees whose cultural norms for equal resource allocations across people were likely quite different from Kim et al.'s (2015) investigation of East Asians.

Next, we identified the boundary conditions for the effects of social and deserved comparisons on pay fairness by examining the moderating effects of preference for consistency and preference for the merit principle. We demonstrated that individuals with high preference for consistency and those with high preference for the merit principle perceived the more favorable pay than what similar others received or the pay that they deserved as being more unfair. These

results extend the current studies on social (e.g., Chen et al., 2002) and deserved comparisons (e.g., Folger & Cropanzano, 2001; Skitka & Mullen, 2002) associated with fairness judgments by revealing the individual differences in the comparison processes.

Practical Implications

Our study provides several practical implications for organizations, HR managers, and supervisors. First, organizations and HR managers who wish to treat their employees fairly can be more successful if they pay more attention to their employees' internal standards about how they should be treated in addition to how they are treated compared to similar others who are similar in terms of education, job responsibility, and experiences. Thus, when designing and executing compensation system, organizations and HR managers need to not only consider the alignment across different employees working on similar jobs (Newman, Gerhart, & Milkovich, 2017), but also the deserved standards held by employees.

Second, our findings on non-symmetric curvilinear relationships suggest that overpayment may contribute to employee's pay fairness perceptions to some extent but eventually destroys them. As such, overpayment compared to similar others and deservingness would reduce the efficiency and effectiveness of compensation system by not only increasing pay budget for organizations, but also harming pay fairness and in turn demotivating employees. Thus, organizations need to conduct pay survey carefully and dynamically to better understand the pay levels that can enhance pay fairness perceptions. The pay survey should not only ask pay fairness perceptions but also the perceptions of one's pay level as well as the levels of similar others and deserved pay. Organizations can use such information to understand when pay fairness perceptions decrease (under- or over-payment based on social/deserved comparison) and adjust the payments accordingly.

In addition, supervisors should take care of individual differences in deciding pay rates and communicating the decisions with employees effectively. In particular, for those with high preference for consistency and high preference for the merit principle, supervisors need to note that they are more likely to be sensitive to overpayment as well as underpayment. Thus, supervisors should put more efforts to understand their subordinates' values and life principles that can affect their pay fairness perceptions and to explain their decisions on pay levels effectively to employees (He et al., 2016), especially to those who are very sensitive to underpayment.

Limitations and Strengths

It should be noted that this study has some limitations. First, other comparison standards, such as needs or expectations, were not examined in this study and should be examined in future work. For example, in India, where people highly care about what others need, individuals who receive a pay that is lower than what they need perceive such a compensation as unfair (Morris & Leung, 2000). In addition, this study used peers to represent the similar others. Future studies can build a comprehensive model that examines how different types of social referents can affect justice judgments (cf. Kulik & Ambrose, 1992).

Second, the data in Study 1 were cross-sectional and self-reported, thus raising the concerns about the common method variance problem. However, if the common method variance bias is severe, all the simple correlations among the measures should be significant (Spector, 2006). In this study, the correlations between preference for the merit principle and consistency and pay fairness were not significant. Also, common method variance has a marginal impact on nonlinear relationships (Crampton & Wagner, 1994), and all the research hypotheses in our study are based on curvilinear effects, suggesting that common method variance unlikely

influences the results. Furthermore, we conducted Study 2 with an experimental design and replicated most findings of Study 1, which could largely alleviate this concern.

Another limitation of this study is that we did not include any of the reverse-scored items for the preference for merit principle scale. This was done to improve the reliability of the measure and to shorten the survey, thus increasing the accuracy of their responses. Nevertheless, excluding these items may introduce other types of error in the measure (e.g., some participants may simply click the same response option on the entire scale without reading the items). We suggest that future research should validate our findings with all the items for the preference for merit principle scale.

The limitations of our study can be alleviated by three strengths. First, most previous studies have measured social comparison by using one measure (i.e., by asking the respondents to assess directly their relative compensation compared with that of a similar other (e.g., Chen et al., 2002; Leung et al., 1996). By contrast, in our study we separately assessed one's and a similar other's pay level, and thus we can test how one's pay level and that of similar others jointly affect pay fairness. Second, we explored theoretically derived individual differences to check for the boundary conditions on how much overpayment was deemed acceptable. Third, we adopted both a field study and an experimental study to examine our research hypotheses. Our survey approach used in the field study allowed for continuous measurement of relative under- and over-payment, which enabled us to model upon the continuous "degree" of equity and inequity. On the other hand, the experiments manipulated specific levels of under- and over-payment scenarios (Adams, 1965). Taken together, we offered a comprehensive examination of the influence of social and deserved comparisons on pay fairness perceptions.

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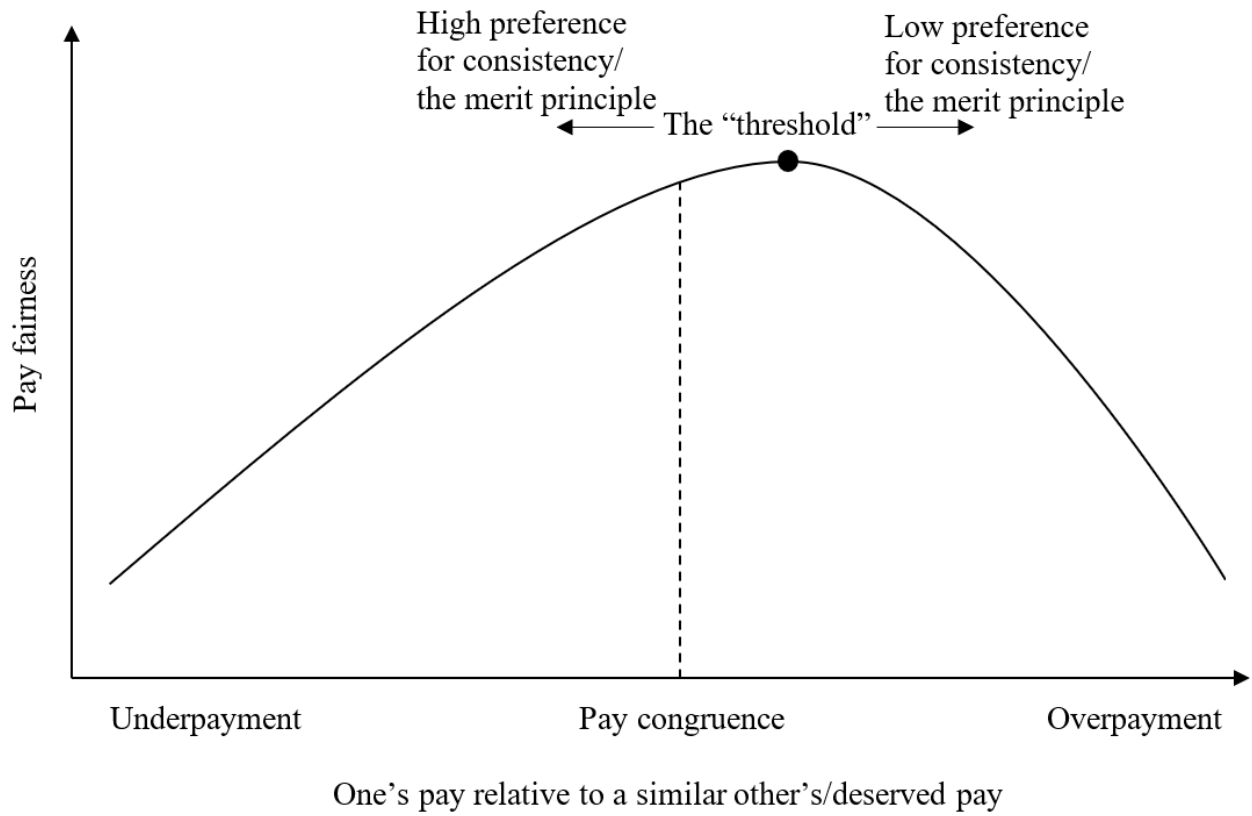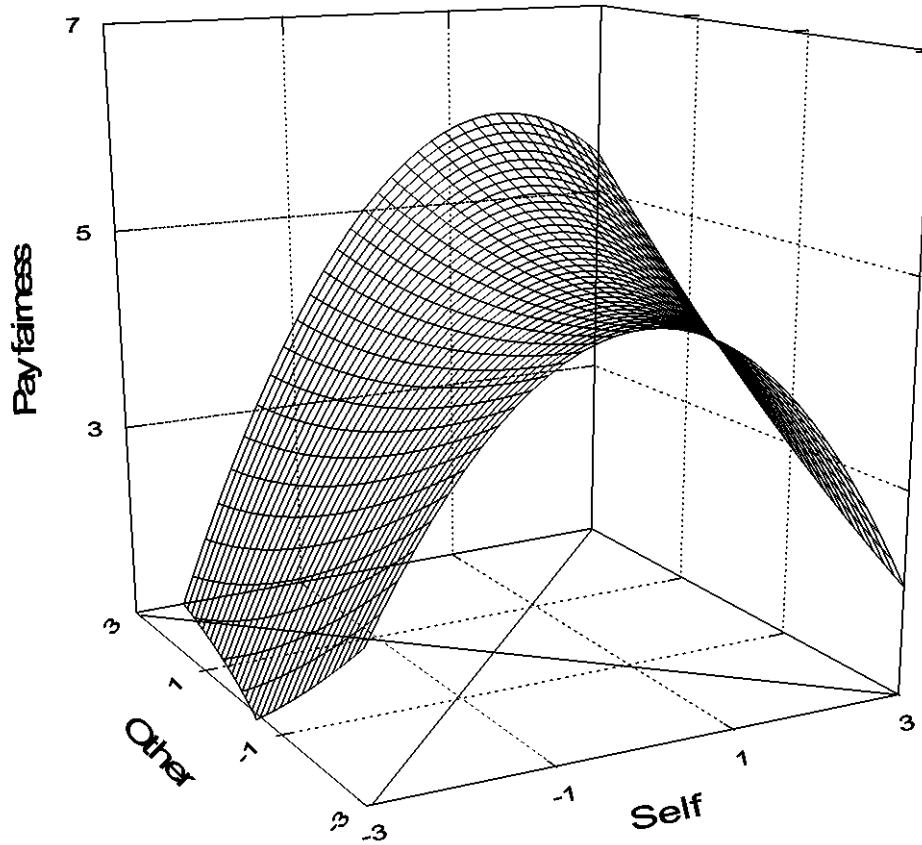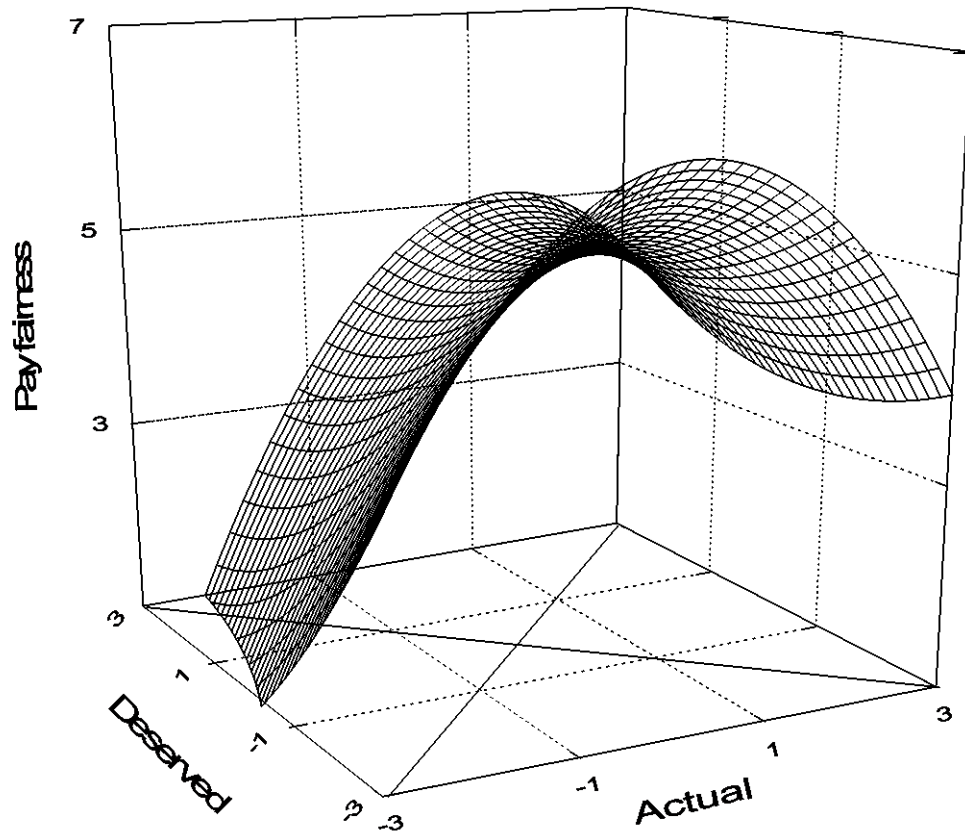decisions: A comparative policy-capturing study. Personnel Psychology, 54, 115-145.

High preference
for consistency/
the merit principle

Low preference
for consistency/
the merit principle

The "threshold"

Pay fairness

Underpayment   Pay congruence   Overpayment

One's pay relative to a similar other's/deserved pay

FIGURE 1. The Non-Symmetric Relationship between Social/Deserved Comparison and Pay

Fairness

Note: On the X, Y Plane, the line running diagonally from the near corner to the far corner represents the I = O line, and the line running diagonally left to right represents the I = −O line.

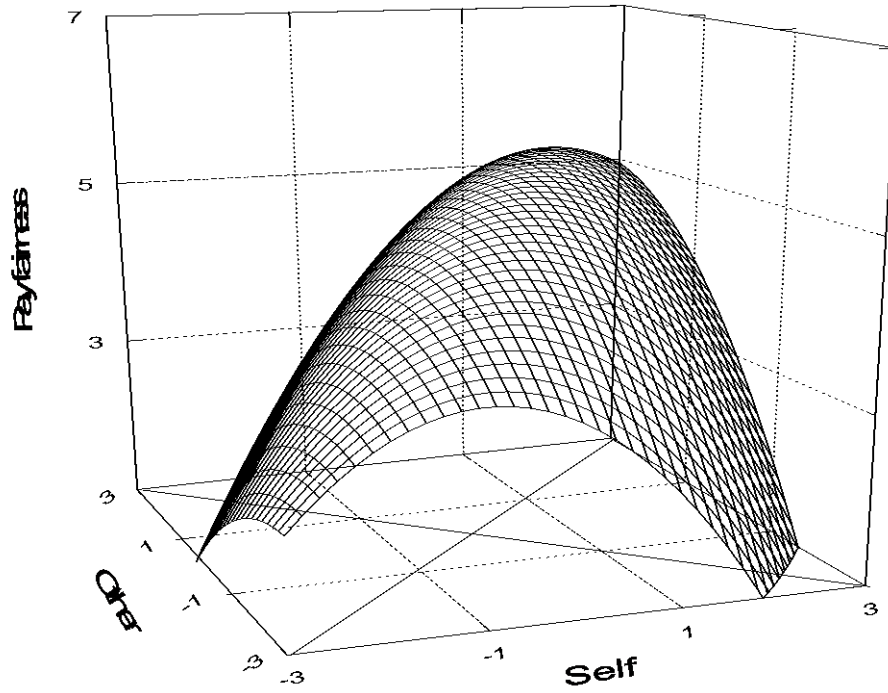**FIGURE 2.** Estimated Surfaces Relating Pay Fairness to Pay the Self and Similar Others Receive

Note: On the X, Y Plane, the line running diagonally from the near corner to the far corner

represents the I = D line, and the line running diagonally left to right represents the I = −D line.

FIGURE 3. Estimated Surfaces Relating Fairness in Pay to Pay One Receives and Deserves
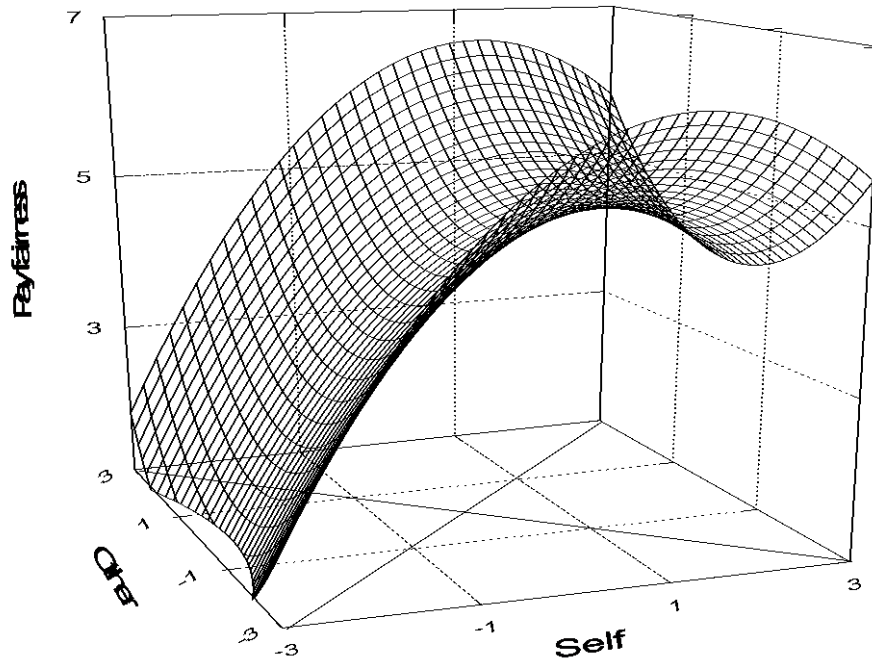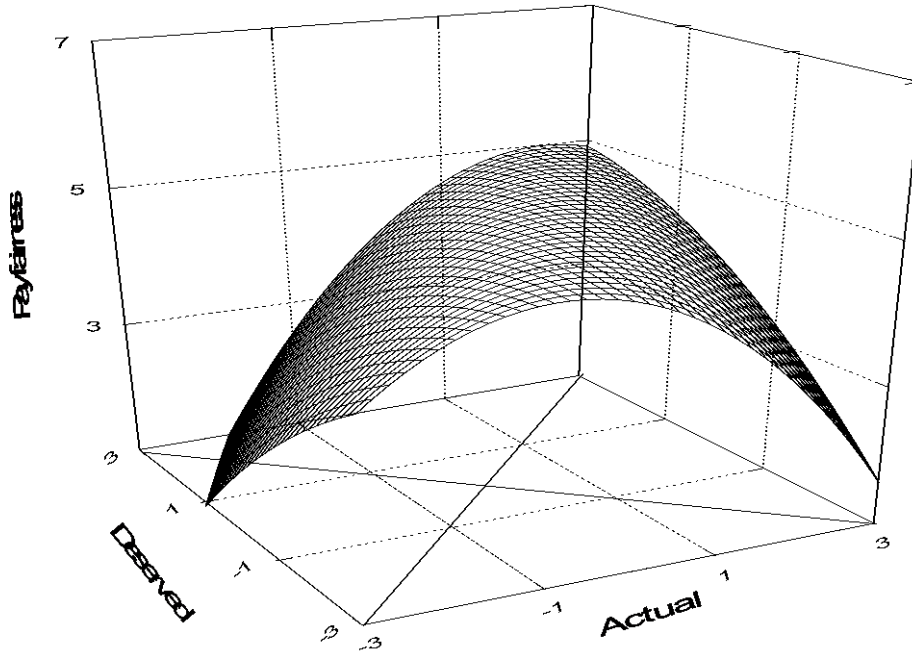
a

b

FIGURE 4. Estimated Surfaces Relating Pay Fairness to Pay the Self and Similar Others

Receive: (a) High Preference for Consistency (b) Low Preference for Consistency
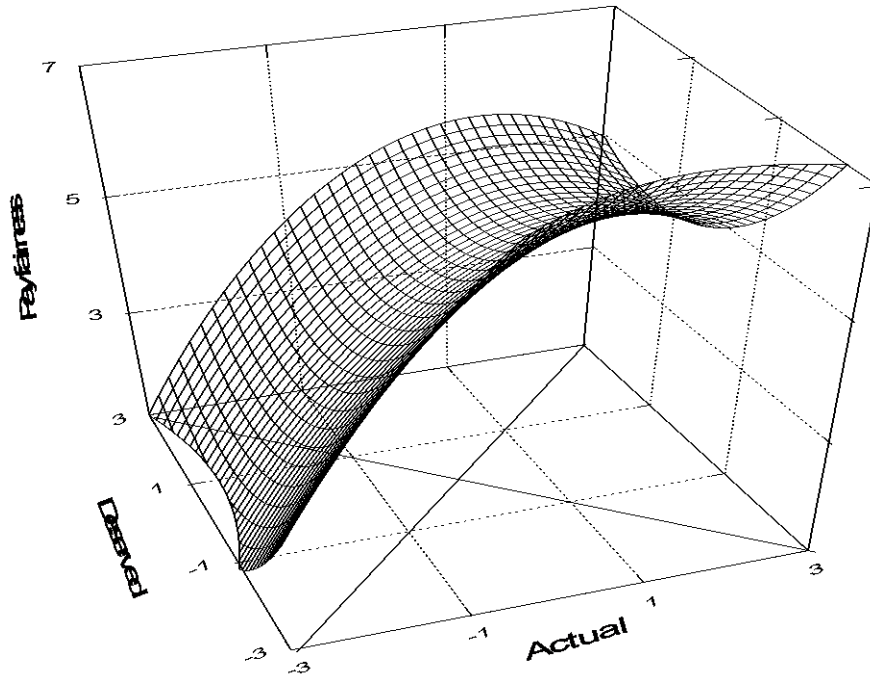
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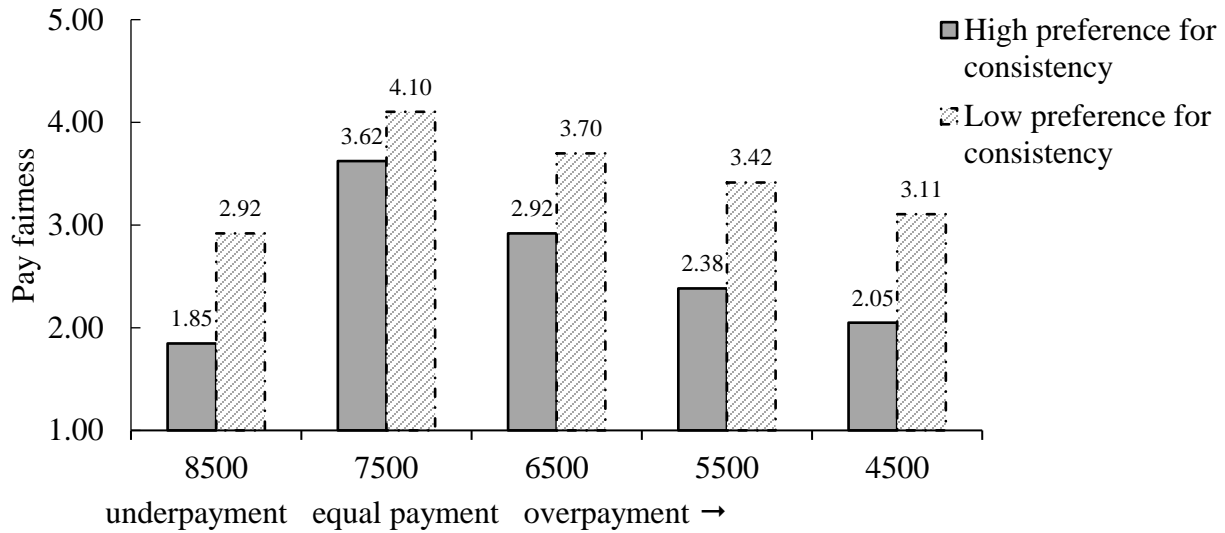**b**

FIGURE 5. Estimated Surfaces Relating Fairness in Pay to Pay One Receives and Deserves: (a) High Preference for Merit (b) Low Preference for Merit

a. Pay Fairness across the Levels of Pay the Self and Similar Others Receive

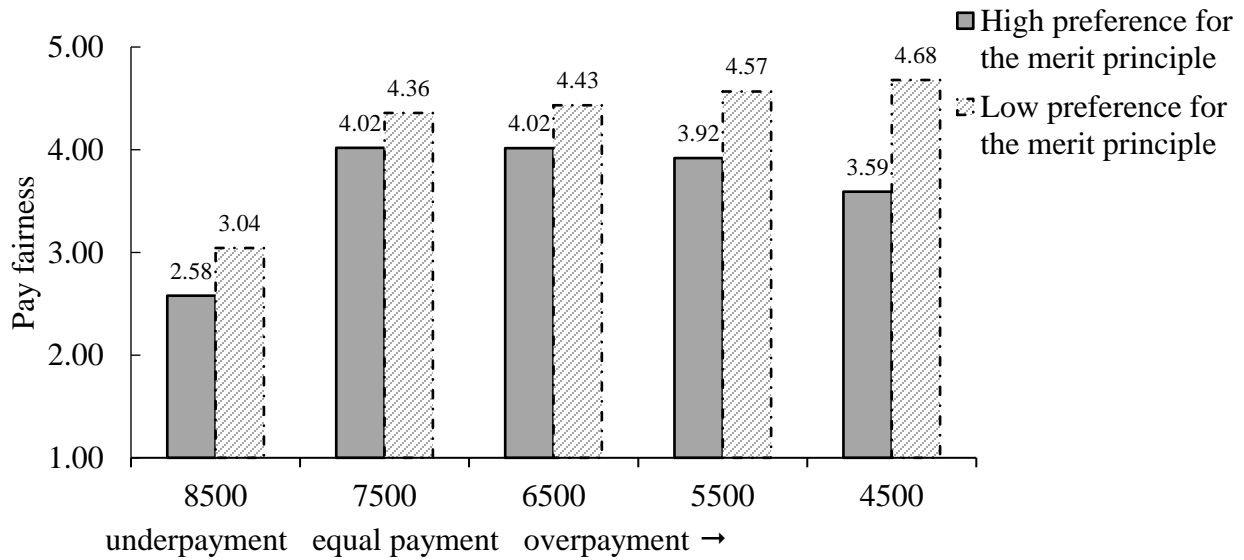b. Pay Fairness across the Levels of Pay One Receives and Deserves

FIGURE 6. The Relationship between Pay Incongruence and Pay Fairness in Experiments

TABLE I. Means, Standard Deviations, Correlations, and Coefficients for Variables in All Data.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Age	26.45	8.94	—								
2. Sex (0 = male, 1 = female)	0.44	0.50	−.04	—							
3. Organizational tenure	2.95	2.92	.50	−.09	—						
4. One's actual pay	3.93	1.25	.15	−.00	.17	(.72)					
5. A similar other's pay	4.12	1.33	.16	−.05	.10	.73	(.79)				
6. One's deserved pay	5.17	1.18	.20	−.04	.17	.57	.51	(.73)			
7. Preference for the merit principle	5.36	0.82	.06	−.12	.01	−.12	−.13	.06	(.89)		
8. Preference for consistency	4.50	1.07	.22	.12	.00	.15	.11	.22	.14	(.84)	
9. Fairness in pay	4.44	1.26	.08	.00	.13	.61	.43	.18	.03	.00	(.79)

Note: N = 167. Reliabilities are in parentheses. For all correlation above |.15|, $p < .05$; and above |.20|, $p < .01$.

TABLE II. Results from the Quadratic Regressions of Pay Fairness on Social and Deserved Comparisons

Dependent Variables	Results controlling for age, sex, tenure, D, ID, and D^2						Shape along I = O line		Shape along I = –O line	
	I	O	I^2	IO	O^2	R^2	$b_1 + b_2$	$b_4 + b_5 + b_7$	$b_1 - b_2$	$b_4 - b_5 + b_7$
Fairness in pay	$.47^{**}$	$.07$	$-.28^{**}$	$.18^*$	$.02$	$.50^{**}$	$.54^{**}$	$-.08$	$.40^*$	$-.44^{**}$
	Results controlling for age, sex, tenure, O, IO, and O^2						Shape along I = D line		Shape along I = –D line	
	I	D	I^2	ID	D^2	R^2	$b_1 + b_3$	$b_4 + b_6 + b_8$	$b_1 - b_3$	$b_4 - b_6 + b_8$
Fairness in pay	$.47^{**}$	$-.34^*$	$-.28^{**}$	$.12$	$.08$	$.50^{**}$	$.13$	$-.17$	$.81^{**}$	$-.32^*$

Note. $N = 167$. Unstandardized regression coefficients were used. I, O, and D are one's actual pay, the pay a similar other receives, and deserved pay, respectively. Columns labeled $b_1 + b_2$ and $b_4 + b_5 + b_7$ represent the slope of each surface along the I = O line, and columns labeled $b_1 - b_2$ and $b_4 - b_5 + b_7$ represent the slope of each surface along the I = –O line (b_1, b_2, b_4, b_5, and b_7 are the coefficients on I, O, I^2, IO, O^2, respectively). Columns labeled $b_1 + b_3$ and $b_4 + b_6 + b_8$ represent the slope of each surface along the I = D line, and columns labeled $b_1 - b_3$ and $b_4 - b_6 + b_8$ represent the slope of each surface along the I = –D line (b_1, b_3, b_4, b_6, and b_8 are the coefficients on I, D, I^2, ID, D^2, respectively).

$^*p < .05$; $^{**}p < .01$

TABLE III. Pay Fairness in the Five Scenarios on Social and Deserved Comparisons

	7,500 vs. 7,500 (baseline)	7,500 vs. 8,500	7,500 vs. 6,500	7,500 vs. 5,500	7,500 vs. 4,500
Social Comparison					
Main effect of scenario ($N = 93$)	4.72 (1.00)	3.26[a] (1.00)	4.14[a] (.88)	3.74[a] (.85)	3.42[a] (1.05)
High preference for consistency ($N = 31$)	4.60 (1.12)	2.88[a] (.73)	3.94[a] (.88)	3.42[a] (.74)	3.04[a] (1.00)
Moderate preference for consistency ($N = 31$)	4.97 (.99)	3.10[a] (.97)	4.14[a] (.79)	3.66[a] (.75)	3.32[a] (.87)
Low preference for consistency ($N = 31$)	4.58 (.86)	3.80[a] (1.05)	4.36 (.92)	4.13[a] (.90)	3.88[a] (1.13)
Deserved Comparison					
Main effect of scenario ($N = 92$)	4.46 (1.07)	3.08[a] (1.06)	4.49 (.99)	4.51 (1.21)	4.40 (1.36)
High preference for the merit principle ($N = 31$)	4.51 (1.06)	3.16[a] (.97)	4.28 (.96)	4.21 (1.20)	3.78[a] (1.27)
Moderate preference for the merit principle ($N = 31$)	4.40 (1.06)	2.74[a] (.96)	4.52 (.92)	4.68 (1.12)	4.63 (1.38)
Low preference for the merit principle ($N = 30$)	4.46 (1.13)	3.34[a] (1.18)	4.68 (1.08)	4.63 (1.30)	4.77 (1.25)

Note. Mean pay fairness are shown, with standard deviation in parentheless.

[a] Means differ significantly from the respective baseline scenario ($p < .05$).

Endnotes

[1] The CU model analyses may not eliminate the problem that the ability to examine the misfit effects is hampered. For example, owing to the high correlations between one's pay and a similar other's pay, a few cases, where one's pay differs from a similar other's pay, would exist. Such a phenomenon reduces the likelihood of the hypotheses on divergence to be supported. Thus, if these hypotheses are supported, they have essentially survived a conservative test (Kim, 2004).

[2] As supplementary analyses, we tested the effects of social and deserved comparisons on pay fairness perceptions without controlling for age, sex, and organizational tenure. The results are almost identical to the ones with controlling for them (i.e., $b_1+b_2 = .50$, $p < .01$, $b_4-b_5+b_7 = -.44$, $p < .01$, $b_1+b_3 = .16$, $n.s.$, $b_4-b_6+b_8 = -.35$, $p < .05$).

[3] We designed the salary level based on the University's annual statistics of student salary. The average monthly pre-degree salary of part-time MBA students was RMB7,508 with a standard deviation of 903 and a minimum of RMB4,438. Accordingly, we used RMB7,500 as the actual pay and RMB1,000 as the difference, and RMB4,500 as the lowest level.