Employee Reactions to Merit Pay:
Cognitive Approach and Social Approach

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Abstract

The dissertation aims to tackle one of the most pressing questions facing the merit pay system researchers and practitioners: Why do merit pay raises have such a small effect on employees’ satisfaction, commitment and job performance? My approach to the study of this question is to develop explanatory frameworks from two perspectives: cognitive perspective and social perspective.

From the cognitive perspective, I develop a framework based on the experimental results of cumulative prospect theory to explain the small effects of merit raises on employee reactions. First, I predict that merit pay raise sizes will be positively related to subjective magnitude of the raise, pay raise happiness, pay-level satisfaction, and performance intentions, and negatively related to turnover intentions. These are the employee reactions that this dissertation focuses on. Cumulative prospect theory indicates that individuals assess economic outcomes by perceiving the outcomes as losses or gains relative to reference points such as individuals’ initial expectations. The empirical finding of the theory implies a twofold pattern of how individuals react to under- and over-met expectations: loss aversion when confidence in expectations is low and a reduction of loss aversion or even loss seeking when confidence in expectations is high. Applying the arguments to merit pay contexts, I predict that when expectation confidence is low, raise expectations will positively moderate the relation between pay raises and reactions, because losses loom larger than
gains; by contrast, when expectation confidence is high, the positive moderation effect of raise expectations will be reduced or reversed.

From the social perspective, applying social comparison theory to merit pay raise contexts, I argue that individuals’ interpretation of upward and downward social comparisons (i.e. downward contrast, upward identification, upward contrast and downward identification) mediates the relation between merit raise sizes and individuals’ merit raise reactions. Furthermore, self-esteem moderates this mediation relationship. Specifically, following the plasticity theory, I predict that the indirect effect of merit raises on employee reactions via the interpretation of social comparisons is stronger (weaker) for low (high) self-esteem individuals.

The three-way longitudinal data for this study were collected from the non-faculty employees of a large mid-west university in the United States. Empirical results of the dataset largely support the hypotheses. The implications of research for theory and practice are addressed for cognitive and social perspectives respectively, and the comparison between the two approaches is discussed.
# Table of Contents

ACKNOWLEDGEMENTS ................................................................................................. i  
ABSTRACT ................................................................................................................... ii  
LIST OF TABLES ......................................................................................................... vi  
LIST OF FIGURES ....................................................................................................... vii  
CHAPTER I. INTRODUCTION AND STATEMENT OF THE PROBLEM ................ 1  
CHAPTER II. REVIEW OF THE LITERATURE ......................................................... 7  
  Merit Pay Raise ..................................................................................................... 7  
  Merit Pay Raise and Employee Outcomes ........................................................... 9  
CHAPTER III. COGNITIVE APPROACH ............................................................... 13  
  Introduction .......................................................................................................... 13  
  Cumulative Prospect Theory in the Pay Raise Context ...................................... 14  
    Merit pay raise and employee reactions ............................................................ 14  
    Interaction between raises, merit raise expectations, and confidence in such  
    expectations in predicting employee reactions ............................................... 16  
  Method ................................................................................................................... 22  
    Participants and procedure ............................................................................ 22  
    Measures ......................................................................................................... 24  
    Results ............................................................................................................. 27  
  Discussion ............................................................................................................ 39  
    Conclusion ....................................................................................................... 39  
    Research implications .................................................................................... 40  
    Practical implications ..................................................................................... 43  
CHAPTER IV. SOCIAL APPROACH ................................................................. 48  
  Introduction .......................................................................................................... 48  
  Theoretical Foundation ......................................................................................... 49  
    Social comparison and the identification-contrast model ............................. 49  
    The mediator role of interpretation of social comparisons in merit pay  
    reactions ........................................................................................................... 51  
    The moderating role of self-esteem of the indirect effect between pay raises  
    and reactions .................................................................................................. 53  
    Self-esteem and interpretation of social comparisons .................................... 59  
  Method ................................................................................................................... 60  
    Participants and procedures ............................................................................ 60  
    Measures ......................................................................................................... 61  
    Results ............................................................................................................. 63  
  Discussion ............................................................................................................ 72  
    Conclusion ....................................................................................................... 72  
    Research implications .................................................................................... 73
### List of Tables

<table>
<thead>
<tr>
<th>Table 3.1</th>
<th>Page 29</th>
<th>Descriptive Statistics and Correlations-Cognitive Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 3.2</td>
<td>Page 30</td>
<td>Time 2 Results of Regression Analyses (Unstandardized Coefficients)-Cognitive Approach</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Page 31</td>
<td>Time 2 Results of Regression Analyses (Unstandardized Coefficients)-Cognitive Approach</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Page 64</td>
<td>Descriptive Statistics and Correlations-Social Approach</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Page 67</td>
<td>Results of Indirect Effect Analyses (Unstandardized Coefficients)</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Page 70</td>
<td>Results of Time 2 Seemingly Unrelated Regression Analyses (Unstandardized Coefficients)</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Page 71</td>
<td>Results of Time 3 Seemingly Unrelated Regression Analyses (Unstandardized Coefficients)</td>
</tr>
<tr>
<td>Figure</td>
<td>Page</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>18</td>
<td>The two key constructs capturing the two cognitive processes described in Cumulative Prospect Theory</td>
</tr>
<tr>
<td>Figure 3.2</td>
<td>35</td>
<td>Interaction among merit pay raise size, expected merit pay raise, and confidence in expectations in predicting Time 2 pay raise happiness</td>
</tr>
<tr>
<td>Figure 3.3</td>
<td>36</td>
<td>Interaction among merit pay raise size, expected merit pay raise, and confidence in expectations in predicting Time 2 performance intentions</td>
</tr>
<tr>
<td>Figure 3.4</td>
<td>38</td>
<td>The marginal effect of merit pay raise size on Time 2 pay raise happiness across full ranges of expected merit pay raise and confidence in expectations</td>
</tr>
</tbody>
</table>
Chapter I. Introduction and Statement of the Problem

_Bribes in the workplace simply can’t work._
– _Kohn (1993)_

*Overall, this study underscores the generalizable positive relationship between financial incentives and performance._
– _Jenkins, Mitra, Gupta, and Shaw (1998)_

The merits of merit pay raises have been a controversial topic in popular press and academic literature. Comments from opponents against merit pay include “…no data… indicate that this (merit pay) will improve organizational performance” (as cited in Lee, 2005, para. 5), “merit pay decisions ultimately are subjective” (as cited in Snyder, 2008, para.13), and even “merit based system is totally absurd” (Canning, 2007, para. 2). Yet, despite these negative comments, merit pay systems are playing an increasingly important role in more and more people’s lives, including employees under merit pay systems or customers served by those that are motivated by merit pay. In the private sector, it is shown that merit pay is the most widely used incentive plan (Chu, 2004; White, 2006), and in the public sector, merit pay is replacing the cross-the-board raises quickly in public schools and government agencies (Lee, 2005).

Such increasing popularity makes the controversy surrounding merit pay become a pressing challenge facing merit pay researchers and practitioners.
Proponents of merit pay expect that merit raises can induce positive affective reactions, and thus increase job satisfaction, organization commitment and job performance. But empirical evidence shows that the effect of sizes of pay raises on affective reactions and other distant outcomes (e.g. job satisfaction, organization commitment and job performance) is so small (e.g. Schaubroeck, Shaw, Duffy, & Mitra, 2008; Williams, McDaniel, & Nguyen, 2006), that it seems hard to justify the prevalence and the costs associated with merit pay systems. Thus, to resolve the debates about merit pay, it becomes the logical first step to tackle this question: why do merit pay raises have such small effect sizes on employee outcomes?

The main focus of this dissertation is to study the proximal effects of merit pay, individual affective reactions to merit pay raises. It is because, according to the equity theory (Adams, 1965), if an employee’s affective reactions to his or her pay raise is negative, he or she will subsequently decrease work effort or leave for other organizations to restore equity perceptions. In support of this, Schaubroeck et al. (2008) show that pay raise happiness, which is a major component of affective reactions, is negatively related to turnover intentions. In addition, merit pay raises are associated with permanent pay level changes (Robert L. Heneman, 1992); therefore, if employees are not happy about their pay raises, they are not likely to be satisfied with their pay levels eventually. A comprehensive meta-analysis (Williams, McDaniel, & Nguyen, 2006) shows
that pay level dissatisfaction is related to poor performance, high withdrawal intention or behavior, and high turnover intentions.

Several answers have been proposed to explain the small and non-significant relation between pay raise sizes and employee affective reactions. One study argued that what partly constitutes such a small effect is the contrast between the small variation of merit pay raise and the large variation in the reactions to the pay raises (Schaubroeck et al., 2008). The variation of merit pay raises is small because it is difficult and expensive to make merit pay raises vary greatly within organizations (Heneman, 1992; Campbell, Campbell, & Chia, 1998). By contrast, people react to merit raises with a large degree of variability (Mitra, Gupta, & Jenkins, 1997). In other words, the reactions to the same size of merit pay raises can range from upset, to callousness, to thrill (Schaubroeck et al., 2008). Other studies found that pay-for-performance perceptions, expected pay raise sizes (Schaubroeck et al., 2008), and trait positive affectivity (Shaw, Duffy, Mitra, Lockhart, & Bowler, 2003) moderate the relation between merit pay raises and employees’ affective reactions to them.

The above explanations offer important insights into the question of the small relation between pay raises and affective reactions. But they leave a large variance of employee reactions unexplained (e.g. 86% in Schaubroeck et al. [2008]; according to Williams et al.’s meta analysis [2007], pay raises only explained 10.2% of the pay raise satisfaction, a construct closely related to
affective reactions to pay raises). What’s more, most previous studies focus on how one or two variables moderate the relation between pay raises and affective reactions. I believe that a more holistic and systematic approach is warranted.

This dissertation examines the relation between merit pay raises and employee outcomes with two alternative approaches which I label as “cognitive approach” and “social approach” respectively. In the cognitive approach, I extend the experimental results of cumulative prospect theory (Tversky & Kahneman, 1992) to merit pay contexts. In the social approach, I examine the relationship with the social comparison theory (Festinger, 1954) and plasticity theory (Brockner, 1988). The application of these two alternative theoretical frameworks to understanding employees’ reactions to merit pay raises is a contribution to the literature on merit pay raises, because it shifts the emphasis of such studies from how one or two variables moderate the relation to a larger question of how alternative theories explain the reactions to merit pay raises. The answer to this larger question is consistent with the research philosophy of the “method of multiple hypotheses” (Platt, 1964, p.350) and will be of great use to both researchers and practitioners (Platt, 1964; Shaw, Gupta, & Delery, 2005). Further, much of the previous research examined the moderators of the relation between merit pay raises and outcomes from the viewpoint that merit pay raises represent an absolute value. By contrast, I argue that merit pay raises represent comparative value relative to reference points. In the cognitive perspective, the
reference point is initial pay raise expectations, and in the social perspective, the reference point is the pay raise levels of social comparison targets.

The primary contribution of this paper lies in the use of cognitive and social perspectives in examining the relation between merit pay raises and employee outcomes. As discussed above, in the cognitive approach, pay raise expectations serve as reference points, while in the social approach, the comparison information (i.e. the amount of pay raises of comparison targets) is regarded as reference points. For the effects of the reference points, the underlying logic is that expectations of pay raises and social comparison information carry implicit cues that employees use to make sense of their merit pay. Furthermore, the cognitive perspective suggests that confidence in pay raise expectations further moderates the moderation effect of expectations. And from the social approach, self-esteem is an individual characteristic that greatly influences the extent to which individuals are sensitive to the social comparison information of pay raises.

To understand employees’ reactions to merit pay, I include five employee outcomes of merit pay raises that are central in compensation practice and literature. Proximal outcomes are employees’ subjective evaluations of raise magnitude and employees’ happiness with their pay raises. Studies showed that perceived magnitude of pay raises and happiness with pay raise were related to turnover intention (Schaubroeck et al., 2008), job performance, employee morale
and perceived credibility of management (Gerhart & Rynes, 2003). Specifically, affective reactions refer to whether individuals are happy or unhappy about the merit pay raises they receive. It is a well established variable that has been widely studied in pay raise contexts (e.g. Schaubroeck et al., 2008; Williams et al., 2006; Shaw et al., 2003; Mitra et al., 1997; Worley, Bowen, & Lawler III, 1992). Distal employee outcomes include pay level satisfaction, turnover intention, and job performance intention. Pay level satisfaction is studied because pay raises ultimately result in permanent changes (Heneman, 1992) in pay levels and the pay-level satisfaction was shown to be related to important employee outcomes (Williams et al., 2006). Turnover intentions and job performance are also examined, because these are the most important employee outcomes that merit pay systems are intended to influence (Peterson & Luthans, 2006; Shaw, Delery, Jenkins, & Gupta, 1998).
Chapter II. Review of the Literature

Merit Pay Raise

As aforementioned, merit pay raises are the most frequently used incentive plans. Surveys showed that over 80 percent of the private-sector employers (Perry, 1986; Personnel Policies Forum, 1981; Wyatt Company, 1987), approximately 64 percent of the state governments (Lawther, Bernardin, Traynham, & Jennings, 1989), and 48 percent of the local governments adopted merit pay plans (Greiner, Bell, & Hatry, 1975).

Different from other incentive methods, merit pay raises have the following characteristics. First, they are permanent raises rather than one time incentives like bonuses. Most of the other incentive schemes, such as gain sharing, individual bonus, and piece rate pay, are one time rewards to employees. Second, they are rewards to individuals rather than those to teams or groups, like group bonus or employee stock ownership plans. Third, they are based on individuals’ actual performance on their current job positions rather than on their future job positions (e.g. skill-based pay).

These characteristics bring about difficulties associated with merit pay systems. One difficulty is that the variance of merit pay raises that a manager assigns to his/her subordinates is often small (Campbell, Campbell & Chia, 1988), which is often caused by the following three reasons. First, merit pay
raise is a permanent pay raise, so it is expensive. Second, to make merit pay raises effective, managers should differentiate raises to generate enough differences among individual employees according to their performance ratings. But managers are often reluctant to do so (Campbell et al., 1998), because such differentiation will generate a sense of unfairness and reduce cooperation in teams (Heneman, 1992). Third, sound job evaluation systems, as a necessary condition for merit pay to work effectively, are often missing; as a result, it is hard for managers to make convincing decisions on merit pay raises (Campbell et al., 1998; Heneman, 1992).

According to the definition of merit pay raise, the specific amount of pay raises should be decided on the basis of individual employees’ previous performance. Most studies found a significant relationship between merit pay raises and previous employee performance (Note: Heneman [1992, p. 45] conducted a comprehensive review of these studies). The reasons why pay raises should be based on past performance are well explained by psychological theories, such as expectancy theory (Vroom, 1964), reinforcement theory (Skinner, 1953), equity theory (Adams, 1965), and goal setting theory (Locke, Bryan, & Kendall, 1968). According to the reinforcement theory (Skinner, 1953), pay raises contingent upon previous performance increase the frequency of desired performance and behaviors. Vroom’s Expectancy theory (1964) would predict that as long as pay raises are valued, performance is accurately measured, performance can be largely controlled by oneself, and there is a solid connection
between performance and pay raises, merit pay will motivate employees effectively. Equity theory (Adams, 1965) theorizes that it is people’s internal motivation to restore their equity perception. If an employee feels that merit pay is not large enough to compensate for his or her effort, he or she will decrease his or her input effort to adjust the ratio of pay to input. According to the goal setting theory, merit pay raises can provide employees with strong motivation to achieve challenging yet acceptable goals (Locke et al., 1968; Wright, 1989).

Merit Pay Raise and Employee Outcomes

Researchers have endeavored to find the antecedents of pay raise reactions. Some research has targeted at identifying the thresholds of pay raises at which people can perceive meaningful differences. Specifically, under certain level, employees will not react to individual differences in pay raises, and only at or above that level can they notice the difference. In an experimental study using a student sample, Mitra et al. (1997) found that only when the merit pay raises are above 7%, could the experimenters elicit positive perceptual and attitudinal reactions from employees. Rambo and Pinto (1989) found that just meaningful difference (JMD) was a decreasing function of pay and current salary level, and that perceived equity of current salary and expectations regarding future promotions accounted for the individual differences in the size of JMD. Hinrichs (1969) explored how the base salary levels and demographic variables such as age, education, and gender influenced the individual differences in reactions to
merit pay raises. His empirical evidence suggests that these variables indeed accounted for the differences in individual reactions. For example, salary levels are positively associated with expected pay raise sizes. But he used the monetary amount of merit pay raises rather than the percentages of pay increases to assess pay raises. As a consequence, the results are not comparable to most of the recent studies. One example is that in the meta-analysis by Williams et al. (2006), the coefficient size between education and employee reactions is very small, but Hinrichs’ study (1969) found that education was an important variable in explaining individual differences in pay raise reactions.

Some earlier researchers used just noticeable differences (JND) as a proxy for employee reactions to merit pay raises (e.g. Heneman & Ellis, 1982; Krefting & Mahoney, 1977). These studies focused on identifying variables that accounted for individual differences in JND. Krefing & Mahoney (1977) found that current pay, last pay raise, comparison between last pay raise and pay raises of other people, expected pay raise size, total family income, expected change in living cost, income necessary to improve one’s living standard, and satisfaction related to pay and job accounted for about 25 percent of the individual variance in JND.

Researchers also found that pay for performance (PFP) perception was related to pay raise satisfaction. Heneman, Greenberger, and Strasser (2006) argued that PFP perceptions should be significantly related to reactions to pay
raises. They also argued that PFP perceptions would be positively related to pay raise happiness, because higher levels of PFP perceptions develop the internal locus of control, and improve employees’ perceptions of equity. Their results were consistent with these hypotheses.

Intended to explain the insignificant relationship between merit pay raises and employee affective merit pay reactions, some studies suggested that there were moderators interacting with sizes of merit pay raises in influencing people’s affective reactions. Shaw et al. (2003) theorized that positive affectivity (PA), as a personality trait, moderates the relation between pay raises and reactions to pay raises from the perspective of signal sensitivity. They argued that for high PA employees, even very small pay raises can elicit positive reactions. Thus, it is reasonable to expect that the relationship between merit raises and pay raise happiness will be attenuated among the high PA employees. On the contrary, only large pay raises can draw attention from low PA individuals and small merit raises will not effectively arouse them. Thus, the relation between merit raises and raise happiness would be stronger among these low PA employees. With a sample of hospital employees, their longitudinal study found empirical support for this hypothesis.

Another effort to find the moderators of the weak relation between merit pay raises and employee outcomes is Schaubroeck et al.’s study (2008). They hypothesized and empirically demonstrated that the three-way interaction among
merit pay raise size, expected merit pay raise, and PFP perceptions predicted pay raise happiness. They argued that when PFP perceptions and pay raise expectations are high, there would be a strong correlation between merit pay raise and pay raise happiness. It is because when PFP perception is high, people would feel that they have more control over their merit raises. Under this condition, negative surprise often looms larger than the positive surprise. When merit pay raises exceed their expectations, people would be pleasantly surprised; however, they would soon restore their feeling of equity by enhancing their self image by attributing such raises to previous work performance (Gerhart & Rynes, 2003). On the contrary, lower-than-expected pay raises mean to employees an unexpected failure, and this unexpected failure brings about bigger surprise than in the case of over-met expectations. It is because with high PFP perceptions, employees believe that their environment is more of a so called “controlled action outcome” (Teigen & Keren, 2002, p.249) environment. In the low PFP perceptions cases, the result is the opposite in such a way that the pay raise happiness generated by positive surprises is larger than the pay raise unhappiness generated by negative surprises. This is because employees with low PFP perceptions believe that there are few things they can do to increase their merit raises, and pay raises being higher than expectation is similar to winning a “game of chance” (Schaubroeck et al., 2008, p427), thus elicit stronger pay raise reactions than in the negative surprise cases. Their empirical results largely supported these hypotheses.
Chapter III. Cognitive Approach

Introduction

The literature review in Chapter II shows that a few studies have provided important insights into the question; however, they have ignored the complex cognitive process in people’s evaluation of economic outcomes like merit pay raises, and therefore still leave several fundamental questions unanswered. Thus, to address these concerns, in this chapter, following the rationale and the experimental results of cumulative prospect theory (Tversky & Kahneman, 1992), I specified an empirical model to examine the question of small influence of merit raises. The empirical results show that two variables, expected merit raises and confidence in such expectations, combine to capture the variation of merit pay’s effects on employee reactions.

Cumulative prospect theory indicates that individuals assess economic outcomes by perceiving the outcomes as losses or gains relative to reference points, with people’s initial expectations being an important kind of reference points. Furthermore, the theory and Tversky and Kahneman’s experimental results (1992) imply a twofold pattern of how individuals react to gains/losses: loss aversion of high probability and a reduction and reversal of loss aversion (i.e. stronger reactions to gains than to losses) of small probability. Applying the observation to merit pay contexts, I predict that when expectation confidence is low (i.e. high probability), raise expectations will positively moderate the
relation between pay raises and reactions, because losses loom larger than gains; by contrast, when expectation confidence is high (i.e. small probability of receiving pay raises outside of expectations, or, equivalently, near certainty of receiving expected merit raises), the positive moderation effect of raise expectations will be reversed, because reactions to gains become larger and reactions to losses become weaker in such a situation.

Cumulative Prospect Theory in the Pay Raise Context

Merit pay raise and employee reactions

Kahneman and Tversky (1979; 1997) developed prospect theory and an improved version of prospect theory, cumulative prospect theory, basing on experimental results, with the intentions to correct the fallacies of the classic expected utility theory in economics. Cumulative prospect theory has been applied to explaining phenomena in many research areas, and received strong empirical support. Cumulative prospect theory argues that individuals’ reactions to outcomes are registered in their minds as either gains or losses (Kahneman & Tversky, 1992). In the framing processes of human minds, outcome expectations are one of the reference points (Kahneman & Tversky, 1979). That corresponds to expected merit raise sizes in the contexts of merit pay. Thus, regardless of the absolute size of outcome (i.e. the size of merit pay raises), when merit pay raise sizes exceed expected pay raises (i.e. the reference point), such an outcome will
be perceived as a gain. In the reversed case, when actual raises fall short of people’s expectations, the raises will be perceived as a loss.

Since the expectation about how much pay raise one will get is formed and predetermined before actual pay raises are announced, the larger the actual pay raises are, the more likely the person will perceive it as gains rather than losses. Also, according to cumulative prospect theory, although the strength of reactions is different, individuals will consistently react more positively (or less negatively) to better economic outcomes, even when the economic outcomes fall short of their expectations. Thus, it is reasonable to predict a positive relation between merit raise sizes and individual employee outcomes.

As I mentioned in the introduction section, previous studies found a small relation between merit raise sizes and employee reactions, but the studies have consistently found that pay raise sizes are related to employee reactions positively. For example, Schaubroeck et al. (2008) found a .08 correlation between merit raise sizes and pay-level satisfaction. The meta-analysis of Williams et al. (2006) also showed an average of .08 correlations between pay raises and pay satisfaction across six different studies.

Hypothesis 3.1: Merit pay raise size will be positively related to subjective magnitude of the raise, pay raise happiness, pay-level satisfaction, and performance intentions, and negatively related to turnover intentions.
Interaction between raises, merit raise expectations, and confidence in such expectations in predicting employee reactions

In cumulative prospect theory, Tversky and Kahneman (1992) also examined the interaction between people’s perceptions of losses/gains relative to reference points and the perceived probability of such losses and gains. According to cumulative prospect theory, people’s reactions to economic outcomes are determined jointly by the valuation functions of perceived losses or gains relative to reference points, and the weighting functions of perceived probability of economic outcomes. From the results of a series of experiments, Tversky and Kahneman (1992) found a distinctive fourfold pattern of people’s cognitive processes: when economic outcomes are probable, people are risk averse for gains and risk seeking for losses; when economic outcomes are of low probability, people are risk seeking for gains and risk averse for losses. This result and their experimental results of examining people’s loss aversion (i.e. “losses loom larger than gains”) around reference points indicate that if outcomes around reference points are perceived as probable, people’s loss aversion is stronger, because the reactions to gains are less sensitive than the reactions to losses. By contrast, if outcomes around reference points are perceived as having low probability or near certainty (note that near certainty is associated with low probability; for example, near certainty of gains is accompanied with small probability of losses, and near certainty of losses is accompanied with small probability of gains), people’s loss aversion is
weakened and reversed. In conclusion, the strength of people’s loss aversion is related to the perceived probability of the corresponding outcomes. When the perceived probability of gains or losses is high, people are more loss averse; when the perceived probability of gains or losses is small or near certainty, people are less loss averse and become more sensitive to gains than to losses.
Figure 3.1 – The two key constructs capturing the two cognitive processes

**Expectation**: reference points of the valuation function

**Expectation confidence**: perceived probability of the weighting function

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**Low Confidence in Expectation**

**Loss Aversion**

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**High Confidence in Expectation**

**Reversal of Loss Aversion**
The hard-wired response of loss aversion to uncertain environments (i.e. when the probability of gains/losses is high) was suggested to have evolutionary foundation by some researchers. For example, Chen, Lakshminarayanan, and Santos (2006) found that capuchin monkeys exhibit loss aversion when risk was introduced into the exchange of food. Thus, they concluded that such demonstrations indicate the innate basis of loss aversion, suggesting the evolutionary basis of loss aversion. The theoretical argument of the evolutionary basis is that when survival is uncertain, losses are more critical for reproductive success than marginal gains are (McDermott, Fowler, & Smirnov, 2008).

Compared to loss aversion, very few studies have investigated reversed loss aversion, with the study by Harinck, Dijk, Beest, and Mersmann (2007) being one exception. Their experimental results showed that when economic outcomes are small, individuals tend to weigh gains more heavily than losses. They argued that there are two reasons for the reversal of loss aversion: the hedonic principle and the fact that it is more feasible to discount small losses. The hedonic principal states that individuals try to maximize pleasure and to minimize pain. When individuals perceive their situations to be stable, it is more feasible for them to maximize their enjoyment associated with gains and discount their pain associated with losses. Since when people are very confident in their merit raise expectations, they tend to perceive their economic future outlook to be certain, it is more likely that they could discount the under-met expectations. Also, when losses are small, it is also easier and more feasible for
individuals to discount pains. And this condition is consistent with the context of merit pay. Since merit pay raises are permanent and expensive to organizations, it is unusual for people to expect or to receive large amount of merit raises. Also, in most cases the least merit raise one could get is zero percent, so there is a lower bound of losses that one could receive. Thus, it is reasonable to argue that when people receive less-than-expectation merit raises, the losses people perceive are usually small. Therefore, provided that individuals do not perceive much uncertainty in terms of their future merit raises, perceived losses of under-met expectations could be easier and more feasible to be discounted, and the pleasure associated with over-met expectations would be maximized.

Tversky and Kahneman (1992)’s empirical examination on loss aversion supported the interaction between loss aversion and perceived probability. For example, one of their experiments (Tversky & Kahneman, 1992, p. 307) found that when the probability of gains or losses was extremely low (e.g. p=.01), people’s loss aversion was reversed, that is people strongly preferred acquiring gains to avoiding losses, as in the case of buying lottery tickets. Similarly, when probability is near certain (e.g. p=.99), the strength of people’s reactions to gains and losses are almost the same, that is people are almost neutral about acquiring gains and avoiding losses. In both of the cases, loss aversion was weakened or reversed. But when economic outcomes are probable, people strongly preferred avoiding losses to acquiring gains.
When people are not so confident of their pay raises, they see the probability of receiving the amount of pay raises that are different from their expectations as also high. According to the relation between loss aversion and perceived probability, they will react more strongly to losses than to gains. Combining with the fact that individuals holding high expectations are more likely to receive under-met expectations\(^\text{1}\) (i.e. an unexpectedly low pay raise), and therefore tend to perceive merit raises as losses, it is reasonable to argue that for those that are not confident about their future merit raises, the higher their expectations, the stronger their reactions to merit raises. Translating this rationale into a moderating relationship, I expect that for people with low confidence in their expectations, their merit raise expectations moderate the relation between merit raise sizes and their reactions positively.

Conversely, for people with high confidence in their future merit raises, because high confidence in expectations means people tend to perceive the probability of getting unmet expected pay raises as very low and the probability of getting the expected pay raises as almost certain, their loss aversion is weakened or reversed. Thus, I expect that when expectation confidence is high, the aforementioned moderation effect of pay raise expectations, which is caused by loss aversion, will be weakened or reversed.\(^\text{2}\)

\(^1\) When an individual’s expectation is high, it is possible that the individual will actually get a high pay raise, because the individual’s expectation might come from valid information. But since I control for expectations in regressions, I tease out this factor.

\(^2\) The mathematical reasoning of how the three-way interaction could be derived from the interaction between loss aversion and expectation confidence is provided in Appendix B.
Hypothesis 3.2: There will be a three-way interaction effect between merit pay raise size, the expected merit pay raise, and the confidence in such expectations in predicting employee reactions. When expectation confidence is low, the moderating effect of pay raise expectation on the relationship between pay raises and outcomes is positive (negative for turnover intentions). When the confidence in pay raise expectations is high, the moderating effect of pay raise expectation on the relationship between pay raises and outcomes is weakened or reversed to negative (positive for turnover intentions).

Method

Participants and procedure

With the assistance of an employee organization from a large mid-west university, I conducted the study among 664 university non-faculty employees. The sample was especially advantageous in exploring reactions to merit raises: the employees have been under a stable merit pay system for more than three years and merit pay is the dominant incentive method. Thus, by using this sample I avoid the confounding factors like pay system changes or other incentive methods that are widely used in the private sector.

The data for this study were collected in three waves: one month before the amount of pay raises was announced, one month after the new pay level was administered (also two months after the first wave), and about six months after the new pay level was administered. At each round, the employee organization sent out an email solicitation letter to all of its members, inviting them to complete an online survey that was administered in the university’s internal
computer network for a period of 2-3 weeks. In the solicitation letter, the employee organization encouraged its members to participate in the research study and informed them that by completing the surveys, they would be entered into prize raffles offered by the research team. Before the respondents could answer the online surveys, they were requested to read the survey information, assuring the respondents that their answers would be kept confidential and would not affect their employment relationship with the university. At Time 1, one month before the amount of pay was announced, 237 employees completed the first round survey. At Time 2, one month after the new pay level was administered, that is about 2 months after the pay raises were announced, 221 employees completed the second round survey. At Time 3, about half a year after the new pay levels were in effect, 231 employees completed the third round survey.

Participants’ job titles included all major categories in the university, with some major categories being information technology specialist, directors of various university functional departments, and academic support specialists. The participants were about 43 years old on average; they had worked for the university for about 12 years on average; 42% of them were males; 47.9% held graduate degrees and 47.5% held highest degrees of bachelor’s. Pay information was gathered from the university’s human resource department and the state budget, which is publicly available online. The amount of pay changes of the respondents was calculated based on the pay information. The actual amount of
merit pay raises, pay changes that are not due to work-time changes or job-title changes but that are solely based on merit, were obtained from and confirmed by the university’s human resource management department. The average merit pay raise in the sample was 4.69% and the actual merit pay raises ranged from 0% to 29.37%. The distribution of the pay raises is shown in Appendix C. Given the attrition of the longitudinal study and missing data on key variables, the sample size was reduced to 139 for Time 2 employee reactions and 155 for Time 3 employee reactions.

Measures

Merit pay raise (Between Time1 and Time2). The amount of merit pay raises was coded from publicly available data, and was checked and revised with the help from the university’s human resource management department. Following the practice of the recent papers on the topic of pay raises (e.g. Shaw et al., 2003; Schaubroeck et al., 2008), the amount of merit pay raises was operationalized as the percentage of pay level changes that were merit-based.

Expected pay raise (Time 1). I measured pay raise expectations before the announcement of pay raises, by asking respondents the question “as a percentage of your current pay, how large do you think your pay increase will be this year?” The item is adopted from Schaubroeck et al. (2008).
Confidence in pay raise expectation (Time 1). It was measured before the announcement of pay raises. It was operationalized as the answers to the question, “How confident are you that you will receive the amount of pay increase you indicate in the above question this year?” The response options were “1=Very confident, 2=Confident, 3=Somewhat confident, 4=Neutral, 5=Not very confident, 6=Not confident, 7=Not confident at all”. The answers to this question were reversed so that higher scores indicated that respondents are more confidence in their expectation.

Subjective magnitude of pay raises (Time 2 and Time 3). This variable was measured by the scale used by Schaubroeck et al. (2008). The question was: “What do you think about the change in your pay between the last year (before [date]) and this year (after [date])?” The options for respondents to choose were 1 (there was no change in my pay), 2 (there was a tiny change in my pay), 3 (there was a small change in my pay), 4 (there was a modest change in my pay), 5 (there was a considerable change in my pay), 6 (there was a substantial change in my pay) to 7 (there was an enormous change in my pay).

Pay raise happiness (Time 2 and Time 3). This variable was measured one month and six months after the new pay levels were in effect respectively. I requested the participants to compare their current pay (“what are you paid now”) with their old pay level (“what you were paid last year”) and then instructed them to choose a response from a range of 1 to 10. The anchor statements “very
unhappy”, coded as 1 was at the left extreme of the response line. The statement “very happy”, coded as 10 was at the right extreme. The scale was based on the paper-survey scale developed by Atul Mitra (1992) and was modified to accommodate the online surveys.

*Pay-level satisfaction (Time 2 and Time 3).* This variable was measured by the scale from Shaw et al. (2003). The answers had Likert-type response options ranging from 1 to 7. Cronbach’s alpha for this scale was .957. A sample item was: “Considering my skills and efforts, my pay is fair”.

*Performance Intentions (Time 2 and Time 3).* This variable was measured by a scale used in Shaw et al. (2003). The respondents were asked to consider how they would react to the new pay level and choose a response ranging from 1 (I will give less effort with this pay level) to 10 (I will give more effort).

*Turnover intentions (Time 2 and Time 3).* This variable was assessed with Bluedorn’s staying/leaving index (Bluedorn, 1982). A sample item was “I often think about quitting my job at this organization”. Cronbach’s alpha coefficient of the scale is .875.

*Control variables.* I included years of education, Time 1 base pay level, Time 1 pay level satisfaction, and Time 1 pay-for-performance perceptions as controls because they may simultaneously relate to the outcome variables and the focal independent variables. Time 1 pay level satisfaction was measured by the
scale from Shaw et al. (2003), consistent with the measurement scale of the Tim2 and Time 3 pay level satisfaction. Pay-for-performance perceptions were measured by the four-item Likert scale developed by Perry and Pearce (1983) at Time 1 ($\alpha = .581$). The sample items were “If I perform especially well on my job, it is likely that I would get a pay raise” and “The best workers in the department get the highest pay raises”. The response options ranged from 1 (strongly disagree) to 7 (strongly agree).

I also tried including age, gender, and organizational tenure as control variables. The coefficients of the control variables were not significant, and the regression results were similar with the regression results without controlling for these variables.

Results

Response Bias Check and Measurement Issues

To address the self-selection and attrition bias, I compared participants in the Time 2 analysis sample ($N=148$) and those who were dropped off the analysis because of missing data on study variables (missing data sample; $N=209$), the Time 3 analysis sample ($N=155$) and its corresponding missing data sample ($N=194$), and I also compared those who completed all of the three rounds ($N=122$) and the corresponding missing data sample ($N=235$) across a range of variables. The variables that were included in the response bias check
were age, gender, education level, organizational tenure and all of the independent variables and dependent variables that were included in the regression analyses. I coded analysis sample participants as 1 and the corresponding missing data sample as 0, and I ran logistic regression analysis with each of the examined variables as predictors. Only one result turned out to be significant, out of the total 72 logistic estimations: males were less likely to complete the Time 2 survey than females were. But since including gender as a control variable does not affect the regression results, and also the other missing data bias examination with gender as the focal variable did not show a similar pattern, the significant result should not be too worrisome. Thus, I conclude that no influential and systematic differences between the analysis observations and the observations of missing data are found.

*Hypothesis Tests*

The descriptive statistics and correlations among the variables are shown in Table 3.1. Table 3.2 and Table 3.3 include the results with the dependent variables collected from Time 2, one month after the new pay levels were in effect, and the results with the dependent variables collected from Time 3, six months after the new pay levels were in effect, respectively.
### Table 3.1 Descriptive Statistics and Correlations-Cognitive Approach

|   | N   | Min   | Max   | Mean  | SD   | 1.   | 2.   | 3.   | 4.   | 5.   | 6.   | 7.   | 8.   | 9.   | 10.  | 11.  | 12.  | 13.  | 14.  | 15.  | 16.  |
|---|-----|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1.| Base Salary (Time 1; x1000) | 292  | 20.00 | 145.20 | 52.62 | 19.83 | 1.00 | 5.71 | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  |
| 2.| Education (Time 1) | 302  | 1.00  | 7.00  | 5.71  | 1.51  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  |
| 3.| PFP Perceptions (Time 1) | 237  | 1.00  | 7.00  | 3.72  | 1.15  | .13  | .00  | .58  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  | .08  |
| 4.| Pay Level Satisfaction (Time 1) | 237  | 1.00  | 7.00  | 3.89  | 1.65  | .33  | -.03 | .46  | .96  | .96  | .96  | .96  | .96  | .96  | .96  | .96  | .96  | .96  | .96  | .96  | .96  |
| 5.| Merit Pay Raise Size (interim; percentage) | 292  | .00   | 29.37 | 4.69  | 3.08  | -.07 | .03  | -.11 | .22  | .22  | .22  | .22  | .22  | .22  | .22  | .22  | .22  | .22  | .22  | .22  | .22  |
| 6.| Expected Merit Pay Raise (Time 1; percentage) | 237  | .00   | 12.00 | 2.92  | 1.28  | .15  | -.04 | .19  | .06  | .16  | .16  | .16  | .16  | .16  | .16  | .16  | .16  | .16  | .16  | .16  | .16  |
| 7.| Confidence in Expectation (Time 1) | 238  | 1.00  | 7.00  | 5.35  | 1.52  | .12  | -.01 | .13  | .20  | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 | -.06 |
| 8.| Subjective Magnitude of the Raise (Time 2) | 220  | 1.00  | 7.00  | 3.52  | 1.09  | .26  | -.05 | .19  | .23  | .42  | .13  | .05  | .05  | .05  | .05  | .05  | .05  | .05  | .05  | .05  | .05  |
| 9.| Pay Raise Happiness (Time 2) | 222  | 1.00  | 10.00 | 6.45  | 2.20  | .20  | -.06 | .28  | .48  | .13  | .17  | .06  | .55  | .55  | .55  | .55  | .55  | .55  | .55  | .55  | .55  |
| 10.| Pay-Level Satisfaction (Time 2) | 222  | 1.00  | 7.00  | 4.24  | 1.57  | .33  | -.03 | .31  | .84  | -.06 | .01  | .24  | .33  | .68  | .68  | .68  | .68  | .68  | .68  | .68  | .68  |
| 11.| Performance Intention (Time 2) | 222  | 1.00  | 10.00 | 6.59  | 1.82  | .04  | -.05 | .40  | .33  | -.05 | .06  | .13  | .29  | .46  | .34  | .34  | .34  | .34  | .34  | .34  | .34  |
| 12.| Turnover Intention (Time 2) | 222  | 1.00  | 6.50  | 2.71  | 1.37  | -.13 | .24  | -.36 | .41  | -.02 | -.16 | -.19 | -.25 | -.36 | -.44 | -.24 | .89  | .89  | .89  | .89  | .89  |
| 13.| Subjective Magnitude of the Raise (Time 3) | 221  | 1.00  | 6.00  | 3.49  | 1.07  | .15  | -.07 | .20  | .24  | .30  | .15  | .06  | .66  | .52  | .34  | .26  | .20  | .20  | .20  | .20  | .20  |
| 14.| Pay Raise Happiness (Time 3) | 230  | 1.00  | 10.00 | 6.26  | 2.26  | .17  | -.00 | .25  | .55  | .16  | .13  | .06  | .59  | .74  | .70  | .38  | .30  | .30  | .51  | .51  | .51  |
| 15.| Pay Level Satisfaction (Time 3) | 231  | 1.00  | 7.00  | 4.23  | 1.53  | .24  | -.05 | .32  | .80  | -.10 | -.00 | .17  | .33  | .57  | .87  | .30  | -.29 | .32  | .70  | .95  | .95  |
| 16.| Performance Intention (Time 3) | 229  | 1.00  | 10.00 | 6.53  | 1.72  | -.10 | -.06 | .13  | .22  | -.04 | -.00 | .05  | .18  | .22  | .26  | .49  | -.16 | .15  | .30  | .22  | .22  |
| 17.| Turnover Intention (Time 3) | 231  | 1.00  | 6.75  | 2.58  | 1.36  | -.12 | .23  | -.31 | -.43 | .09  | -.07 | -.27 | -.28 | -.27 | -.27 | -.36 | -.27 | -.27 | -.79 | -.17 | -.34 |

**Notes:** † p<.10, * p<.05, ** p<.01. Coefficient alpha reliabilities are reported in the main diagonal where appropriate.
Table 3.2 Time 2 Results of Regression Analyses (Unstandardized Coefficients) - Cognitive Approach

<table>
<thead>
<tr>
<th>Time 2</th>
<th>Subjective Magnitude of the Raise</th>
<th>Pay Raise Happiness</th>
<th>Pay Level Satisfaction</th>
<th>Performance Intention</th>
<th>Turnover Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</td>
<td>Step 1</td>
<td>Step 2</td>
</tr>
<tr>
<td>Constant</td>
<td>3.60**</td>
<td>3.60**</td>
<td>3.62**</td>
<td>6.58**</td>
<td>6.61**</td>
</tr>
<tr>
<td>Base Salary (Time 1)</td>
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<td>.68**</td>
<td>.78**</td>
<td>3.8</td>
<td>.24</td>
</tr>
<tr>
<td>Education (Time 1)</td>
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<td>-.09†</td>
<td>-.10†</td>
<td>-.07</td>
<td>-.06</td>
</tr>
<tr>
<td>PFP Perception (Time 1)</td>
<td>2.22**</td>
<td>2.22**</td>
<td>2.26**</td>
<td>.24</td>
<td>.23</td>
</tr>
<tr>
<td>Pay Level Satisfaction (Time 1)</td>
<td>.13**</td>
<td>.13**</td>
<td>.10*</td>
<td>.61**</td>
<td>.61**</td>
</tr>
<tr>
<td>Merit Pay Raise Size (Raise; between Time 1 and Time 2)</td>
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<td>.22**</td>
<td>.26**</td>
<td>.22**</td>
<td>.23**</td>
</tr>
<tr>
<td>Expected Merit Pay Raise (Expectation; Time 1)</td>
<td>-.02</td>
<td>-.04</td>
<td>-.10†</td>
<td>.21</td>
<td>.33†</td>
</tr>
<tr>
<td>Confidence in Expectation (Confidence; Time 1)</td>
<td>.00</td>
<td>-.00</td>
<td>.02</td>
<td>-.08</td>
<td>-.10</td>
</tr>
<tr>
<td>Raise * Expectation (Time 1)</td>
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<td>-.09†</td>
<td>-.03</td>
<td>-.19*</td>
<td>-.02</td>
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<tr>
<td>Raise * Expectation (Time 1)</td>
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<td>-.02</td>
<td>-.02</td>
<td>-.04</td>
<td>.02†</td>
</tr>
<tr>
<td>Expectation * Confidence (Time 1)</td>
<td>.02</td>
<td>.04</td>
<td>.14</td>
<td>.17</td>
<td>.15**</td>
</tr>
<tr>
<td>Raise * Expectation * Confidence (Time 1)</td>
<td>-.04*</td>
<td>-.09*</td>
<td>-.03†</td>
<td>-.05†</td>
<td>.04</td>
</tr>
<tr>
<td>Total R²</td>
<td>.40**</td>
<td>.41**</td>
<td>.43**</td>
<td>.37**</td>
<td>.39**</td>
</tr>
<tr>
<td>∆R²</td>
<td>.40**</td>
<td>.00</td>
<td>.03*</td>
<td>.37**</td>
<td>.02</td>
</tr>
</tbody>
</table>

Notes: † p<.10, * p<.05, ** p<.01 (one-tailed). N=139. Unstandardized regression weights are reported.
Table 3.3
Results of Regression Analyses (Unstandardized Coefficients)

<table>
<thead>
<tr>
<th></th>
<th>Subjective Magnitude of the Raise</th>
<th>Pay Raise Happiness</th>
<th>Pay Level Satisfaction</th>
<th>Performance Intention</th>
<th>Turnover Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</td>
<td>Step 1</td>
<td>Step 2</td>
</tr>
<tr>
<td>Constant</td>
<td>1.69</td>
<td>1.82†</td>
<td>1.84†</td>
<td>1.40</td>
<td>1.64</td>
</tr>
<tr>
<td>Base Salary (Time 1)</td>
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<td>.41</td>
<td>.44†</td>
<td>.38</td>
<td>.35</td>
</tr>
<tr>
<td>Education (Time 1)</td>
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<td>- .10†</td>
<td>- .11 *</td>
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<td>.08</td>
</tr>
<tr>
<td>PFP Perception (Time 1)</td>
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<td>.10</td>
<td>- .09</td>
<td>- .07</td>
</tr>
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<td>Pay Level Satisfaction (Time 1)</td>
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<td>.12*</td>
<td>.09</td>
<td>.85**</td>
<td>.83**</td>
</tr>
<tr>
<td>Merit Pay Raise Size (Raise; between Time 1 and Time 2)</td>
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<td>.15**</td>
<td>.17**</td>
<td>.20**</td>
<td>.24**</td>
</tr>
<tr>
<td>Expected Merit Pay Raise (Expectation; Time 1)</td>
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<td>.09</td>
<td>.11</td>
<td>.11</td>
<td>.10</td>
</tr>
<tr>
<td>Confidence in Expectation (Confidence; Time 1)</td>
<td>.03</td>
<td>.03</td>
<td>.06</td>
<td>-.08</td>
<td>-.03</td>
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<tr>
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<td>-.06†</td>
<td>-.09†</td>
<td>-.06</td>
<td>-.09</td>
<td>-.01</td>
</tr>
<tr>
<td>Raise * Confidence (Time 1)</td>
<td>.03</td>
<td>-.01</td>
<td>.04</td>
<td>-.01</td>
<td>.02</td>
</tr>
<tr>
<td>Expectation * Confidence (Time 1)</td>
<td>.06†</td>
<td>.06</td>
<td>.09</td>
<td>.10</td>
<td>.03</td>
</tr>
<tr>
<td>Raise * Expectation * Confidence (Time 1)</td>
<td>-.03*</td>
<td></td>
<td>- .05</td>
<td></td>
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<td>Total R²</td>
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<tr>
<td>Δ R²</td>
<td>.25**</td>
<td>.02*</td>
<td>.41**</td>
<td>.01</td>
<td>.01</td>
</tr>
</tbody>
</table>

Notes: † p<.10, * p<.05, ** p<.01. (one-tailed). N=155. Unstandardized regression weights are reported.
A hierarchical regression approach was used to test all of the hypotheses. The variables of the three-way interactions, merit raise sizes, expected merit raise sizes, and confidence in expectations, were centered.

Hypothesis 3.1 states that merit raise sizes are positively related to subjective magnitude of the raise, pay raise happiness, pay-level satisfaction, and performance intentions, and negatively related to turnover intentions. Table 3.2 shows that merit raise sizes were significantly and positively related to subjective magnitude, raise happiness, and pay level satisfaction, and negatively related to turnover intentions. Table 3.3 shows that the effects of merit raise sizes on Time 3 dependent variables are smaller than those on Time 2 dependent variables. The effects of merit raise sizes on pay level satisfaction and turnover intentions become non-significant in Time 3. But the effects of merit raises on Time 3 subjective magnitude and raise happiness are still positive and significant. Also, except for the non-significant relationship between merit raises and Time 3 performance intentions, all of coefficient signs are consistent with what Hypothesis 3.1 predicts. Thus, Hypothesis 3.1 is largely supported.

Hypothesis 3.2 states that there will be a three-way interaction effect among actual merit pay raises, pay raise expectations, and confidence in such expectations.

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3 I also tried using the two-stage least square regressions to account for the possible endogeneity of base salary, with exogenous variables including gender, education, Round1 pay for performance perceptions, Round1 pay satisfaction, organization tenure, age, and degrees. The estimation yielded less significant results, but the directions of coefficient signs are similar.
in predicting employee reactions. The tests of the hypothesis are in the column 3 labeled Step 3 of Table 3.2 and Table 3.3. As Table 3.2 shows, the three way interaction is significantly related to subjective magnitude of the raise and pay raise happiness. It is related to pay level satisfaction and performance intentions at marginally significant level, although it is not related to turnover intentions. As for the regression results of the dependent variables from Time 3 in Table 3.3, the three-way interaction is significantly related to the subjective magnitude of the raise, and marginally related to turnover intentions, but not related to other Time 3 dependent variables. Similar to the regression results of Hypothesis 3.1, Time 3 regressions yielded less significant results. It might be because the influence of pay raises and the memory of their prior expectations faded more than half a year after the announcement of pay raises. Since the coefficient signs of the Time 3 results are generally in the same direction with the Time 2 results, Time 3 results give more confidence in the conclusions about the empirical results.

To further evaluate the three-way interaction effects, I plotted the significant interactions using values of plus and minus two standard deviations from the mean of the two moderators, merit raise expectations and confidence in such expectations, in Figure 3.2 and Figure 3.3. In the two figures, I used regression results of Time 2 pay raise happiness and Time 2 performance intentions respectively.
As Figure 3.2 shows, when expectation confidence is low, the relationship between merit pay raise size and pay raise happiness is stronger for individuals who have high expectations ($b = .56, p < .05$) than for individuals who have low expectations ($b = .29, p < .05$). By contrast, when expectation confidence is high, the relationship between merit raise sizes and pay raise happiness is stronger for individuals with low expectations ($b = 1.29, p < .05$) than for individuals with high expectations ($b = -.85, n.s.$). Figure 3.3 shows a similar pattern: When individuals are not confident of their own expectations, the relationship between merit raise sizes and performance intentions is stronger for people with high expectations ($b = .37, p < .05$). For people who have low expectations, the relationship is not significant. When individuals are highly confident of receiving pay raises that they expect, the case is reversed. That is people with low expectations react more strongly to merit raise sizes ($b = .61, p < .05$). The relation between merit raise sizes and performance intentions is not significant for individuals with high expectations. The overall patterns are consistent with what Hypothesis 3.2 predicts.
Figure 3.2 – Interaction among merit pay raise size, expected merit pay raise, and confidence in expectations in predicting Time 2 pay raise happiness.
Figure 3.3 – Interaction among merit pay raise size, expected merit pay raise, and confidence in expectations in predicting Time 2 performance intentions.
To capture the effect of merit raises on employee reactions fully, I also show how the effect of merit raises on employee reactions varies across the full range of the two moderators, expected pay raises and confidence in such expectations, in Figure 3.4. I used the regression results of Time 2 pay raise happiness. Figure 3.4 indicates that the effect of merit raises on employee reactions varies greatly across the ranges of raise expectations and expectation confidence, but the raise-reaction relationship stays positive and significant in most of the cases. The effect of pay raises is the highest when expectation confidence is low but expectations are high. For example, when an individual expect a 10% pay raise and she is not confident that she would get such a pay raise, one percent of pay raises lower than expectation can lead to about more than 1.3 decreases in the individual’s pay raise happiness (ranging from 1 to 10). The marginal effect of pay raises is minimal and not significantly different from zero when both confidence and expectations are high or when both confidence and expectations are low. The effect of pay raises is about .30 ($p < .05$) when expectations and confidence in expectations are at this sample’s mean level.
Figure 3.4 – The effect of merit pay raise size on Time 2 pay raise happiness across full ranges of expected merit pay raise and confidence in expectations.
Discussion

Conclusion

Researchers have been perplexed by the weak relation between pay raise sizes and employee reactions (e.g. Shaw et al., 2003). The current findings suggest that the magnitude of the relation varies a lot depending on people’s expectations and their confidence in such expectations. In other words, the results indicate that the effect size of the relationship found in one sample would depend on the sample’s mean levels of these two variables, both of which might differ vastly across various samples. For example, according to Figure 3.4, if the mean levels of expectation confidence and employees’ expected pay raises are low in a sample, it is probable that people will find a non-significant small correlation between pay raises and reactions. In the case of the current sample, the relation between pay raises and reactions is stronger than previous studies, because compared to the prior studies, the mean level of the expected pay raises is low (2.92% expected raise compared with the 4.69% actual raises) and their confidence in expectations is high (5.35 out of a 1-7 scale). The low mean level of expectations and the employees’ high confidence in such low expectations might be caused by the expected state budget tightening and the concurrent financial crisis. According to Figure 3.4, high confidence in low expectations suggests stronger employee reactions to pay raises.
Research implications

The two moderators, employee’s expectations and their confidence in expectations with regard to merit raises, can be decided by employee characteristics, organizational characteristics, and the interaction between the two. In terms of organization contexts, the two variables could be decided by organization’s performance feedback mechanisms, organizational justice, organization performance, and the connection between employee performance and sizes of merit raises. For example, in the current sample, both expectations and confidence in expectations are positively related to employees’ pay-for-performance perceptions with statistical significance. In terms of individual characteristics, expectations and confidence in expectations might be influenced by various individual traits and the individuals’ past experience. I encourage future research to explore the question of merit pay system’s effectiveness along these two lines and the interaction effects between contextual effects and individual characteristics.

Similar to cumulative prospect theory, decision affect theory (Mellers & Schwartz, 1997) also investigates how individuals’ expectations and their perceived probability of economic outcomes affect people’s reactions. Thus, decision affect theory can be an alternative theory for the current research question. But decision affect theory differs from cumulative prospect theory in two important respects that are relevant to this study: first, decision affect theory assumes that
people react to gains and losses symmetrically; second, decision affect theory assumes no interaction between people’s expectations and their perceived probability of outcomes. Let us compare my hypotheses with the hypotheses that would have been derived from decision affect theory. Since decision affect theory argues that people react positively to better economic outcomes, it would have implied that a positive relation between merit raises and employee reactions, which is consistent with Hypothesis 3.1. But for the reasoning behind Hypothesis 3.2, about how loss aversion changes when perceived probabilities vary, decision affect theory differs from what cumulative prospect theory predicts. The reason of such difference is the fact that decision affect theory does not incorporate loss aversion in its theoretical framework. Thus, if I use decision affect theory, I could not argue the loss aversion reasoning of Hypothesis 3.2 and could not predict the negative three-way interaction effect. In fact, although it is a totally different kind of reasoning (decreased sensitivity to gains and losses), decision affect theory implies a positive three-way interaction effects for the current sample\(^4\), which is contrary to my hypothesis and results. Since the two theories’ predictions could be contradictory, I strongly encourage future research to further compare and test the validity of these two competitive theories.

Researchers who want to explore how people react to economic outcomes should also be interested in these findings, because the results suggest that besides

\(^4\) A key characteristic of the sample is that sizes of expected pay raises are lower than actual pay raises, which is a necessary condition to derive the positive three-way interaction effects with decision affect theory.
loss aversions, cumulative prospect theory has richer theoretical implications that can increase our understanding in this topic. The main thesis of cumulative prospect theory is that people process information following specified framing processes in which people’s reference points and their perceptions of event probability play important roles. As Kahneman and Tversky (1979) pointed out, reference points are not limited to people’s expectations: reference points could be people’s current status (e.g. current asset) and their social comparison target’s status. Thus, researchers investigating social comparisons or individual reactions to economic outcomes could apply cumulative prospect theory in their research.

The results have implications for compensation researchers who are interested in studying employee reactions to different types of incentive schemes. For example, two alternative approaches could be used to motivate employees: rewards or punishment. And the results of this article could help explain how employees react to these two different compensation methods. To be more specific, let’s examine a hypothetical example: suppose an employer could choose from the following two alternative incentive schemes: the first one is to reward employees by one dollar per piece of products they produce, up to ten dollars a day; the second one is to give the employees ten dollars a day and require the employees to produce ten pieces of products per day, and if the employees could not meet the target, their ten dollars will be deducted by one dollar per piece of unmet quantities. Apparently, the two incentive schemes are exactly the same mathematically, but according to the theoretical base of this article, employees will react very
differently to these two schemes. With the reference points being current status, the
two compensation schemes’ reference points are different: for the first
compensation scheme, the reference point is zero dollars, and employees will see
their incomes as rewards; for the second one, the reference point is ten dollars, and
employees will tend to see the deduction from ten dollars as punishment.
Furthermore, according to the theoretical arguments of this article, if employees
feel uncertain about how many they could produce (because of some uncontrollable
factors that could influence the production outcomes), they are more loss averse
and will react more strongly and negatively to the punishment approach. Also, it
will be interesting to see how such different incentive schemes interact with the
approach and avoidance temperament, since such individual characteristics indicate
the extent to which a person is loss averse.

Practical implications

Effectiveness of Merit Pay

Since previous studies have consistently found a weak relation between
merit raise sizes and employee reactions, some practitioners might assume that
such results are strong evidence against the use of merit pay. The discussion of the
following two issues should help clarify this view.

First of all, the weak relation between merit raise sizes and employee
reactions is not universally true. This study found a much stronger relation than the
previous studies did (reasons discussed above), and clearly shows that the strength of the relation depends on the average employee expectation and confidence in expectations, and thus depends on employee and organization characteristics that could influence the two variables. This means that although most studies found a weak relation, the strength of the relation will vary across different groups of employees and organizations according to their average levels of expectations and confidence in expectations. For instance, according to Figure 3.4, if employees have low expectation about their raises and are not confident in their expectations, they will be insensitive to merit raises. Thus, for a compensation practitioner intending to increase people’s sensitivity to merit pay, it is possible for one to control some relevant organization characteristics and employee perceptions. Specifically, for an organization that wants to make their good performers feel more satisfied and poor performers feel less satisfied, it might be a good practice to make employees more confident in their future merit raises or, alternatively, increase their merit raise expectations. Practitioners could have different ways of influencing employees’ expectations and confidence in their expectations. For example, according to Table 3.1, improving employees’ pay-for-performance perceptions could help to improve their confidence in their expectations. And, it is reasonable to expect that giving individual better performance feedback or announcing good organization performance would elevate employees’ merit raise expectations.
Second, it might be natural for some practitioners to assume that the relations between merit raise sizes and employee reactions must be large to show merit pay’s effectiveness, because weak relations mean that people do not respond to merit raises. But the current results indicate that even if one finds a weak relation between merit raise sizes and employee reactions in an organization, this does not necessarily mean that its merit pay system is ineffective. As Figure 3.2 and Figure 3.3 show, when an employee is confident that he/she will get high merit raises, he/she will not respond very strongly to actual merit raises, but the employee will still be very happy about the merit raise, and intend to put more effort into work. Table 3.2 suggests the reason behind this finding: the coefficients of the interaction between expectation and confidence in expectation are mostly positive (negative for turnover intentions), with some being significant or marginally significant, which indicates that high confidence in getting high merit raises makes employees happier, intend to put more effort, and less likely to leave their organizations. It is probably because that the employees’ high expectations are well-grounded (a reason of being very confident in their expectations), and usually becomes realized (a potential reason of the lack of data for the left-side of the solid line in Figure 3.2b and Figure 3.3b). About the reason of lack of sensitivity to actual merit raises when expectations and confidence in expectation are high, it is probably because the incentive and retention effects of the expected high raises have already realized before actual pay raises, and thus such employees’ affective and cognitive levels and behavioral intentions will not be changed much by the announcement of the actual merit raises, which are quite likely to be consistent with their expectations.
Even though these employees do not react strongly to actual merit raises, according to these empirical findings, merit pay does retain and motivate them.

*Use Merit Pay Strategically*

The current study’s results indicate that merit pay should be used strategically according to an organization’s characteristics such as the importance of overall employee satisfaction and turnover costs, because the empirical results show that there is a trade-off to make employees more sensitive to merit raise outcomes, as shown by Figure 3.2 and Figure 3.3. These two figures show that the steeper the slopes between merit raise sizes and employee reactions are, the lower the levels of the average employee happiness and performance intentions become. This suggests a nontrivial cost if an organization intends to make good performers feel more satisfied and poor performers feel less satisfied. The results are not surprising, because it is reasonable to expect that the increased satisfaction of good performers is usually less than the decreased satisfaction of poor performers, and thus cannot fully compensate for the decreased average level of satisfaction dragged down by the poor performers. Thus, these results indicate that the inequality of reactions alone (i.e. with the inequality of merit raises being constant) could bring down the overall satisfaction, and increase the overall turnover rates. Because of this trade-off, organizations should decide how sensitive they want their employees to be, on the basis of the organizations’ costs associated with turnover or employee dissatisfaction. For organizations investing heavily in specific human
capital training or relying on social capital or emotional labor, turnover and employee dissatisfaction level cost more, and these organizations might not want their employees to be too sensitive to the within-organization pay raise variation. Conversely, for organizations that have low turnover costs and intend to make their poor performers to leave, it might be a good idea to make employees sensitive to different levels of merit raises.

The current study also suggests that, in order to maximize the utility of merit pay, practitioners could influence employees’ expectations regarding their future merit raises on the basis of economic conditions on more macro levels. According to Figure 3.2 and Figure 3.3, when individuals perceive uncertainty regarding their future merit raises, the overall affective reaction or behavioral intention level is higher if they expect lower pay raises, which indicates that it might be a good idea to lower employees’ expectations during unstable economic times. Conversely, when individuals are confident in what they are going to get, the overall happiness or performance intention level is higher if individuals expect higher pay raises. This suggests that to motivate and retain employees during stable and good economic times, it might be a good practice to make employees believe that they are going to get high pay raises.
Chapter IV. Social Approach

Introduction

In this chapter, my overall argument is that the interpretation of social comparison information mediates the relation between merit pay raise sizes and employee outcomes, and individual self-esteem moderates this indirect relationship.

This chapter is organized in the following way. First, by reviewing the research on social comparison in the pay-related context, I argue that social comparison is a crucial factor in explaining people’s reactions to pay related issues. But most of the previous research just focused on how characteristics of pay structure influence individuals’ reactions. The specific mechanism of how individuals perceive and interpret merit raises from the perspective of social comparison is still unclear. What’s more, few studies applied social comparison theory to explaining the small non-significant relation between sizes of merit pay and reactions. Thus, I believe that the investigation of the specific psychological process of how individuals perceive social comparison information in the merit pay context is warranted. Next, to develop my argument, I use the identification-contrast model (Buunk & Ybema, 1997) to explain the mediation process between merit raise sizes and employee reactions. Then, I argue that the individual characteristic, self-esteem, moderates this mediation process, and the moderated mediation effects partly contribute to the small relation between merit raises and employee outcomes.
Social comparison and the identification-contrast model

Social comparisons and the resulting individual reactions from such comparisons characterize many life situations (Festinger, 1954), perhaps especially so when it comes to monetary rewards (Brickman, 1975; Festinger, 1954; O'Reilly & Caldwell, 1979). In support of this argument, Pfeffer and Langton (1993) found that wage dispersion is related to job satisfaction and other job-related outcomes of university faculty members. Trevor and Wazeter (2006) found that relative pay standing in pay hierarchies, an indicator of people’s perception of their social comparison evaluation in pay settings, moderates the relation between characteristics of pay structure and individuals’ perceptions of pay equity. More recent and direct evidence comes from a neurophysiologic study (Fliessbach et al., 2007) that used brain scan to examine a brain region called “reward system” where blood circulation increases when an individual earns money. The scan results showed that the reward system’s activation was not only affected by absolute sizes of monetary reward but also by the payment of comparison targets.

While most of the prior studies assumed that upward comparisons of pay (i.e. comparison with a better-paid target) resulted in only negative affect, and downward comparison of pay (i.e. comparison with a worse-paid target) resulted in positive affect, a stream of empirical and theoretical studies in social comparison literature shows that social comparisons can result in positive or negative affect,
independent of the direction of social comparisons (e.g. Buunk, Taylor, Dakof, Collins, & VanYperen, 1990; Collins, 1996), because on the one hand, in the case of upward comparison, wishful thoughts of becoming like better-off targets and positive affect can be generated, and on the other hand, in the case of downward comparison, the fearful thoughts of deteriorating like worse-off targets can arise.

Intending to capture these complex reactions of social comparisons, Buunk and Ybema (1997) developed the identification-contrast model. They argued that whether individuals interpret social comparison information positively or negatively depends on whether the individuals contrast or identify with comparison targets. In the case of identifying with comparison targets, individuals focus on the similarities between themselves and the comparison targets, seeing the status of the comparison targets as their potential futures. So when an individual compares oneself to a better-off comparison target, identification fosters positive feelings, such as wishful thoughts of becoming like the comparison target. Conversely, if the individual compares oneself to a worse-off comparison target, identification will foster negative feelings, such as compassion or fearful thoughts of deteriorating to the comparison target’s bad situation. In the case of contrast, individuals focus on the difference between themselves and comparison targets. Specifically, when an individual engages in upward comparisons (i.e. comparison targets are better off), contrasting results in negative feelings—the individual is reminded how bad his/her status is. And by contrasting oneself with worse-off comparison targets, the individual is reminded how good his/her status is. In conclusion, Buunk and
Ybema (1997) identified two positive interpretation of social comparison: 

*downward contrast* (a positive response to seeing others who were worse-off) and *upward identification* (a positive response to perceiving better-off others as a potential future self), and two negative interpretation of social comparison: 

*downward identification* (a negative response to perceiving worse-off others as a potential future self) and *upward contrast* (a negative response to seeing others who were better-off).

*The mediator role of interpretation of social comparisons in merit pay reactions*

To investigate the role of interpretation of social comparison in merit pay reactions, we need to understand how merit pay magnitude, an indicator of objective comparative standing, affects the interpretation of social comparisons. But not many studies in the literature of social comparisons investigated how objective standing relates to social comparison interpretations. One exception is a study conducted by Frieswijk, Buunk, Steverink, and Slaets (2004). Their research question is whether the extent of frailty of community-dwelling elderly persons (i.e. objective comparative standing) makes a difference in their interpretations of social comparison information. Frieswijk et al. (2004) hypothesized that the better the subjects’ comparative standing (lower level of frailty) was, the more positively they interpreted social comparison information, and conversely, the elderly people with higher level of frailty would interpret social comparison information more negatively. These hypotheses were supported except for upward identification.
That is, their empirical results showed that elderly persons with higher level of frailty identified with healthier comparison targets more. According to Frieswijk et al. (2004), the reason of this unexpected result might be that there are fewer healthier comparison targets for less frail elderly persons to compare upward than for more frail persons, since all of the subjects dwelled in communities for the elderly. Because unlike the elderly persons in the study, in merit pay contexts, the chances of individuals exposing to better-off or worse-off comparison information are not restricted, I follow Frieswijk et al.’s original hypothesis and argue that individuals who receive higher merit pay raises will interpret social comparison information more positively, and individuals who receive lower merit pay raises tend to interpret social comparison information more negatively.

The next step of understanding the role of social comparison interpretation in merit pay reactions is to predict the relation between individual interpretation of social comparisons and their reactions to merit pay. Although not in merit pay contexts, the literature provides more extensive and consistent empirical results on how social comparison interpretation affects individual reactions and outcomes. Researchers constantly found that the positive interpretation of social comparison was associated with individual positive reactions, and negative interpretation was negatively associated with affect, satisfaction, and other outcomes (e.g. Dibb & Yardley, 2006; Frieswijk et al., 2004). Applying these findings to merit pay contexts, I argue that positive interpretation of social comparisons is positively related to employee reactions and their behavioral intentions, and negative
interpretation of social comparisons is negatively related to employee reactions and their behavioral intentions.

**Hypothesis 4.1:** Positive interpretation of social comparisons (i.e. downward contrast and upward identification) and negative interpretation of social comparisons (i.e. downward identification and upward contrast) mediate the relationship between sizes of merit pay raises and employee outcomes (subjective magnitude of raises, pay raise happiness, pay-level satisfaction, performance intentions, and intent to stay). Specifically, sizes of merit pay raises are positively related to positive social comparison interpretation, and positive social comparison interpretation is positively related to employee outcomes (**Hypothesis 4.1a**). Sizes of merit pay raises are negatively related to negative social comparison interpretation, and negative social comparison interpretation is negatively related to employee outcomes (**Hypothesis 4.1b**).

The moderating role of self-esteem of the indirect effect between pay raises and reactions

Although the relation between merit raise sizes and employee outcomes is mediated by interpretation of social comparisons, I expect the strength of such mediation effect to vary across individuals with different levels of self-esteem (SE), the fundamental evaluation that people make about themselves (Baumeister, Campbell, Krueger, & Vohs, 2003). This section examines how SE affects the influence of merit raise sizes on employee outcomes via social comparison interpretation on the basis of plasticity theory (Brockner, 1988).

SE has long been identified as an important moderator of individual reactions in social settings (e.g. Aspinwall & Taylor, 1993; Banaji & Prentice, 1994; Wayment & Taylor, 1995; Wheeler & Miyake, 1992). But the literature does not
agree upon the direction of its moderation effect, both theoretically and empirically. Also, although some studies have investigated the moderation effect of SE in social comparisons, most of them just use frequencies of upward or downward social comparisons as predictors without fully considering the identification and contrast effects that are indicated in Buunk and Ybema’s identification-contrast model (1997).

In order to accurately predict the moderation direction, in the following sections, first, I briefly review the literature of the moderation effects of SE, with the intention to find out the pattern of the directions of the SE moderation effects. Second, I develop a framework to explain the seemingly conflicting results and identify the factors that influence the direction of SE moderation effects. Third, I apply the framework to the identification-contrast model, and finally I propose a hypothesis that predicts the direction of the SE moderation effect in the mediation relation between merit pay raises and outcomes.

*Self-esteem as a moderator (literature review)*

As I mentioned above, studies contradict each other about the direction of SE’s moderation effect. Some studies found that LSEs (individuals with low SE) are more sensitive to external cues (Brown & Mankowski, 1993; Brown & Smart, 1991; J. Campbell, 1990; Duffy, JD Shaw, & Stark, 2000; Kernis, J Brockner, & Frankel, 1989; Shamir, 1986; Swallow & Kuiper, 1988). Others found that HSEs (individuals with high SE) are impacted more easily by external events than LSEs
are (e.g. Brockner, Derr, & Laing, 1987; Duffy, Shaw, Scott, & Tepper, 2006; Duffy et al., 2000; McFarlin, 1985).

According to Brockner (1988), the theoretical arguments underlying these two sets of conflicting empirical results are plasticity argument (Brockner, 1988) and cognitive dissonance theory (Aronson, 1968, 1984) respectively. The plasticity hypothesis (Brockner, 1988) contends that LSEs are more easily influenced by social cues for three reasons. First, “lacking self-confidence in or certainty about their own beliefs and behaviors, LSEs are prone to regard external or social cues as guides for appropriate thought and action (social comparison). Second, not liking themselves, LSEs are especially dependent on the receipt of positive evaluation from others. One way to receive such positive evaluations is to conform to the beliefs and behaviors of significant others (need for approval and self-presentation). Finally, having a shaky sense of self-identity, LSEs may be especially prone to perceive negative feedback as reflective or revealing of other important self-aspects” (self-diagnosticity; Brockner, 1988, p.46).

As for the other empirical results that found that HSEs are more sensitive to situational events (e.g. Duffy et al., 2006; Duffy et al., 2000; Brockner et al., 1987; McFarlin, 1985), the underlying theoretical argument was the cognitive dissonance theory (Aronson, 1968, 1984). HSEs are used to thinking of themselves highly. Thus, external cues that threaten self-image (e.g. low pay raises) have a greater impact on HSEs, because they create cognitive dissonance (Aronson, 1968, 1984).
LSEs are less influenced by SE-threatening events “because there is little inconsistency between the esteem-threatening stimuli and their typical self-views” (Brockner, 1988, p.89).

Reconciling the conflicting research findings

Prior empirical evidence show both negative and positive SE moderation effects on the relation between situational cues and reactions. And both of the SE moderation directions were based on well-reasoned theoretical arguments. So in order to correctly predict how SE moderates the indirect relation between merit pay raises (as a type of situational cue) and employee reactions mediated by social comparisons, the logical next questions are how to explain the inconsistency of the results, and based on the answer of this question, which should be applied to explaining how employees react to merit pay.

Different from some prior theoretical arguments, here, I contend that both LSEs and HSEs react to esteem-threatening situational cues. Because otherwise, one cannot explain why some prior studies found both directions of SE moderating effects in the same sample (e.g. Duffy et al., 2000). If LSEs and HSEs both react to threats, the difference between LSEs and HSEs must lie in their ways of reactions in response to threats. In particular, empirical evidence consistently shows that LSEs facing esteem-threats experience more negative affect (e.g. anxiety, self-blame and fear of further failure) and negative self-evaluation. I argue that it is because LSEs tend to attribute failures to themselves (Kernis et al., 1989; Shamir,
1986), because of their low levels of self-evaluation. In terms of behavioral reactions, LSEs tend to be self-defensive and adopt withdrawal behaviors such as work absenteeism (Duffy et al., 2000; Banaji & Prentice, 1994) to avoid confronting threats, because LSEs want to prevent further esteem-hurting, and also LSEs are not confident that they can deal with the threats.

By contrast, HSEs’ affect and self-evaluation are not impacted by threats as much as LSEs are (e.g. Greenberg et al. 1992), because high level of SE provides buffering effects to mitigate the negative affective responses to failures or threats (Johnson, Vincent, & Ross, 1997; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Rector & Roger, 1997; Scheier, Carver, & Bridges, 1994). And in some cases, HSEs facing threats even show a slight boost in self-evaluation and desire to be perceived as competent (Brockner et al., 1987). As for the behavioral aspects, with the valuable instrumental goals in their minds (Ormel, Lindenberg, Steverink, & Verbrugge, 1999), HSEs tend to react to threats more aggressively and persistently than LSEs do (Banaji & Prentice, 1994) and show less withdrawal behaviors (Pyszczynski et al., 2004), because HSEs are more likely to believe that they can successfully solve the threats and attain their instrumental goals.

The above brief literature review suggests that the plasticity argument (Brockner, 1988) explains well with regard to affect and self-evaluation. In terms of behavioral reactions (active/aggressive behaviors vs. withdrawal behaviors), the framework of “fight or flight response” can apply. Simply put, when facing threats,
HSEs are more likely to fight (active/aggressive behaviors) and LSEs are more likely to flee (withdrawal behaviors). First, the estimated chances of winning fights are different between HSEs and LSEs, because of their different fundamental self-evaluation. In addition, the negative consequence of failing fights is more severe for LSEs. Although both LSEs and HSEs want to attain the instrumental goals and maintain esteem, if LSEs fail the fight, they hurt more because of LSEs’ lack of esteem buffering effects/resource, which is consistent with the resource-based analogy of SE as an important resource (Spencer, Josephs, & Steele, 1993).

Self-esteem as a moderator in the merit pay context

To conclude, the direction of the SE moderation effect in the relation between situational cues and outcomes depends on the characteristics of outcome variable. Specifically, if outcome variables are related to active and aggressive behavior in response to threats, there is a stronger relation between situational cues and outcomes for HSEs (e.g. Duffy et al., 2006; Duffy et al., 2000; Brockner et al., 1987; McFarlin, 1985); if outcome variables are related to affect, satisfaction, self-evaluation or withdrawal behaviors, there is a stronger relation for LSEs (e.g. Brown & Mankowski, 1993; Brown & Smart, 1991; Duffy et al., 2000; Kernis et al., 1989; Shamir, 1986; Weiss, 1978).

In this study, the mediator, interpretations of social comparison information are related to self-evaluation and affect, rather than aggressive behaviors. Thus, I contend that the moderation effect of self-esteem follows the plasticity argument.
That is, LSEs’ interpretations of social comparisons are more susceptible to the sizes of their pay Raises.

_Hypothesis 4.2:_ Self-esteem moderates the indirect effect of pay raise sizes on employee outcomes (subjective magnitude of raises, pay raise happiness, pay-level satisfaction, performance intentions, and turnover intentions) via social comparison interpretation. Specifically, the mediation effect of interpretation of social comparisons is stronger when self-esteem is low.

_Self-esteem and interpretation of social comparisons_

HSEs tend to evaluate themselves more positively and are more certain about such positive evaluation (Brockner, 1988). They therefore are less easily convinced by negative feedbacks, and more easily convinced by positive feedbacks (Brockner, 1988). Hence, it is reasonable to expect that when HSEs are exposed to social comparison information, these individuals will interpret the information more positively. Specifically, when HSEs are exposed to a better-off comparison target, the wishful thoughts of becoming like the target are more likely to emerge for HSEs than for LSEs. Conversely, LSEs tend to perceive negative feedback as more reflective or revealing, because of their uncertainty about self-identity. So, for LSEs, depression and discouragement are more likely to arise when LSEs compare themselves with better-off targets. Following the similar arguments, I expect that if a social comparison target is worse-off, HSEs are more likely to contrast themselves with the worse-off target and generate a pleasant feeling, and LSEs are more likely to worry about having a future like the worse-off target.
In support of the above prediction, although Dibb and Yardley (2006) did not hypothesize such relationships in their study, their empirical results showed that SE was positively associated with positive interpretation of social comparisons and negatively associated with negative interpretation of social comparisons for patients with chronic illness.

Hypothesis 4.3: Self-esteem is positively related to positive interpretation of merit pay social comparison information (Hypothesis 4.3a) and negatively related to negative interpretation of merit pay social comparison information (Hypothesis 4.3b).

Method

Participants and procedures

The data used in this chapter come from the same data source of Chapter 3. The participants were non-faculty employees from a large mid-west university. The participants mainly represented four different occupations: technology (e.g. information technology specialist), administration (e.g. advising coordinator), management (e.g. director of education & special programs), and health care (e.g. child development specialist). The university’s employee council cooperated with us in administering the three-wave longitudinal study. At each round, the council sent out solicitation letters to its members, inviting them to fill out the online surveys and ensuring them that only we, the researchers, have access to the responses. We offered 20 $50 raffle prizes to each round’s participants and a $500 prize to a randomly-selected person who participated in all three rounds of surveys.
to reduce the longitudinal study’s attrition rate. Out of 617 employees, 237 participated in the first round (35.70%), 221 the second round (33.28%), and 230 the third round (37.27%). 158 participated in all of the three rounds (25.61%). The three time points we administered the survey are: 1. one month before the merit pay was announced, 2. two months after the first round and one month after the new pay level was implemented, and 3. six months after the new pay level was implemented.

Measures

*Positive and negative social comparison* (Time 2 & Time 3). The scale was developed by Van der Zee, Buunk, Sanderman, Botke, and Van den Bergh (2000), and modified to adapt to merit pay raise contexts. The scale includes four subscales, each with 3 items. The four subscales are the positive interpretation of downward social comparison (downward contrast), the positive interpretation of upward social comparison (upward identification), the negative interpretation of downward social comparison (downward identification), and the negative interpretation of upward social comparison (upward contrast). The respective sample items of the above four subscales are “When I see others who have lower pay raises, I feel relieved about my own situation”, “When I see others who have higher pay raises, I realize that it is possible to improve”, “When I see others who have lower pay raises, I experience fear to decline”, and “When I see others who have higher pay raises, it is threatening to notice that I am doing not so well”. As suggested by Van der Zee
et al. (2000) and Ben-Zur and Debi (2005), according to the results of factor analyses with Varimax rotation, the four subscales can be collapsed into two scales: positive social comparison, consisted of downward contrast and upward identification, and negative social comparison, consisted of downward identification and upward contrast. The Cronbach’s alpha reliability of the positive social comparison and negative social comparison are .83 and .84 respectively for Time 2, and .81 and .85 for Time 3.

*Self-esteem* (Time 1). SE was assessed with the 10-item Likert-type scale by Rosenberg (1965). A sample item is “we take a positive attitude toward myself”. Cronbach’s alpha for the scale is .86.

*Merit pay raises* (between Time 1 and Time 2). Merit pay raises were retrieved from public archival data. It was calculated as the percentages of annual pay level changes that were due to performance evaluation. With the help of the human resource department of the university, I was able to identify the pay raises that are merit based, by excluding other factors that could affect pay level changes, such as job title changes, level changes, and work time changes.

*Dependent variables* are the same set of the dependent variables listed in the method section of Chapter 3.

*Control variables.* Following (Schaubroeck et al., 2008), I included base salary as a control variable. (Rambo & Pinto, 1989) found that perceived “just
meaningful differences” thresholds of pay raise sizes are different across different individuals and base salaries accounted for a significant proportion of this difference. Moreover, employees with higher base salary tend to have more positive reaction towards pay related issues (Hinrichs, 1969) and they usually consider their work input as more valuable and thus might expect higher returns (Schaubroeck et al., 2008). Since education is related to pay perceptions (Hinrichs, 1969), I also included education as a control variable.

Results

Table 4.1 presents the range, means, standard deviation, and correlations among the study variables. Table 4.1 also contains reliability estimations of variables with multiple items.
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<td>1. Base Salary (Time 1; x1000)</td>
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<tr>
<td>2. Education (Time 1)</td>
<td>302</td>
<td>1.00</td>
<td>7.00</td>
<td>5.71</td>
<td>1.51</td>
<td>.08</td>
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<td>3. Merit Pay Raise Size (interim)</td>
<td>292</td>
<td>.00</td>
<td>29.37</td>
<td>4.69</td>
<td>3.08</td>
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<td>4. Self-Esteem (Time 1)</td>
<td>229</td>
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<tr>
<td>5. Positive Social Comparison (Time 2)</td>
<td>222</td>
<td>1.00</td>
<td>6.33</td>
<td>3.98</td>
<td>1.00</td>
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<td>-.08</td>
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<td>6. Negative Social Comparison (Time 2)</td>
<td>222</td>
<td>1.00</td>
<td>6.67</td>
<td>3.05</td>
<td>1.08</td>
<td>-.22</td>
<td>-.05</td>
<td>-.04</td>
<td>-.39</td>
<td>-.01</td>
<td>(.82)</td>
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<tr>
<td>7. Positive Social Comparison (Time 3)</td>
<td>231</td>
<td>1.00</td>
<td>6.00</td>
<td>3.95</td>
<td>.90</td>
<td>.04</td>
<td>-.13</td>
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<td>.67</td>
<td>.02</td>
<td>(.81)</td>
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<tr>
<td>8. Negative Social Comparison (Time 3)</td>
<td>231</td>
<td>1.00</td>
<td>6.33</td>
<td>3.27</td>
<td>1.07</td>
<td>-.07</td>
<td>-.05</td>
<td>-.10</td>
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<td>9. Subjective Magnitude of the Raise (Time 2)</td>
<td>220</td>
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<td>7.00</td>
<td>3.52</td>
<td>1.09</td>
<td>.26</td>
<td>-.05</td>
<td>.42</td>
<td>.12</td>
<td>.11</td>
<td>-.33</td>
<td>.12</td>
<td>-.33</td>
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<td>10. Pay Raise Happiness (Time 2)</td>
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<td>10.00</td>
<td>6.45</td>
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<td>.13</td>
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<td>.34</td>
<td>-.33</td>
<td>.55</td>
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<td>11. Pay-Level Satisfaction (Time 2)</td>
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<td>7.00</td>
<td>4.24</td>
<td>1.57</td>
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<td>-.03</td>
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<td>.10</td>
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<td>-.42</td>
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<td>.33</td>
<td>.68</td>
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<tr>
<td>12. Performance Intention (Time 2)</td>
<td>222</td>
<td>1.00</td>
<td>10.00</td>
<td>6.59</td>
<td>1.82</td>
<td>.04</td>
<td>-.13</td>
<td>-.05</td>
<td>.14</td>
<td>.37</td>
<td>-.31</td>
<td>.38</td>
<td>-.27</td>
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<td>.46</td>
<td>.34</td>
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<td>13. Turnover Intention (Time 2)</td>
<td>222</td>
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<td>6.50</td>
<td>2.71</td>
<td>1.37</td>
<td>-.13</td>
<td>.24</td>
<td>-.02</td>
<td>-.17</td>
<td>-.31</td>
<td>.31</td>
<td>-.30</td>
<td>-.23</td>
<td>-.25</td>
<td>-.36</td>
<td>-.44</td>
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<td>(.89)</td>
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<tr>
<td>14. Subjective Magnitude of the Raise (Time 3)</td>
<td>221</td>
<td>1.00</td>
<td>6.00</td>
<td>3.49</td>
<td>1.07</td>
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<td>-.07</td>
<td>.30</td>
<td>.09</td>
<td>.10</td>
<td>-.26</td>
<td>.17</td>
<td>-.19</td>
<td>.66</td>
<td>.52</td>
<td>.34</td>
<td>.26</td>
<td>-.20</td>
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<td></td>
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<tr>
<td>15. Pay Raise Happiness (Time 3)</td>
<td>230</td>
<td>1.00</td>
<td>10.00</td>
<td>6.26</td>
<td>2.26</td>
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<td>-.34</td>
<td>.39</td>
<td>-.29</td>
<td>.59</td>
<td>.74</td>
<td>.70</td>
<td>.38</td>
<td>-.30</td>
<td>.51</td>
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<tr>
<td>16. Pay Level Satisfaction (Time 3)</td>
<td>231</td>
<td>1.00</td>
<td>7.00</td>
<td>4.23</td>
<td>1.53</td>
<td>.24</td>
<td>-.05</td>
<td>.10</td>
<td>.03</td>
<td>.32</td>
<td>-.34</td>
<td>.44</td>
<td>-.33</td>
<td>.33</td>
<td>.57</td>
<td>.87</td>
<td>.30</td>
<td>-.29</td>
<td>.32</td>
<td>.70</td>
<td>(.95)</td>
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<td></td>
</tr>
<tr>
<td>17. Performance Intention (Time 3)</td>
<td>229</td>
<td>1.00</td>
<td>10.00</td>
<td>6.53</td>
<td>1.72</td>
<td>-.10</td>
<td>-.06</td>
<td>-.04</td>
<td>.20</td>
<td>.27</td>
<td>-.18</td>
<td>.23</td>
<td>-.20</td>
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<td>.26</td>
<td>.49</td>
<td>-.16</td>
<td>.15</td>
<td>.30</td>
<td>.22</td>
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<td></td>
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<tr>
<td>18. Turnover Intention (Time 3)</td>
<td>231</td>
<td>1.00</td>
<td>6.75</td>
<td>2.58</td>
<td>1.36</td>
<td>-.12</td>
<td>.23</td>
<td>-.09</td>
<td>-.28</td>
<td>-.24</td>
<td>.25</td>
<td>-.32</td>
<td>.23</td>
<td>-.28</td>
<td>-.27</td>
<td>-.36</td>
<td>-.27</td>
<td>.79</td>
<td>-.17</td>
<td>-.34</td>
<td>-.35</td>
<td>-.22</td>
<td>(.89)</td>
</tr>
</tbody>
</table>

Notes: † p<.10, * p<.05, ** p<.01. Coefficient alpha reliabilities are reported in the main diagonal where appropriate.
Hypothesis 4.1 and Hypothesis 4.2 predict a moderated multiple mediator model, and Hypothesis 4.3 hypothesizes the relation between SE and interpretation of social comparison information. Preacher and Hayes (2008) advocate BC (Bias-Corrected) bootstrapping confidence intervals as the most reasonable method to report multiple mediator model results, because other methods usually assume normality of the sampling distribution of indirect effects, an assumption that usually cannot be met for small samples. So, for Hypothesis 4.1 and Hypothesis 4.2, which indicate multiple mediator models, in addition to the point estimates and their statistical significance calculated with the traditional normal theory approach, I also report the 95% bias corrected confidence intervals from bootstrapping with iterations of 5,000 times. As for Hypothesis 4.2, a moderated mediation hypothesis, according to Preacher, Rucker, and Hayes (2007), researchers should report both BC bootstrapping confidence intervals and normal theory results. I followed their suggestions and centered SE and merit raises for the tests of the moderation effects. All of the results, including bootstrapping and normal theory approach, are based on seemingly unrelated regressions, because tests of all three hypotheses involve running multiple linear equations simultaneously, and the error terms of these equations are likely to correlate with each other.

Hypothesis 4.1 proposed that interpretation of social comparisons mediates the relationship between sizes of merit pay and employee outcomes. I included the estimates of indirect effects of pay raises on employee outcomes via positive
interpretation of social comparisons, negative interpretation of social comparisons, and the total indirect effects (e.g. the indirect effects via positive interpretation plus the indirect effects via negative interpretation) in Table 4.2a (for Time 2 employee outcomes) and Table 4.2b (for Time 3 employee outcomes). As Table 4.2a shows, the estimates of mediation effects with Time 2 employee reactions being the dependent variables are not significant, and the 95% bootstrapping BC confidence intervals all include zero, which indicates insignificant indirect effects. Results of Time 3 employee reactions in Table 4.2b show that the specific indirect effects via positive interpretation of social comparisons for pay raise happiness, and the specific indirect effects via negative interpretation of social comparisons for pay-level satisfaction are marginally significant. As for the 95% bootstrapping BC confidence intervals, the total and the specific indirect effect of pay raises on Time 3 performance intervals via the negative interpretation of social comparisons, and the specific indirect effects of pay raises on Time 3 turnover intentions via negative social comparisons do not include zero, which indicates 95% significance levels for some of the indirect effects. But for most of the other estimates of indirect effects, the results are not significant and the effects are small. Thus, Hypothesis 4.1 is only marginally supported for some Time 3 employee outcomes.
Table 4.2
Results of Indirect Effect Analyses (Unstandardized Coefficients)

<table>
<thead>
<tr>
<th>Time 2 DVs Table 4.2a</th>
<th>Subjective Magnitude of the Raise</th>
<th>Pay Raise Happiness</th>
<th>Pay Level Satisfaction</th>
<th>Performance Intention</th>
<th>Turnover Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indirect Effect of Pay Raises</strong></td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
</tr>
<tr>
<td>Specific indirect effect via PISC</td>
<td>-.00 (-.02, .01)</td>
<td>-.01 (-.05, .03)</td>
<td>-.01 (-.05, .03)</td>
<td>-.01 (-.05, .03)</td>
<td>-.01 (-.05, .03)</td>
</tr>
<tr>
<td>Specific indirect effect via NISC</td>
<td>.01 (-.01, .04)</td>
<td>.02 (-.01, .09)</td>
<td>.02 (-.01, .07)</td>
<td>.02 (-.01, .08)</td>
<td>.02 (-.01, .08)</td>
</tr>
<tr>
<td>Total indirect effect</td>
<td>.00 (-.02, .03)</td>
<td>.01 (-.03, .07)</td>
<td>.01 (-.04, .06)</td>
<td>.01 (-.03, .07)</td>
<td>.01 (-.04, .03)</td>
</tr>
<tr>
<td><strong>Indirect Effect of Pay Raises*SE</strong></td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
</tr>
<tr>
<td>Specific indirect effect via PISC</td>
<td>-.02 (-.05, .00)</td>
<td>-.04 (-.12, .01)</td>
<td>-.04 † (-.11, .01)</td>
<td>-.04 † (-.11, .00)</td>
<td>-.04 † (-.11, .00)</td>
</tr>
<tr>
<td>Specific indirect effect via NISC</td>
<td>-.01 (-.04, .02)</td>
<td>-.03 (-.11, .05)</td>
<td>-.02 (-.08, .04)</td>
<td>-.02 (-.10, .05)</td>
<td>-.02 (-.10, .05)</td>
</tr>
<tr>
<td>Total indirect effect</td>
<td>-.03 * (-.06, .00)</td>
<td>-.07 * (-.15, .00)</td>
<td>-.06 * (-.12, .01)</td>
<td>-.06 * (-.13, .00)</td>
<td>-.06 * (.003, .09)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 3 DVs Table 4.2b</th>
<th>Subjective Magnitude of the Raise</th>
<th>Pay Raise Happiness</th>
<th>Pay Level Satisfaction</th>
<th>Performance Intention</th>
<th>Turnover Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indirect Effect of Pay Raises</strong></td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
</tr>
<tr>
<td>Specific indirect effect via PISC</td>
<td>.00 (-.01, .02)</td>
<td>.04 † (-.05, .08)</td>
<td>.01 (-.04, .05)</td>
<td>.00 (-.03, .03)</td>
<td>.00 (-.03, .03)</td>
</tr>
<tr>
<td>Specific indirect effect via NISC</td>
<td>.01 (-.00, .02)</td>
<td>.01 (-.00, .10)</td>
<td>.03 † (-.00, .08)</td>
<td>.02 (.00, .06)</td>
<td>.01 (-.04, .00)</td>
</tr>
<tr>
<td>Total indirect effect</td>
<td>.01 (-.00, .03)</td>
<td>.04 (-.02, .13)</td>
<td>.04 (-.01, .10)</td>
<td>.02 (.01, .07)</td>
<td>.01 (-.04, .01)</td>
</tr>
<tr>
<td><strong>Indirect Effect of Pay Raises*SE</strong></td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
<td>95% BC C.I.</td>
</tr>
<tr>
<td>Specific indirect effect via PISC</td>
<td>-.02 † (-.06, .00)</td>
<td>-.08 * (-.24, .00)</td>
<td>-.06 * (-.18, .01)</td>
<td>-.03 * (-.11, .01)</td>
<td>-.03 * (.00, .09)</td>
</tr>
<tr>
<td>Specific indirect effect via NISC</td>
<td>-.01 (-.03, .00)</td>
<td>-.03 (-.10, .01)</td>
<td>-.03 (-.08, .01)</td>
<td>-.02 (-.07, .00)</td>
<td>-.02 (-.00, .04)</td>
</tr>
<tr>
<td>Total indirect effect</td>
<td>-.03 * (-.07, .00)</td>
<td>-.12 ** (-.27, -.03)</td>
<td>-.09 ** (-.21, -.03)</td>
<td>-.05 * (-.13, -.01)</td>
<td>-.04 * (.01, .10)</td>
</tr>
</tbody>
</table>

Notes: BC C.I.: Bias-Corrected Bootstrapping Confidence Interval.
I used normal theory approach and the regression results of seemingly unrelated equations to estimate point coefficients, which are reported in the first column under each dependent variable.
† p<.10, * p<.05, ** p<.01 (one-tailed). N=148. Unstandardized regression weights are reported.
Hypothesis 4.2 states that the mediation effects of social comparison interpretation for the relation between pay raises and employee outcomes are stronger for LSEs. For this hypothesis, I proposed a moderation effect of SE on the first link of the mediation process, that is, the relation between pay raises and social comparison interpretation. According to Preacher et al. (2007), when the path between independent variable and mediators is moderated, whether the indirect effects of the interaction terms (i.e. the product of independent variables and mediators) is significantly different from zero is the criteria of testing the moderated mediation model. In other words, if the indirect effects of the interaction term (SE* Raises) on employee outcomes significantly departs from zero, the hypothesis is supported. As Table 4.2a shows, although the specific indirect effects of SE* Raises are not significant, all of the estimates of total indirect effects from the normal theory approach are significant and negative (positive for turnover). Thus, the coefficient signs are consistent with the hypothesis: LSEs react more strongly to pay raises. This is largely consistent with the bootstrapping results. The 95% bootstrapping confidence intervals do not include zero for Time 2 pay-level satisfaction and Time 2 turnover intentions. Other dependent variables are marginally significant as the upper limits of their 95% confidence intervals are either near to zero or .01. As for the Table 3 (Time 3 dependent variables), the specific indirect effects of SE* Raises via negative interpretation of social comparisons are significant but the specific indirect effects of SE* Raises via positive social comparisons are not significant. Adding the two specific indirect effects together, I
found that the total indirect effects, assessed by both normal theory approach and bootstrapping approach, are significant across all Time 3 dependent variables.

In order to test whether the total indirect effects are only caused by positive social comparisons, rather than both positive and negative social comparisons, I used the normal theory approach and bootstrapping approach to estimate whether the specific indirect effects via positive interpretation of social comparisons and the specific indirect effects via negative interpretation of social comparisons are significantly different. The results showed no difference, for both Time 2 and Time 3 employee outcomes. That is, the magnitude of the two specific indirect effects does not differ significantly. In conclusion, Hypothesis 4.2 is supported for Time 3 employee reactions, and it is partially supported for Time 2 employee reactions.

Hypothesis 4.3 states that SE is positively related to the positive interpretation of social comparisons and negatively related to the negative interpretation. I report the seemingly unrelated regression results, based upon which the indirect effects of Hypothesis 4.1 and Hypothesis 4.2 are assessed, in Table 4.3 and Table 4.4. As the tables show, SE is not significantly related to the positive interpretation of social comparisons, although the coefficient signs are positive and consistent with what Hypothesis 4.3 predicts. As for the negative interpretation of social comparisons, its relation with SE is negative and significant \( (p < .05) \). Thus, Hypothesis 4.3a is not supported, but Hypothesis 4.3b is supported.
Table 4.3
Results of Time 2 Seemingly Unrelated Regression Analyses (Unstandardized Coefficients)

<table>
<thead>
<tr>
<th>Time 2</th>
<th>Subjective Magnitude of the Raise</th>
<th>Pay Raise Happiness</th>
<th>Pay Level Satisfaction</th>
<th>Performance Intentions</th>
<th>Turnover Intentions</th>
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<tr>
<td></td>
<td>Log(Salary)</td>
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<td>.22</td>
<td>.22</td>
<td>.22</td>
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<td>-.08</td>
<td>-.08</td>
<td>-.08</td>
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<tr>
<td></td>
<td>Pay Raises</td>
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<td>-.02</td>
<td>-.02</td>
<td>-.02</td>
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<td></td>
<td>Self-Esteem</td>
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<td>0.04</td>
<td>0.04</td>
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<tr>
<td></td>
<td>Pay Raises*Self-Esteem</td>
<td>-0.06 †</td>
<td>-0.06 †</td>
<td>-0.06 †</td>
<td>-0.06 †</td>
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<tr>
<td></td>
<td>(R^2)</td>
<td>.04</td>
<td>.05</td>
<td>.05</td>
<td>.05</td>
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<tr>
<td></td>
<td>Log(Salary)</td>
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<td>-.72 **</td>
<td>-.72 **</td>
<td>-.72 **</td>
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<tr>
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<td>.04</td>
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<tr>
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<td>Pay Raises</td>
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<td>-.03</td>
<td>-.03</td>
<td>-.03</td>
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<td>Self-Esteem</td>
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<td>-0.64 **</td>
<td>-0.64 **</td>
<td>-0.64 **</td>
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<tr>
<td></td>
<td>Pay Raises*Self-Esteem</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
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<td>(R^2)</td>
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<td>.24</td>
<td>.24</td>
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<tr>
<td></td>
<td><strong>Dependent Variable: NISC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Log(Salary)</td>
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<td>-.52 **</td>
<td>-.63 **</td>
</tr>
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<td>Education</td>
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<td>-.10</td>
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<tr>
<td></td>
<td>Pay Raises</td>
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<td>0.18 **</td>
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<tr>
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<td>-.01</td>
<td>-.06</td>
<td>-.02</td>
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<td>0.01</td>
<td>-.02</td>
<td>-.08</td>
</tr>
<tr>
<td></td>
<td>(R^2)</td>
<td>.39</td>
<td>.27</td>
<td>.39</td>
<td>.29</td>
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</table>

Notes: † p<.10, * p<.05, ** p<.01. (one-tailed). N=148. Unstandardized regression weights are reported.
Table 4.4
Results of Time 3 Seemingly Unrelated Regression Analyses (Unstandardized Coefficients)

<table>
<thead>
<tr>
<th>Time 3</th>
<th>Subjective Magnitude of the Raise</th>
<th>Pay Raise Happiness</th>
<th>Pay Level Satisfaction</th>
<th>Performance Intentions</th>
<th>Turnover Intentions</th>
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<td>-0.07*</td>
<td>-0.07*</td>
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<td>-.02</td>
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<td>0.05</td>
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<td>.16</td>
<td>.16</td>
<td>.16</td>
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<tr>
<td>Dependent Variable: NISC</td>
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<td>1.06*</td>
<td>.85**</td>
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<td>0.12†</td>
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<td></td>
<td>$R^2$</td>
<td>.24</td>
<td>.34</td>
<td>.41</td>
<td>.15</td>
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</tbody>
</table>

Notes: † p<.10, * p<.05, ** p<.01. (one-tailed). N=148. Unstandardized regression weights are reported.
Finally, I tested if the moderated multiple mediator model is what we hypothesized: the mediation relationship is moderated at the relation between the independent variable (raises) and the mediators (social comparisons), rather than the relation between the mediators (social comparisons) and the dependent variables. I included the products of SE (moderator) and interpretation of social comparisons (mediator) in the regressions to see if SE also moderates the relation between social comparisons and dependent variables. I used F-tests to see if such regressions explained additional variance of the dependent variables at a .05 statistical significance level. The results showed that out of 10 regressions (each with a different dependent variable of Time 2 and Time 3), none appeared significant. Thus, I conclude that self-esteem moderates the mediation process at the relation between the independent variable (i.e. pay raises) and the mediators (i.e. the interpretation of social comparisons), rather than at the relation between the mediators and the dependent variables (i.e. employee reactions).

Discussion

Conclusion

The current study provides an important new angle, social comparison perspective, to examine the question of how employees perceive merit pay, and thus contribute to the stream of literature by providing a novel theoretical framework which is supported by three-wave longitudinal data. Also, in the literature of
employee reactions to merit pay, it has been a central question why the relation between merit raise sizes and employee reactions is small. The current study explains the question from a social comparison approach, and shows that employees could react to merit raises by comparing to other people’s pay raises, especially so for employees with low SE. According to the result, the relation between merit raise sizes and employee reactions will depend on a sample’s average SE.

The current study also has contribution to the larger literature of compensation. Previous empirical evidence has shown that social comparisons are important to interpret people’s reactions to economic rewards, but the evidence is mainly focused on how pay structure influences people’s satisfaction. The specific cognitive process of how people compare their pay to social comparison targets remained unclear. Thus, this study provides an important framework to clarify the issue.

*Research implications*

Findings from the study, which is based on a three-wave longitudinal data, contribute to both the pay literature and the social comparison literature. The literature of employees’ reactions to compensation has long recognized the importance of social comparisons. But the direct empirical tests of the specific individual cognition processes and how such cognition influences cognitive, affective, and behavioral employee outcomes remain incomplete. This study provides a theoretical framework in understanding specific individual cognitive
processes in terms of how employees perceive pay from a social comparison perspective.

This study also has implication for social comparison literature. First, although the identification-contrast model (Buunk & Ybema, 1997) shows that people can positively or negatively interpret social comparisons regardless of their comparative standing, the model does not answer the important question of when individuals will interpret social comparison information differently according to their individual characteristics. This study showed that SE plays an important role in affecting how people perceive social comparison information. The results showed that SE is not significantly related to the positive interpretation of social comparisons but it is largely and negatively related the negative interpretation of social comparisons. That is LSEs tend to interpret social comparisons more negatively, rather than less positively.

Second, few studies in the social comparison literature showed how an individual’s objective standing is related to upward or downward social comparisons. By including the objective measures of merit pay sizes and the different interpretation strategies of upward and downward social comparisons from the identification-contrast model (Buunk & Ybema, 1997), I found that in this sample, objective standing is positively related to the positive interpretation of social comparisons, and negatively related to the negative interpretation of social comparisons for LSEs.
Third, I found that SE interacts with objective standing of an individual in determining how he/she react to social comparisons. LSEs are more susceptible to their objective standings in comparison to others. By contrast, HSEs are less susceptible to their comparative standing. I encourage future social comparison studies to test this framework in other contexts.

Practical implications

Effectiveness of Merit Pay

The current study shows that the weak relation between merit raises and employee reactions is not necessarily the indicator of the ineffectiveness of merit pay, because the relation would depend on the average level of employee self-esteem. Since the previous studies mostly focused on employee attitudes and affective reactions, according to the current theoretical framework, the higher samples’ average levels of SE are, the less likely the employees compare their merit raises to others and react to social comparison information affectively. Thus, people could find weaker employee reactions to merit raises in samples with high average SE levels. But the weak relation between merit raise sizes and employee reactions found in samples of high SE does not necessarily mean that individual employees do not respond to their merit raises, because HSEs could also react to merit raises, but just in different ways. For instance, if HSEs receive low merit raises, their self-evaluation and thus their attitudes and affective status are not likely to change, but they will actively or aggressively respond to the situational threats. Active reactions
might include devoting more effort to work, or if HSEs after a few failures think that it is not their faults, they might try to find better outside opportunities and leave their organizations. In conclusion, LSEs are more prone to be influenced by social comparisons in terms of their self-evaluations and affects, and thus might be more sensitive to merit pay in this sense. By contrast, although it is not tested here, HSEs might also react to merit pay in terms of active or aggressive behavior. Thus, if merit pay practitioners find weak affective responses or attitude changes due to merit pay, it is important to find out the underlying cause of the weak reactions. If it is caused by employees’ high SE level, the weak relation might not be the valid evidence against merit pay’s effectiveness.

*Use Merit Pay Strategically*

The current study also offers implications in terms of how to use merit pay strategically. The results indicate that, to maximize the utility of merit pay, managers should communicate with their subordinates differently according to their subordinates’ personality. For example, when a manager communicates with LSEs, one might want to focus on encouragement, because LSEs tend to be influenced by other people’s evaluations. And LSEs could react to poor merit raises by putting less effort, withdrawing from job tasks, and not showing up for work, all of which managers would want to avoid. As for HSEs, unlike LSEs, managers could pressure HSEs that receive poor merit raises to improve their performance to some extent, because HSEs tend to react to pressures and threats actively. But notice that if HSEs
try and could not achieve better performance repeatedly, and think that it is the
organization or managers that cause their poor performance ratings, they will
actively search for outside job opportunities. So, if turnover is costly, managers will
need to give HSEs positive and objective feedback for their performance
periodically.
Chapter V. Conclusions, Comparison between the Two Approaches, Limitations, and Strength

Conclusions

The central research question of this dissertation is why there is a weak relation between sizes of merit pay and employee reactions and employee outcomes. This dissertation proposes two alternative theoretical angels to investigate this question: cognitive approach and social approach, both of which are largely supported by the three-wave longitudinal data. The results of this dissertation indicate that the relation between sizes of merit pay and employee reactions depends on sample characteristics, which means that the weak relation is not necessarily universal across all employee groups and organizations.

Another related question of this dissertation is whether a weak relation between merit raises and employee reactions indicates that merit pay is ineffective. The results of this dissertation suggest that it is not necessarily true. Cognitive approach indicates that when employees are confident that they will get high pay raises, they will not be very responsive to actual pay raises, because the incentive and retention effects of the expected high merit raises are already realized before new pay levels are announced. Social approach indicates that when employee self-esteem is high, employee affect and attitudes are not easily influenced by the comparison between other people’s pay raises and their merit raises, which also weakens the relation between merit raise sizes and employee reactions.
Comparisons between the Two Approaches

Both approaches provide potential reasons for the weak relation between merit raises and employee reactions. And, although the second approach is named social approach and it is about the perceptions of social comparison information, essentially, it is also about an individual’s cognitive process. Another important similarity between the two approaches is that both argue that individual employees view merit raises as a relative value, rather than an absolute value. In the cognitive approach, employees react to merit raises by comparing merit raises to their expectations, and in the social approach by comparing merit raises to pay raises of other people.

But these two approaches differ in several important ways. First, the two approaches are based on two very different theories, and state that employees react to merit raises by comparing to two different types of reference points. The reference point of cognitive approach is people’s expectations, and the reference point of social approach is pay raises of comparison targets. Second, individuals view merit raises differently in these two approaches. In the social approach, sizes of merit raises are a type of social signals that indicate organizations’ evaluation of employees’ performance. By contrast, the cognitive approach explains people’s reactions to merit raises as reactions to economic outcomes, without much indication of one’s self-evaluation. Third, the explanatory power of the two approaches differs depending on when of the employees’ reactions I investigated. By comparing Table
3.2, which uses Time 2 employee reactions as the dependent variables, and Table 3.3, which uses Time 3 employee reactions, one could find that the $R^2$s of Table 3.2 are significantly larger than the $R^2$s of Table 3.3. And, the coefficients are mostly found significant when I use Time 2 as the dependent variables. These indicate that cognitive approach explains employee reactions better when merit raises are just announced than when the announcement of merit raises is half a year later. By contrast, for the social approach, although the difference between the $R^2$s of Time 2 and Time 3 are not apparent, most of the significant results are found in Time 3, which suggests that social approach could explain employee reactions better some time after the announcement of merit raises. Such a difference between cognitive approach and social approach might be due to the following reasons: When lack of social comparison information, one tend to evaluate the merit raise by comparing it to his/her expectations. And employees need time and opportunities to pick up the information about how large pay raises other people receive, and this process could be time-consuming. So it takes more time for social comparisons to generate effects on employee reactions.

Limitations

Several limitations are associated with this study. First, the sample is not random. Although I analyzed the data and found no response bias across the three rounds of the surveys, I am not able to test whether those who did not participate at all differ from the observations included in the regressions. Second, pay satisfaction
is a multi-dimensional structure (Heneman & Schwab, 1985), and I only included
pay-level satisfaction and did not include the other dimensions like administration
satisfaction and structure satisfaction. Third, the sample is from an organization in
which pay information is public and employee benefits might be more important to
retain employees, and thus these might create the question of generalizability. I
encourage future research to explore the research question using other types of
organizations. Forth, the sample is a cross-individual sample, rather than within-
individual sample. Although the longitudinal design makes me more confident about
the causal effects of merit raises, it is still possible that other individual
characteristics that are not measured could simultaneously influence the independent
variables and employee outcomes. Thus, although a within-individual sample would
cost much more time to collect, because merit pay decisions only occur once a year,
within-individual research design and the associated regression methods like
difference-in-difference estimation is warranted.

Strengths

The study has several strengths, however. First, the subjects of the study have
been under a stable merit pay system for several years and, thus I avoid the possible
confounding factors brought about by an organization’s structural changes. Second,
merit pay information under this study is more accurate. I obtained the pay
information from an objective source, and with the help of the university’s human
resource department, I am able to tease out any pay changes that were due to title
changes, work time changes, and any other changes that were not merit-based. Third, the setting of the sample insures that merit pay is the main incentive method, and thus I avoid the possible confounding factors of other incentive methods. Forth, the three-wave longitudinal study design also diminishes the concerns of common method bias associated with cross-sectional designs and let me be able to control for the Time 1 pay-level satisfaction in the cognitive approach, so that I can have more confidence in the results regarding the causal effects of merit pay raises on employee reactions.
References


Appendix

Appendix A Survey Scale Items

Round1

**PFP Perception**

- If I perform especially well on my job, it is likely that I would get a pay raise
- The best workers in the department get the highest pay raises.
- The pay raises that I receive on my job make me work harder
- High performers and low performers seem to get the same pay raises

**Pay Satisfaction**

- Considering the stress of my job, I feel that I am fairly paid
- For the amount of effort I put forth, I feel that my pay is fair
- Considering my skills and efforts, my pay is fair
- In view of my responsibilities, my pay is fair
- My pay is fair considering what other people in this organization are paid

**Self-esteem**

- I feel that I am a person of worth, at least on an equal plane with others
- On the whole, I am satisfied with myself
- I certainly feel useless at times
- I feel I do not have much to be proud of
- All in all, I am inclined to feel that I am a failure
- I wish I could have more respect for myself
- I am able to do things as well as most other people.
- I take a positive attitude toward myself.
- I feel that I have a number of good qualities
- At times I think I am no good at all.
**Round 2**

*Turnover Intention*

- I might quit the current job and join another organization in the next year
- I am NOT planning to stay in this organization to develop my career
- I often think about quitting my job at this organization
- I would be very happy to spend the rest of my career in this organization.

*Pay Satisfaction*

- Considering the stress of my job, I feel that I am fairly paid
- For the amount of effort I put forth, I feel that my pay is fair
- Considering my skills and efforts, my pay is fair
- In view of my responsibilities, my pay is fair
- My pay is fair considering what other people in this organization are paid

*Downward Contrast*

- When I see others who have lower pay raises, I feel relieved about my own situation
- When I see others who have lower pay raises, I realize how well I am doing
- When I see others who have lower pay raises, I am happy that I am doing so well myself

*Upward Identification*

- When I see others who have higher pay raises, I realize that it is possible to improve
- When I see others who have higher pay raises, I am pleased that things can get better
- When I see others who have higher pay raises, I have good hope that my situation will improve

*Downward Identification*

- When I see others who have lower pay raises, I experience fear to decline
- When I see others who have lower pay raises, I fear that I will go along the same way
- When I see others who have lower pay raises, I fear that my future will be similar
Upward Contrast

- When I see others who have higher pay raises, it is threatening to notice that I am doing not so well
- When I see others who have higher pay raises, I feel frustrated about my own situation
- When I see others who have higher pay raises, I feel depressed realizing that I am not so well off
Round 3

Turnover Intention

- I might quit the current job and join another organization in the next year
- I am NOT planning to stay in this organization to develop my career
- I often think about quitting my job at this organization
- I would be very happy to spend the rest of my career in this organization.

Pay Satisfaction

- Considering the stress of my job, I feel that I am fairly paid
- For the amount of effort I put forth, I feel that my pay is fair
- Considering my skills and efforts, my pay is fair
- In view of my responsibilities, my pay is fair
- My pay is fair considering what other people in this organization are paid

Downward Contrast

- When I see others who have lower pay raises, I feel relieved about my own situation
- When I see others who have lower pay raises, I realize how well I am doing
- When I see others who have lower pay raises, I am happy that I am doing so well myself

Upward Identification

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Upward Contrast

- When I see others who have higher pay raises, it is threatening to notice that I am doing not so well
- When I see others who have higher pay raises, I feel frustrated about my own situation
- When I see others who have higher pay raises, I feel depressed realizing that I am not so well off
Appendix B Mathematical Reasoning of Hypothesis 3.2

\(DV\) is dependent variables, employee reactions; \(R\) is size of merit raises; \(E\) is expectations; \(C\) is expectation confidence. \(b_0\) is the coefficient of Merit Pay Raise Sizes; \(b_1\) is the coefficient of \(R\)*Expectations; \(b_2\) is the coefficient of \(R\)*Confidence; \(b_3\) is the coefficient of \(R\)*Expectations*Confidence; \(b_4\) is the coefficient of Expectations; \(b_5\) is the coefficient of expectations*Confidence.

\[
\frac{\partial DV}{\partial R} = b_0 + b_1 E + b_2 C + b_3 EC
\]

\[
\frac{\partial DV}{\partial E} = b_4 + b_1 R + b_5 C + b_3 RC
\]

Since

\[
\frac{\partial DV}{\partial (R - E)} = \frac{\partial DV}{\partial R} \frac{\partial R}{\partial (R - E)} + \frac{\partial DV}{\partial E} \frac{\partial E}{\partial (R - E)} = \frac{\partial DV}{\partial R} - \frac{\partial DV}{\partial E}
\]

Since I control for \(E\) in regressions, I assume \(\frac{\partial E}{\partial R} = 0\). I have

\[
\frac{\partial DV}{\partial (R - E)} = (b_0 - b_4) - b_1 (R - E) + (b_2 - b_5) C - b_3 C (R - E)
\]

Thus,

\[
DV = constant + (b_0 - b_4) (R - E) - \frac{(b_1 (R - E)^2)}{2} + (b_2 - b_5) C (R - E) - \frac{(b_3 C (R - E)^2)}{2}
\]

Definition of loss aversion: suppose \(R - E = x\), \((DV(x) - |DV(-x)|) < 0\) for \(\forall x > 0\). Put \(x\) into the equation above. Since \(DV(-x) < 0\), we have:

\[
DV(x) + DV(-x) = -b_1 x^2 - b_3 C x^2
\]

According to the argument of Hypothesis 3.2, when expectation confidence is larger, loss aversion is first diminished and then reversed. This means that when \(C\) gets
larger, $DV(x) + DV(-x)$ gets larger and turns to positive (reversal of loss aversion, which implies

$$\frac{\partial DV(x) + DV(-x)}{\partial C} = -b_3x^2 > 0$$

Thus, we have $\beta \beta < 0$. The three-way interaction should be negative. *Q.E.D.*
Appendix C The Distribution of Merit Pay Raises