2014

Pay-for-Performance's Effect on Future Employee Performance: Integrating Psychological and Economic Principles Toward a Contingency Perspective

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Published in *Journal of Management* 2014 ; doi: 10.1177/0149206313515520

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Abstract
Although pay-for-performance's potential effect on employee performance is a compelling issue, understanding this dynamic has been constrained by narrow approaches to pay-for-performance conceptualization, measurement, and surrounding conditions. In response, we take a more nuanced perspective by integrating fundamental principles of economics and psychology to identify and incorporate employee characteristics, job characteristics, pay system characteristics, and pay system experience into a contingency model of the pay-for-performance–future performance relationship. We test the role that these four key contextual factors play in pay-for-performance effectiveness using 11,939 employees over a 5-year period. We find that merit and bonus pay, as well as their multiyear trends, are positively associated with future employee performance. Furthermore, our findings indicate that, contrary to what traditional economic perspectives would predict, bonus pay may have a stronger effect on future performance than merit pay. Our results also support a contingency approach to pay-for-performance's impact on future employee performance, as we find that merit pay and bonus pay can substitute for each other and that the strength of pay-for-performance's effect is a function of employee tenure, the pay-for-performance trend over time, and job type (presumably due to differences in the measurability of employee performance across jobs).

Keywords: pay-for-performance, merit pay, bonus pay, employee performance, contingency theory, pay trend, performance measurement

Employee performance influences organizational success (Gardner, Wright, & Moynihan, 2011; Wright, Dunford, & Snell, 2001). One organizational practice widely used to affect such employee performance is *pay-for-performance* (PFP; Gerhart & Rynes, 2003; Gerhart, Rynes, & Fulmer, 2009), or "pay that varies with some measure of individual or organizational performance . . ." (Milkovich, Newman, & Gerhart, 2011: 661). PFP is usually composed of merit and/or bonus pay, and it exists in over 90% of firms and for most employees in those firms (Cohen, 2006). Usage is widespread, in part, because (a) monetary rewards are the most efficacious incentives (Locke, Feren, McCaleb, Shaw, & Denny, 1980), (b) PFP can direct action (Shaw & Gupta, 2007) and attitudes (Fulmer, Gerhart, & Scott, 2003), and (c) firms often have more discretion in setting PFP than in setting pay level (Gerhart & Milkovich, 1990).

PFP's presumed link to both past and future performance (as well as to employee attraction and retention) explains its popularity in practice and its centrality in theoretical approaches to reward systems. In key psychological perspectives, scholars posit that PFP will affect performance via such mechanisms as instrumentality, which is the perceived link between performance and pay (Vroom, 1964), and meet obligations by the employer (Robinson & Rousseau, 1994). Similarly, in fundamental economic perspectives, pay is thought to influence employee behavior through the creation of transactional norms (Coase, 1937; Williamson, 1981), the overcoming of monitoring challenges (Jensen & Meckling, 1976), and the motivation of organizationally desirable behaviors (Lazear, 1992). Yet, despite widespread PFP usage, supportive PFP-relevant theories, and a meta-analytic finding that individual-level PFP has a weak but positive relationship with past employee performance (Jenkins, Mitra, Gupta, & Shaw, 1998), PFP efficacy is questioned by both academic researchers (e.g., Ariely, Gneezy, Loewenstein, & Mazar, 2009; Lawler, 2000) and the popular press (e.g., Green, 2010; Pink, 2009). Specific concerns are that PFP is negatively related to performance (Ariely et al., 2009), is not motivating (Pfeffer, 1998), undermines intrinsic motivation (Deci & Ryan, 1980), motivates undesirable employee competition (Deming, 1986), and is difficult to effectively implement (Lawler, 2000).

Such differences of opinion often reflect unresolved complexity in a relationship or in key constructs (Nyberg, Fulmer, Gerhart, & Carpenter, 2010; Schwab, 1991). We suspect that both conditions are present here. First, few studies have looked at PFP as a precursor to performance; instead, most PFP studies examine performance as a precursor to pay, which can reveal the strength of the alignment between performance and pay, but not necessarily the motivational effect of PFP. Second, studies on PFP and performance have rarely emphasized the relevant context and contingencies that may well be integral to PFP's effectiveness. Finally, the few studies that have examined PFP as a precursor to performance have not taken a longitudinal and multidimensional approach to the PFP construct. Hence, it is not surprising that scholars have called for a more nuanced explanation of how PFP influences future performance and how internal organizational constraints affect its efficacy (e.g., Barkema & Gomez-Mejia, 1998).

In response, we explore a more sophisticated approach to PFP construct validity and the contingencies surrounding PFP effects. We ground this examination in well-established psychological (i.e., expectancy theory) and economic (i.e., incentive intensity principle) rationale that, coupled with our focus on PFP context and PFP construct complexity, allows us to examine the roles of time, simultaneous influences of different types of PFP, job type, and employee characteristics. The results reported here, which are based on 5 years of observations for 11,939 insurance company employees, generally support our expanded approach to the PFP construct and our contingency-based conceptual model.

As such, our results support our general position that PFP, like most management strategies and interventions, is inherently neither a panacea nor the road to ruin; rather, PFP works under certain conditions. Similarly, fundamental PFP theory from psychology and economics is more relevant under certain conditions. Thus, the challenge for both theory and practice is to identify when established PFP conceptualizing and PFP itself are most appropriate.

Theoretical Development

Key Definitions and PFP Conceptualization

We begin with a brief description of our model's constructs and contingent nature. Notably, we expand on the typical approaches to PFP conceptualization and operationalization by including both a type and a time frame dimension. Our PFP focus includes the two most prevalent *types* of PFP (merit and bonus pay): *Merit pay* is an incremental increase in base salary used to recognize past performance (Milkovich et al., 2011), and *bonus pay* is a lump sum cash payment used to recognize past performance (Milkovich et al., 2011). Each rewards past performance and sets future expectations. Although alternative forms of PFP exist (e.g., gain sharing, profit sharing), our focus is on merit and bonus pay because they are the most widely used PFP tools (Cohen, 2006; Gerhart & Rynes, 2003) and are more closely linked to individual performance than are group- or organizational-based rewards, given the more direct line-of-sight between job performance and reward (Lawler, 1971). In terms of PFP *time frame*, we also examine long-term PFP effects by considering trend for both merit and bonus pay. *Trend* represents changes in levels of PFP over time—a positive trend means PFP increases across yearly allocations, and a negative trend means PFP decreases over such time.

Analysis of expectancy theory from psychology and the incentive intensity principle from economics suggests five broad contextual areas that influence the efficacy of PFP (e.g., Milgrom & Roberts, 1992; Milkovich et al., 2011; Rynes, Gerhart, & Minette, 2004). Our model examines four of these five contextual areas (*pay system characteristics, employee characteristics, pay system experience*, and *job characteristics*) and specific representations within each.[1] One of these four contextual areas, *pay system characteristics* (i.e., PFP type), includes both merit and bonus pay. The second involves *employee characteristics*, which we represent through employee tenure. The third addresses an employee's *pay system experience* regarding PFP (PFP trend), which may yield new insights into how PFP relationships evolve over time. The final area includes *job characteristics*, with sales and nonsales jobs chosen here to illustrate the importance of performance measurability. Finally, our model acknowledges organization-level factors as key contingencies, but our single-firm sample limits us from exploring such factors. By using established psychological and economic perspectives to identify PFP construct complexity and potential interdependencies involving PFP, our model stipulates conditions under which PFP is most (and least) likely to influence future performance (see Figure 1).

Psychological Approaches to PFP

There are a number of economic and psychological theories that attempt to address employee responses to PFP. Theories from these two disciplines often predict similar out-

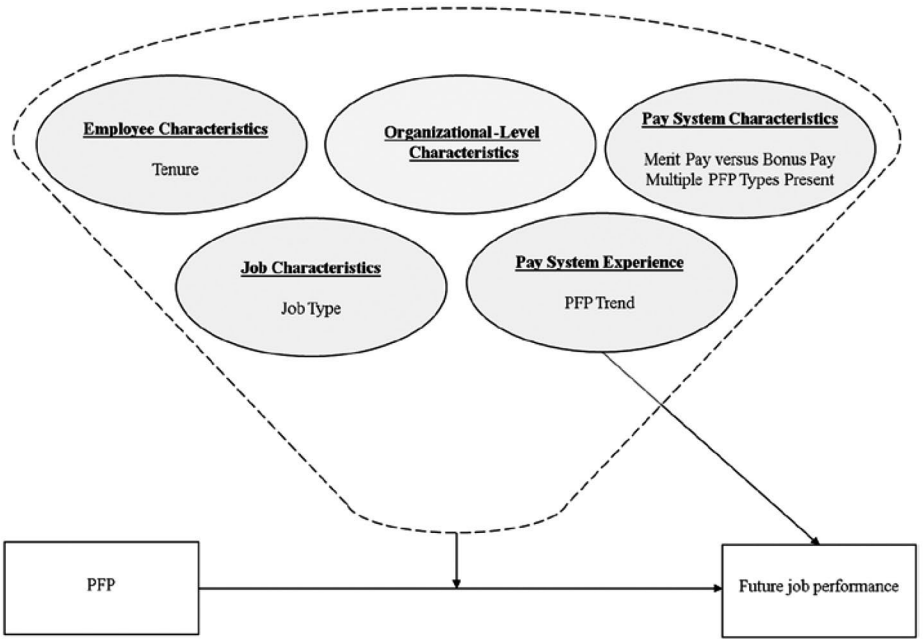

Figure 1. The Five Contextual Factors Moderating Pay for Performance's (PFP) Effect on Future Job Performance. Our model acknowledges organizational-level characteristics as one of the five key contextual factors; however, we do not study such characteristics here, given our single-firm sample.

comes, even as the causal explanations differ. From a psychological perspective, expectancy theory is the most common framework used to address PFP efficacy and employee reactions to PFP (Gerhart & Rynes, 2003). The approach dictates that motivation to perform is a multiplicative function of valence (the perceived value of the reward), instrumentality (the perceived likelihood that the desired performance will be rewarded), and expectancy (the perceived likelihood that effort will result in the desired performance; Vroom, 1964). Hence, increasing any of the three components should result in greater motivation to perform. Of the three, instrumentality is the most frequently studied and, for our purposes, stipulates that if merit or bonus pay is commensurate with performance (i.e., a clear "line-of-sight" between performance and pay), employees will act on their belief that performance will be rewarded by providing high levels of effort. If merit or bonus pay, however, is not commensurate with performance, instrumentality suffers and future employee effort will be lower (Porter & Steers, 1973; Vroom, 1964).

Economic Approaches to PFP

To consider the full role of PFP, it is also necessary to consider economic perspectives of pay as a motivator (e.g., Milgrom & Roberts, 1990; Ross, 1973). Economic theory has historically assumed that employees are economically rational and self-interested (Milgrom & Roberts, 1992). Although this assumption has been challenged as not fully accounting

for the myriad employee behaviors that are not economically rational (Ariely et al., 2009), this idea that employees weigh options and act in a manner that maximizes incentive payouts provides both a plausible explanation for many behaviors and a solid foundation for predictions.

Milgrom and Roberts (1992) lay out five economic principles that influence incentive contracts (informativeness, incentive intensity, monitoring intensity, equal compensation, and ratchet effect). Of these, the incentive intensity principle has the most direct relevance to the manner in which PFP is discussed and examined here. Milgrom and Roberts use incentive intensity as a mechanism for determining when employers should use incentive contracts. They state that there are four key elements that should be considered to reach this decision: (a) the amount of additional money that can be achieved through increased employee effort, (b) the ability to measure the rewarded activities (i.e., job performance), (c) the employee's risk tolerance, and (d) the employee's responsiveness to PFP. Because these elements are discussed as a means for determining how intense the employer should make the PFP contingency, they also implicitly provide insight into the conditions that influence employee response to PFP. In particular, they suggest critical boundary conditions for when PFP should be successful.

PFP–Future Performance Relationship Contingencies

Both expectancy theory and the incentive intensity principle suggest that PFP should enhance future performance because employees exert effort based on expected resultant rewards (Schaubroeck, Shaw, Duffy, & Mitra, 2008). To improve the practical and conceptual understanding of PFP effects on future performance, we operationalize the PFP construct more broadly and provide a perspective that qualifies the relevance of standard theories underlying PFP usage. This contingency perspective is primarily grounded in aspects of the incentive intensity principle and expectancy theory that provide conceptual rationale for when, why, and how PFP influences future employee performance. We pull aspects from each framework to develop an integrated model of the PFP construct and the factors that affect PFP efficacy.

To better understand merit pay and bonus pay effects on future performance, we explore four of Figure 1's five components. These components were chosen as proxies to explore the four fundamental, within-firm aspects that may influence an employee's response to a PFP system. Underlying our model is the theoretical notion that these contextual components affect the instrumentality and incentive intensity that influence employee effort and future performance. Hence, we argue that the employees' resultant effort is not simply a function of organizational pay policy or the employees' pay, as is often assumed in PFP research. Rather, effort and performance are also dependent on employee characteristics (e.g., employee tenure), employee experience within the system (e.g., PFP trend), PFP system characteristics (e.g., simultaneous merit and bonus), and job characteristics (e.g., sales/nonsales jobs).

Pay System Characteristics, PFP, and Future Performance

Pay system characteristics: Merit pay and bonus pay main effects. While our focus here is on PFP contingencies, we first establish the baseline cases for PFP main effects. Merit pay is commonly awarded annually, based on yearly performance reviews. Merit pay rewards the behavior during the previous performance period (usually one year) by increasing fu-

ture salary levels. Similar to merit pay, bonus pay is usually awarded annually, based on yearly performance. Unlike merit pay, bonus pay does not permanently change an employee's base salary (Sturman & Short, 2000) or a firm's fixed labor costs (Kahn & Sherer, 1990). Rather, it is a one-time lump sum payment in response to prior performance.

The theory-based arguments for merit and bonus pay representations of PFP, in general, are similar. The influence of various types of PFP depends on the degree to which prior allocations of PFP had been related to the performance preceding them (Gerhart & Rynes, 2003), which is an instrumentality argument. PFPs' influence also can be characterized as a function of the degree to which employees believe that their increased efforts will result in an outcome that generates the merit reward from the organization (a point made in the context of economics by Milgrom & Roberts, 1992, but which also illustrates the expectancy component from expectancy theory). Similarly, prior PFP will lead employees to want to work to fulfill their perceived reciprocal obligation to the firm (Maertz & Campion, 2004; Shaw, Dineen, Fang, & Vellella, 2009). In contrast, pay incommensurate with performance can result in lower effort expenditure and performance. In addition, the preferred amount of PFP (merit or bonus) can be inferred through the valence component from expectancy theory (which involves the perceived value, utility, or satisfaction associated with the reward) and from the portion of the incentive intensity principle that states that optimal incentive intensity depends on whether the incremental profitability created by additional employee effort is higher for the employer (Milgrom & Roberts, 1992). That is, under the assumptions that, all else equal, more money yields greater perceived value for the employee and profitability for the employer, both expectancy theory and the incentive intensity principle assume that larger PFP percentage increases will yield more motivation to perform.

Interestingly, the empirical support for merit and bonus pay is not as compelling as the strong conceptual foundation for PFP might suggest. Discrepant findings cloud conclusions about merit pay research, and consequently, debate exists as to its efficacy. For instance, Kopelman and Reinharth (1982) studied branch offices of a financial services organization and found that the stronger the link between performance rating and merit pay reward within a branch, the greater the subsequent average performance within that branch; in contrast, Pearce, Stevenson, and Perry (1985), in research widely cited as a demonstration that merit pay is not motivational, conclude that merit pay plans in Social Security branch offices were not related to subsequent branch performance. Lawler (2000: 154), believing that PFP is possible conceptually but often flawed in implementation, states that merit pay "does little to motivate performance"; similarly, Pfeffer (1998) referred to the idea that individual incentive pay can motivate behavior as a "myth." Yet these discrepant conclusions may be attributed, at least in part, to merit pay implementation, research design, and the salience of the rewards, rather than problems endemic to merit pay (e.g., Gerhart et al., 2009; Mitra, Gupta, & Jenkins, 1997). Indeed, in reviewing the merit pay research, Gerhart et al. (2009: 263) conclude that the little research addressing merit pay is "primarily positive." Given this, and the clear theory-based support from psychology (expectancy theory) and economics (the incentive intensity principle), on balance we predict,

Hypothesis 1: Merit pay will be positively associated with future performance.

As for bonus pay, there is surprisingly little relevant empirical research, despite the potential cost savings of bonuses to companies, relative to merit pay, and the apparent motivational and performance benefits suggested by theory (Heneman, 1992; Sturman & Short,

2000). The few existing employee bonus pay studies (e.g., Banker, Lee, Potter, & Srinivasan, 2000; Bloom & Milkovich, 1998; Kahn & Sherer, 1990; Park & Sturman, 2012; Schwab & Olson, 1990) are generally supportive of the idea that bonus pay is positively related to performance. Banker et al. (2000), for example, found that sales productivity increased following implementation of a bonus program. Similarly, Kahn and Sherer (1990) found that bonus pay positively affected future performance, although the relationship was stronger for high-level managers than for low-level ones (which is consistent with our emphasis on the importance of PFP context). Overall, given the supporting theory and limited empirical work, we predict the following:

Hypothesis 2: Bonus pay will be positively associated with future performance.

Pay system characteristics: Merit pay and bonus pay comparison. Although the conceptual rationales for Hypotheses 1 and 2 are quite similar, we expect that the two reward schemes will have differing effects, even when the dollar value is the same. In traditional economic perspectives, where employees are expected to be economically rational actors, employees should prefer, and thus be more motivated by, merit increases due to the long-term compounding effect (Milgrom & Roberts, 1992). Because a merit increase is a salary raise, any subsequent merit increases build off of increasingly larger base salaries. In contrast, bonuses earned in one year have no implications for the size of bonuses in subsequent years. Put another way, a 5% merit increase at the end of Year 1, because it is built into yearly salary, is paid out as part of yearly earnings in all subsequent years, while a 5% bonus at the end of Year 1 contributes nothing to earnings in subsequent years. Hence, an economically rational actor should prefer merit increases over bonus payments because, over the long term, merit will lead to increasingly greater earnings.

Yet, alternative predictions arise from recognizing that individuals, subject to cognitive heuristics and biases, do not necessarily act in a long-term economically rational manner (Kahneman, 2011). In such situations, merit and bonus pay may have different levels of valence (the perceived value of the potential reward) and instrumentality (the perceived link between performance and pay). Bonuses are typically paid out as lump sums, while merit increases are spread across the year's paychecks. Hence, a $5,000 bonus provides a considerable sum that can immediately be used to satisfy many needs. In contrast, a $5,000 merit increase, though worth much more than the bonus if the employee "does the long-term math," results in only modest increases to each paycheck (e.g., $5,000 spread over 24 bimonthly paychecks is only $208.33 per check). Valence could thus be greater in the bonus condition, as employees may appreciate the more salient and immediate windfall nature of the bonus payment more than the relative subtlety of merit benefits that are spread out over the year. To the extent that this salience does yield greater valence for bonuses, instrumentality perceptions may also favor bonuses. The perceived link between performance and pay may be deemed to be stronger when the pay component is deemed to be more compelling.

Similarly, the logic of the endowment effect, in which a good increases in perceived value as a result of ownership of the good (Kahneman, Knetsch, & Thaler, 1990), is consistent with greater valence (and thus greater motivation) associated with bonuses. Typically, bonuses are fully allocated to the employee shortly after the year in which the bonus-earning performance was assessed. While this employee possesses the entire bonus early in the following year, an employee earning a merit increase receives relatively small increments over the course of the following year, fully acquiring the merit increase only at the end of

the second year. Thus, because the perceived value of a good instantly increases when the good is obtained (Kahneman et al., 1990), the endowment effect suggests that employees may value bonuses more than an equivalently sized merit increase because only the bonus is fully (and obviously) in-hand during the year in which it is designed to motivate performance. This increased value, as valence in expectancy theory, translates to greater motivation to perform. In addition, the endowment effect is often explained by prospect theory (Kahneman & Tversky, 1979), in that the owned good is framed from a potential loss perspective and we fear avoiding losses much more than we value making gains. Bonuses will in fact be "lost" the next year if performance does not continue at a high level. Merit increases, in contrast, are likely to be thought of as gains that are gradually acquired over time, but are not at risk of loss (since merit is built into future salary and tends to be more likely to be considered as an entitlement; Milkovich et al., 2011). Therefore, it is reasonable to conceive of employees as fearing the loss of bonuses more than they value the acquisition of merit increases, further suggesting that bonuses can be more valued and more motivating than merit pay.

In sum, traditional economic rationale (e.g., the incentive intensity principle) suggests that employees should be more motivated by merit increases than by bonus pay. The expectation is that rational actors will perform the necessary calculations to understand and act upon what is in their long-term best interests. However, substantial research now indicates that actors often do not act as economically rational regarding their long-term economic outcomes, as had long been assumed in traditional economics models (e.g., Ariely, 2009; Kahneman, 2011; Kahneman & Tversky, 1979; Thaler & Sunstein, 2008). The endowment effect and loss aversion, which are inconsistent with classical economics, indicate that bonuses should be valued more, leading to greater valence and subsequent motivation to perform. Given the fundamental role of valence in expectancy theory and the considerable empirical support in behavioral economics for the endowment effect and loss aversion (e.g., Kahneman, 2011), our hypothesis reflects this latter interpretation.

Hypothesis 3: Bonus pay will have a stronger positive association with future performance than will merit pay.

Pay system characteristics: Multiple PFP types present. Most employees respond to the entire PFP package rather than to just a single component (Nyberg et al., 2010). Extending earlier work investigating multiple PFP types as independent effects (e.g., Gomez-Mejia & Balkin, 1989; Kahn & Sherer, 1990; Park & Sturman, 2012; Schwab & Olson, 1990), we examine potential interdependence among merit pay and bonus pay. While no PFP research has addressed such interdependence, conceptual support exists in both the psychological and economic literatures. In the former, Brockner and Wiesenfeld (1996) maintained that because employees desire favorable outcomes they tend to respond to unfavorable outcomes by making sense of the situation, which often entails seeking additional information. When in this sense-making mode, employees are increasingly influenced by new data. In one test of this sense-making proposition, Trevor and Wazeter (2006) investigated pay equity perceptions and found that being low in the internal pay hierarchy (an unfavorable pay outcome) was associated with greater influence of position in the external pay hierarchy. Similarly, we expect that an unfavorable PFP outcome will yield such sensemaking efforts, and, subsequently, employees will be increasingly influenced by a second PFP outcome.

Such sense-making regarding multiple pay outcomes is also likely influenced by the calculation that when one pay component is smaller, the other makes up a relatively larger proportion of total PFP, which suggests a substitution effect. The substitution effect is a core concept in economics (Becker, 1965). Individuals are thought to be willing to substitute goods consumed indifferently, as long as these goods provide the same economic benefit (i.e., goods that fall along the same indifference curve). The substitution effect should similarly apply to dual PFP components, in that one PFP outcome of interest (e.g., bonus) will, in the presence of an unfavorable PFP outcome (e.g., low merit), become increasingly important to providing a certain threshold level of utility (economic benefit). This seems particularly likely in situations, such as our sample, where merit and bonus pay are awarded at similar times of the year.

Hypothesis 4: When merit pay is low (high), the bonus pay–future performance relationship will be stronger (weaker).

Employee Characteristics, PFP, and Future Performance

Employee characteristics: Tenure. Employee characteristics comprise the second broad contextual area in our PFP study (see Figure 1). Current PFP influences future performance because employees exert effort, in part, based on their understanding and confidence in the organization's reward system (Gerhart & Rynes, 2003; Schaubroeck et al., 2008). This understanding and confidence will vary as a function of the individual differences that employees bring to the job. One such employee characteristic that influences perceptions of a PFP system is employee tenure. From an expectancy theory perspective, experience within the PFP system will affect an employee's perception of, and expectation of, instrumentality, as employees will likely believe that prior experience will be representative of future experience. Similarly, an underlying assumption in the incentive intensity principle is that the strength of the relationship between prior incentives and prior performance will affect the employee's expectations of receiving future rewards. Thus, it is reasonable to conclude that the longer an employee's tenure, the more well-formed her or his attitudes and beliefs about pay practices. Although it could be argued that such well-formed pay practice beliefs may initially lead to heightened disappointment when pay expectations are violated, research suggests that such short-term disappointment would ultimately have relatively little influence, as employees with more tenure and subsequent understanding of the pay system will be more likely to see the disappointing outcome as an anomaly. Indeed, short-term outcomes have been shown to warrant less attention when there is evidence that future long-term outcomes will be positive (e.g., Brockner & Wiesenfeld, 1996). Hence, at high tenure the single most recent PFP outcome should be a less telling determinant of expectations for future rewards, instrumentality, and motivation. In contrast, low-tenured employees have less historical employment outcome evidence to draw on when developing their views about future PFP outcomes. Consequently, their most recent PFP outcome is likely to carry greater weight. We also note that traditional economics perspectives would reach a similar conclusion if it were assumed that employees could calculate the net present value of the dollars that they were earning. In such a calculation, dollars earned earlier in one's career would be worth more than dollars earned later, and thus at low levels of tenure, employees would find additional monetary rewards more motivational.[2]

Hypothesis 5a: When tenure is low, the merit pay–future performance relationship will be stronger.

Hypothesis 5b: When tenure is low, the bonus pay–future performance relationship will be stronger.

Pay System Experience, PFP, and Future Performance

Employee experiences within the PFP system. Another characteristic tied to the employee that may affect the influence of PFP is the employee's experience with the pay system. Prior pay system experience creates expectations about the degree to which future performance and PFP will be linked (Schaubroeck et al., 2008). However, most PFP studies examine only a single instance of pay, ignoring long-term effects (Jenkins et al., 1998); and to the degree that long-term effects influence employee expectations of future PFP, results of cross-sectional studies potentially underestimate the link between pay and future employee performance. Thus, we examine long-term PFP main effects and then discuss how long-term PFP influences employee reaction to the most recent PFP outcome. Key to both issues is the premise that an employee's experience in the PFP system will affect the employee's future effort, due to the expectation that prior pay system experiences will predict future pay system experiences. This expectation is presumed in both psychology and economic perspectives.

Employee experiences within the PFP system: PFP trend as a direct effect. The unique effects of trends have been demonstrated in studies of salary change effects on satisfaction (Hsee, Abelson, & Salovey, 1991), job satisfaction change on turnover intention (Chen, Ployhart, Thomas, Anderson, & Bliese, 2011), job satisfaction trajectories on turnover (Liu, Mitchell, Lee, Holtom, & Hinkin, 2012), and performance trends (and subsequent pay trends, given the samples) on turnover (Harrison, Virick, & William, 1996; Sturman & Trevor, 2001). The principles underlying such trend effects are the beliefs that employees are motivated to maximize material outcomes from the employment relationship (Thibaut & Walker, 1975) and that trends in employment outcomes affect expectations of the likelihood of future outcomes (Brockner & Wiesenfeld, 1996). Thus, when merit and bonus pay trends (i.e., the trajectories, or slopes, of pay over time) are positive, employees should experience increased confidence that they will continue to be rewarded for their performance, thereby strengthening instrumentality perceptions. In contrast, when a PFP trend is negative, employees may lose confidence in PFP systems. Consequently, greater PFP trends should lead to increased instrumentality perceptions, effort, and future job performance.

Hypothesis 6a: Merit trend will be positively associated with future performance.

Hypothesis 6b: Bonus trend will be positively associated with future performance.

Employee experience within the PFP system: PFP trend as a moderator. As stated, when PFP trends are positive, employees expect a continuation of the positive relationship between performance and rewards. Such positive experience-driven beliefs about future outcomes also result in employees responding less to a single short-term outcome (Brockner & Wiesenfeld, 1996). Hence, when PFP and performance have been commensurate in the past, influence from a current PFP outcome will be diminished because the positive past experience engenders greater optimism about the likelihood of a strong future performance–pay relationship, largely regardless of current circumstances. In contrast, increasingly un-

favorable PFP experiences (i.e., negative trend in the performance–pay relationship) will often lead to attributions of unfair or unreliable resource allocation procedures and, subsequently, trepidation regarding the likelihood of receiving appropriate future rewards based on performance. Hence, because employees responding to unfavorable processes and outcomes seek out and are highly influenced by new information (Brockner & Wiesenfeld, 1996), employees enduring negative PFP trends will place greater emphasis on the short-term PFP outcome. Put differently, the short-term outcome will substitute for the longer term PFP in importance and, consequently, have a larger effect on subsequent effort and performance. From an economics perspective, this is a similar principle to the substitution effect described in Hypothesis 4.

Hypothesis 7a: When merit trend is high, the merit pay–future performance relationship will be weaker.

Hypothesis 7b: When bonus trend is high, the bonus pay–future performance relationship will be weaker.

Job Characteristics, PFP, and Future Performance

Job characteristics within the PFP system: Job type. The fourth and final broad contextual area that we examine as a PFP contingency factor is job characteristics (see Figure 1). As described, optimal incentive intensity is a function of the marginal returns to employee effort, the ability to measure the rewarded activities, employee risk tolerance, and the responsiveness of the employee to PFP (Milgrom & Roberts, 1992). The performance measurability element in the incentive intensity principle is particularly interesting as a contingency factor in PFP effectiveness, as jobs within organizations clearly vary on this dimension. Implicit in the performance measurability stipulation is the assumption that PFP should have a greater effect on motivation and future performance when the performance that is to be rewarded can be more precisely measured. This is consistent with predictions arising from the instrumentality aspect of expectancy theory, where the effort-inducing perceived line-of-sight between performance and pay should be greater when (and thus in jobs when) performance is seen as more objective.

While there are no indices of job-specific performance measurability to rely on to identify where various jobs fall on this dimension, a few jobs are commonly seen as providing more objective indicators of performance. Among these are sales jobs, which often entail a verifiable, countable indicator of performance (e.g., items sold, sales dollars), and thus can yield a clearer assessment of whether past performance has been commensurately rewarded (i.e., instrumentality). Certainly all sales jobs in the organization do not necessarily yield greater performance transparency than all nonsales jobs. On average, however, while most jobs do not provide particularly good results-based measures at the individual level (Rynes, Gerhart, & Parks, 2005), sales jobs are more likely to have straightforward results-based outcomes that can be directly measured (Anderson & Oliver, 1987). Both the incentive intensity principle (Milgrom & Roberts, 1992) and instrumentality perspectives (Lawler, 1971; Vroom, 1964) suggest that PFP will more effectively influence individual motivation and performance in jobs where performance can be more precisely measured (i.e., in sales functions). Consequently, we compare the PFP–future performance relationships in jobs where performance measurability should be high (e.g., sales jobs) with the relationships in jobs where, on average, performance will not be as easily assessed (e.g., nonsales jobs).

Hypothesis 8a: The effect of merit pay on future performance will be stronger in job functions where performance can more objectively be measured than in job functions where job performance is not as objectively measurable.

Hypothesis 8b: The effect of bonus pay on future performance will be stronger in job functions where performance can more objectively be measured than in job functions where job performance is not as objectively measurable.

Method

Participants

The data are from a large U.S.-based insurance company. The company made available human resource (HR) data on all employees who were not paid on commission and were positioned below the director level for the period between January 1, 2001, and December 31, 2006. After removing observations that did not have at least three consecutive years of performance data, the final count consisted of 11,939 employees from 517 different departments located in 574 offices located throughout the United States. Since we are interested in how current PFP affects future employee performance, we required a minimum of 2 years of observations to begin analysis. Thus, all employees with only one year of tenure are necessarily excluded from the analysis. Employees in the final sample ranged in age from 19 to 74 years, with a mean of 42 years, averaged 12 years of tenure with the organization (minimum 2 years and maximum 53 years), worked in 719 specific job classifications across 22 job family categories, and represented 17 different levels from entry-level positions through senior vice presidents (just below director level). About three fourths of the employees were women, and the sample was closely split between exempt and nonexempt employees. Employees earned, on average, about $47,000 per year in base salary.[3]

Measures

Merit pay. We calculated *merit pay* as the proportional change in salary from one year to the next—this change is based on the employee's performance.[4] The company allocates merit pay by providing the manager with a budgeted merit pay guideline, with specific pay increase percentages tied to specific performance levels. While these guidelines also take into account the employee's current pay and pay relative to the external market, employee performance is, by design (and by far), the primary determinant of merit pay (performance and subsequent merit pay correlated at .7). Managers are then given the discretion to set employee merit pay within plus or minus 15% of the budgeted values but must seek special permission to exceed these parameters. According to conversations with senior compensation executives at the company, such adjustments rarely occur.

Bonus pay. *Bonus pay* was the proportion of salary paid on an annual basis to employees as a lump sum reward for individual performance during the previous period. The firm allocates bonus pay based on an employee's salary, pay grade, and performance, and all employees are eligible for bonus pay. Similar to the case with merit pay, performance is the primary bonus pay determinant, with performance and subsequent bonus correlated at .7. An employee's strategic business unit's performance can also (minimally) affect the size of the bonus (if any). Managers have discretion to adjust bonus pay within plus or minus 10%

of the budgeted values, but generally allocate the precise budgeted value. Bonus pay and merit pay are generally awarded annually and at similar times of the year.

Merit trend. *Merit trend* was the slope of the line of best fit resulting from regressing (separately for each employee) observation-year merit pay on the consecutive years that an employee was in the sample prior to and including the observation year. For instance, for an employee with independent variable data from 2001 to 2004, the year 2004 merit trend value was the slope of the regression line fitting four data points: Year 1 in sample, 2001 merit pay; Year 2 in sample, 2002 merit pay; Year 3 in sample, 2003 merit pay; and Year 4 in sample, 2004 merit pay. This operationalization mirrors Sturman and Trevor's (2001) performance trend measure.

Bonus trend. *Bonus trend* was created in the exact same manner as merit trend, but using bonus pay, instead of merit pay, in the calculation.

Tenure. Employee *tenure* was operationalized as the number of years with the organization. It was created by subtracting the employee's start date from the focal date and converting that number to an integer. Average tenure was 11.77 years, and the range of employee tenure was 2 years to 53 years.

Sales jobs. The *sales jobs* variable is used as a proxy for jobs with greater performance measurability and represents the family of jobs that fall within the sales domain. All employees across the company are categorized in 1 of 22 unique job families. The sales job family encompasses a cross-section of employees across many grade levels and geographic locations. In total, 2,099 employees within this sample were categorized in the sales job family. The sales job variable is 1 of the 22 different job classifications that are controlled for in all analyses and addressed in greater detail in the description of covariates.

Future performance. We used annual employee performance extracted from company data. Performance scores, which are generated by an employee's immediate supervisor, vary from 75 to 125, with higher scores representing better performance. Supervisors rate employees based on three achievement ratings (i.e., degree of achievement, degree of importance of the achievement, and degree of difficulty of the achievement) and four behavior ratings (i.e., daily role behavior, skills, effectiveness, and consistency). Based on these seven criteria, supervisors choose a specific rating score between 75 and 125. Managers are trained on the appropriate techniques for conducting performance ratings, and employee merit and bonus allocations are tied directly to these ratings.

The organization attempts to achieve a normal distribution of performance scores within supervisor and across the organization. In our sample, this resulted in a mean performance score across employees of 102.20. The distribution of employee ratings was as follows: 75 to 84 (i.e., lowest performance), 1%; 85 to 94, 15%; 95 to 105, 68%; 106 to 115, 15%; and 116 to 125 (i.e., highest performance), 1%. To evaluate the reliability of supervisor evaluations, we first estimated the mean interyear performance evaluation correlation (.53). Entering the employee average number of performance ratings (M = 4.18) into the Spearman–Brown prediction formula led to a predicted reliability of current performance ratings of .87.

Future performance, which was the dependent variable in all equations, was an employee's performance rating in year $t + 1$ (i.e., the year following the year in which our independent variables were measured).

Covariates. *Average performance* was the mean employee performance rating across periods up through and including year *t*. *Average performance* was the key control variable in all future performance predictions. Without such a control, any PFP effects could be interpreted as merely indicating that better performers tend to both receive PFP and perform well in the future. In addition, we included covariates that are expected to influence both PFP and future performance. We used a dummy variable for *male* (1 = *male*) to account for possible gender differences in PFP and performance. We also included *age*, measured in years, because it can be related to performance and to ensure that tenure was not simply proxying age in our analysis. In addition, organizations can manage (and pay) exempt (those employees who are not covered by the Fair Labor Standards Act) and nonexempt employees differently (Gerhart & Trevor, 1996; Lepak & Snell, 1999; Trevor & Nyberg, 2008), and this employee distinction may be associated with different levels of performance evaluation; therefore, we created an *exempt* variable by coding exempt workers as 1 and nonexempt workers as 0. We included average *promotions*, which can lead to pay (Trevor, Gerhart, & Boudreau, 1997) and performance changes, and *salary* to account for the effects of positional importance. We also accounted for *job family* using dummy variables to represent the 22 different job classifications that jobs are bundled into within the company. These job families are functionally aligned, and according to senior HR executives at the company, employees are likely to look within a job family to make pay comparisons. To capture the degree that supervisors differentially tie pay with performance in any single year, we created a variable that we termed *supervisor merit alignment*, by taking the coefficient resulting from regressing merit pay—separately for all observations within each year and supervisor combination— on performance, salary, and exempt status (all in year *t*). The regression coefficient within each year and supervisor combination was applied to each individual observation in that grouping (thus controlling, for example, for a supervisor being particularly careful in 2002 to create variance in both performance ratings and in the merit allocations according to those ratings). We created *supervisor bonus alignment* with an identical procedure after substituting bonus pay for merit pay in the regressions.

Analyses

The model used to test the relationship between PFP and future job performance is represented by the following equation:

$$\begin{aligned}\text{Job performance}_{(t+1)} = \text{f}\,(&\text{merit pay}_t, \text{bonus pay}_t, \text{merit trend}_t, \text{ bonus trend}_t,\\ &\text{tenure}_t, \text{sales job}_t, \text{sex}_t, \text{age}_t, \text{exempt}_t, \text{promotion}_t,\\ &\text{salary}_t, \text{supervisor merit alignment}_t, \text{supervisor}\\ &\text{bonus alignment}_t, \text{average performance}_t\,)\end{aligned} \quad (1)$$

where *t* represents the year in question for the independent variables and job performance ($t + 1$) represents future performance.

We analyzed pooled cross-sectional time-series data by regressing future performance from year $t + 1$ on the independent variables from year *t*. Because a Hausman test ($\chi^2 = 656.14$, $df = 29$, $p < .0001$) suggested the presence of unobserved heterogeneity, we used fixed effects estimation for our regression analyses (Greene, 2003; Halaby, 2004; Hausman,

1978). We clustered fixed effects around supervisor (N = 2,267) to partial out *time-invariant* supervisor effects that might otherwise bias results because supervisors are partially responsible both for assigning year t merit and bonus pay and for rating future performance in year t + 1 (note that the fixed effects models account for time-invariant supervisor effects, while the supervisor alignment control variables described above account for time-varying supervisor differences). All variables, with the exception of the dummy variables (e.g., male, exempt, sales job), were standardized.[5]

Results

Descriptive Data, Intercorrelations, and Baseline Models

Table 1 presents descriptive statistics for the variables in their natural metrics to facilitate interpretation, and Table 2 presents correlations. It is worth noting that while performance over time was highly correlated, substantial variance in future performance remained after accounting for past performance. For instance, while average performance (the performance covariate in our models) correlated with future performance at .49, it still explained less than one quarter of the variance in future performance (i.e., r^2 = .24). As expected, there was also a high correlation between exempt and salary (r = .76). Although high correlations among independent variables can lead to multicollinearity concerns, all variables used in the equations returned a value on the variance inflation factor (VIF) test of less than 3, suggesting that multicollinearity was not a problem (Neter, Wasserman, & Kutner, 1985). In addition, removing variables to reduce collinearity did not substantively affect our results.

Pay System Characteristics, PFP, and Future Performance

Table 3 provides multivariate tests of the PFP effects on future performance. Model 1 reveals that average performance, tenure, male, age, and salary were statistically significantly related to future employee performance. Supporting Hypotheses 1 and 2, the merit pay (b = .14, p < .001; Model 2) and bonus pay (b = .49, p < .001; Model 3) coefficients were positive and statistically significant. The .14 merit pay coefficient indicates that a one standard deviation increase in merit pay (.04, 4%, or $1,894) was associated with a .14 standard deviation increase in performance rating, which is a .74 performance rating point increase (.14 times the 5.30 future performance standard deviation). Increasing bonus pay by one standard deviation (.03, 3%, or $1,420) was associated with a .49 standard deviation increase in performance rating, which is a 2.60-point increase on the performance rating scale. The positive merit and bonus pay effects also emerge in Model 4, where both terms are included to test our Hypothesis 3 prediction of a stronger PFP effect on future performance for bonus pay than for merit pay. Here the bonus pay coefficient (b = .47) is over 5 times greater and significantly different (p < .001) from the merit pay coefficient (b = .09), supporting Hypothesis 3.

Next, we examined the extent to which a merit by bonus pay interaction exists (Hypothesis 4), which was grounded in the notion that PFP's influence is a function of the entire PFP package. Model 5 in Table 3 provides support for this hypothesis, as the negative and statistically significant (b = –.04, p < .001) interaction term indicates that the bonus pay

Table 1. Summary Statistics

Variable	M	Mdn	SD	Min	Max
Future performance	102.20	102.00	5.30	75.00	125.00
Average performance	102.35	102.00	4.51	80.00	120.75
Tenure	11.77	8.00	8.80	2.00	53.00
Male	0.24	0.00	0.43	0.00	1.00
Age	42.10	41.96	10.29	19.63	74.03
Exempt	0.46	0.00	0.50	0.00	1.00
Sales job	0.16	0.00	0.37	0.00	1.00
Promotion	0.10	0.00	0.16	0.00	0.75
Salary	47,344	42,050	18,937	16,600	127,600
Supervisor merit alignment	0.36	0.25	0.96	–17.44	16.97
Supervisor bonus alignment	0.37	0.32	0.69	–8.70	16.28
Merit pay	0.05	0.04	0.04	0.00	0.43
Merit trend	0.00	0.00	0.04	–0.28	0.41
Bonus pay	0.06	0.05	0.03	0.00	0.25
Bonus trend	0.00	0.00	0.02	–0.19	0.20

$N_{individual}$ = 11,939. Values are in their natural unstandardized metrics to ease interpretation.

Table 2. Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Future performance	—														
2 Average performance	.49	—													
3 Tenure	.04	.13	—												
4 Male	.01	.04	.00	—											
5 Age	–.06	–.01	.46	–.05	—										
6 Exempt	.10	.19	.06	.33	–.03	—									
7 Sales job	.01	–.04	–.03	–.16	–.00	–.26	—								
8 Promotion	.05	.07	–.23	.04	–.28	.19	–.05	—							
9 Salary	.18	.33	.21	.44	.08	.76	–.21	.06	—						
10 Supervisor merit alignment	.00	–.01	–.05	.04	–.07	.09	–.04	.04	.04	—					
11 Supervisor bonus alignment	.04	.04	.01	.05	–.01	.08	–.04	.02	.11	.09	—				
12 Merit pay	.13	.05	–.27	.04	–.31	.11	–.06	.24	–.03	.13	.03	—			
13 Merit trend	.01	–.11	–.05	.01	–.03	–.02	–.02	–.26	–.07	.07	.02	.57	—		
14 Bonus pay	.38	.35	.14	.24	.03	.39	–.19	.04	.59	.04	.15	.07	.00	—	
15 Bonus trend	.10	–.09	.04	–.06	.04	–.05	–.05	.02	–.08	.01	.03	–.02	–.05	.39	—

$N_{individual}$ = 11,939. Based on the last observation per employee. Correlations with absolute values greater than .02 are statistically significant at $p \leq .05$.

effect was stronger when merit pay was low. Figure 2 illustrates this interaction, and a simple slopes analysis revealed that increasing bonus pay one standard deviation was associated with a .44 standard deviation increase in future performance when merit pay was

Table 3. Fixed Effects Regression of Future Performance on Employee and Pay-for-Performance (PFP) Characteristics

	$Perf_{t1}$ 1	$Perf_{t1}$ H1 2	$Perf_{t1}$ H2 3	$Perf_{t1}$ H3 4	$Perf_{t1}$ H4 5	$Perf_{t1}$ H5a 6	$Perf_{t1}$ H5b 7	$Perf_{t1}$ 8
Constant	.62	.67	.19	.23	.26	.63	.18	.24
	.97	.97	.91	.91	.91	.96	.91	.91
Tenure	–.03**	–.00	–.02*	–.00	–.00	–.00	–.00	.02**
	.01	.01	.01	.01	.01	.01	.01	.01
Male	–.10***	–.11***	–.10***	–.10***	–.10***	–.10***	–.09***	–.09***
	.02	.02	.02	.02	.02	.02	.02	.02
Age	–.08***	–.06***	–.07***	–.06***	–.06***	–.06***	–.07***	–.06***
	.01	.01	.01	.01	.01	.01	.01	.01
Exempt	–.06*	–.11***	–.01	–.04	–.04	–.11***	–.02	–.05
	.03	.03	.03	.03	.03	.03	.03	.03
Promotion	–.00	–.01*	–.01*	–.02**	–.02**	–.01*	–.01*	–.02**
	.01	.01	.00	.00	.00	.01	.00	.00
Salary	.11***	.17***	–.17***	–.12***	–.13***	.17***	–.15***	–.10***
	.02	.02	.02	.02	.02	.02	.02	.02
Supervisor merit	.01	–.00	.01	–.00	.00	–.00	.01	–.00
alignment	.01	.01	.01	.01	.01	.01	.01	.01
Supervisor bonus	–.01	–.01	–.01	–.01	–.01	–.01	–.01	–.01
alignment	.01	.01	.01	.01	.01	.01	.01	.01
Average performance	.48***	.47***	.42***	.41***	.41***	.47***	.42***	.41***
	.01	.01	.01	.01	.01	.01	.01	.01
Merit pay		.14***		.09***	.10***	.14***		.11***
		.01		.01	.01	.01		.01
Bonus pay			.49***	.47***	.48***		.51***	.50***
			.01	.01	.01		.01	.01
Bonus pay × merit pay					–.04***			–.06***
					.01			.01
Merit pay × tenure						.03***		.03***
						.01		.01
Bonus pay × tenure							–.06***	–.07***
							.01	.01
F	223	231	349	347	338	225	341	323
Adj. R^2	.22	.24	.32	.32	.33	.24	.32	.33
Δ in adj. R^2		.01*[a]	.09***[a]		.01*[b]	.01*[c]	.01*[d]	

N_{obs} = 26,788. Variables were standardized prior to the analyses, with the exception of male, exempt, job family, and year. All fixed effects regressions were fixed on supervisor. Coefficients for 22 job family dummy variables and 3 years included in each calculation are not presented due to space considerations, but are available from the lead author.

a. Comparison to Model 1.
b. Comparison to Model 3.
c. Comparison to Model 2.
d. Comparison to Model 3.

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

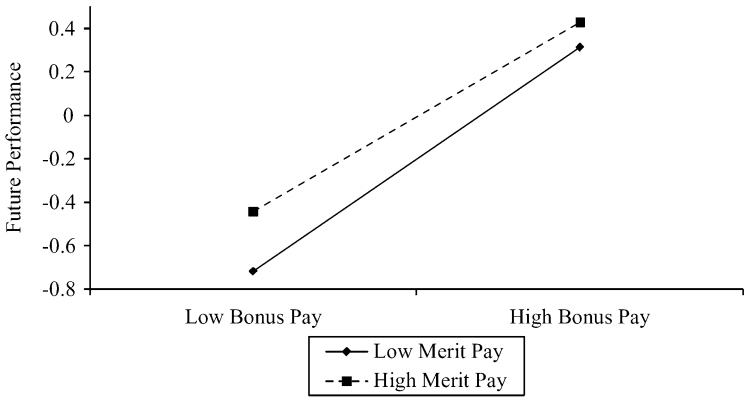

Figure 2. Merit Pay as a Moderator of Bonus Pay on Future Performance (Hypothesis 4)

high and a .52 increase when merit pay was low, an 18% stronger effect. (Alternatively, increasing merit pay one standard deviation resulted in a .06 standard deviation increase in future performance at high bonus pay and a .14 increase in performance at low bonus pay, which was a 133% stronger effect than when bonus pay was high.)

Employee Characteristics, PFP, and Future Performance

We found mixed support for the hypothesized influence of employee characteristics (i.e., tenure) on PFP effects in Table 3's Models 6 and 7. Hypotheses 5a and 5b predicted that PFP would be differentially related to future performance across employee tenure. Although statistically significant, the positive merit pay by tenure coefficient in Model 6 did not support Hypothesis 5a, as the prediction that the merit pay–future performance relationship would be stronger when tenure was low would require a negative sign on the interaction term. The negative bonus pay by tenure interaction coefficient in Model 7, however, was statistically significant and negative ($b = -.06$, $p < .001$), supporting Hypothesis 5b. As depicted in Figure 3, and based on a simple slopes analysis, increasing bonus pay one standard deviation corresponded to a .45 standard deviation increase in future performance when employee tenure was high (one standard deviation above the mean), but the same bonus pay increase resulted in a .57 standard deviation increase in future performance when tenure was low (one standard deviation below the mean), which was a 27% stronger effect.

Pay System Experience, PFP, and Future Performance

Our Figure 1 framework also stipulated that employees' prior pay system experience would influence their future performance directly and through its moderating effect on PFP. Table 4 provides the relevant analyses. Although Model 2 reveals that the prediction of a positive bonus trend effect in Hypothesis 6b was not supported, Model 1 shows that the positive merit trend effect on future performance was statistically significant ($p < .01$),

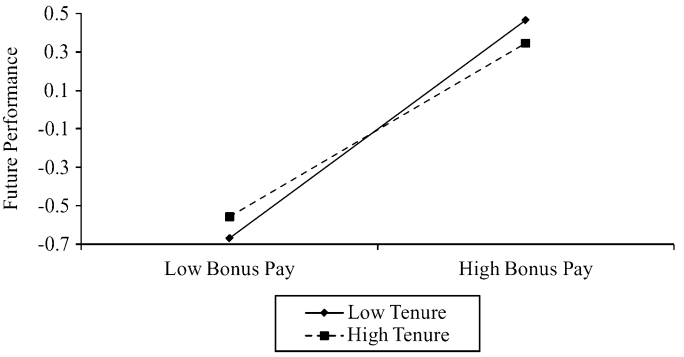

Figure 3. Employee Tenure as a Moderator of Bonus Pay Effects on Future Performance (Hypothesis 5b)

supporting Hypothesis 6a. Specifically, the .03 coefficient means that a one standard deviation increase in merit trend resulted in a .03 standard deviation increase in future performance, or a .16 performance rating increase. We note the importance in such trend research of controlling for the current level of the variable (merit pay and bonus pay in our case), to ensure that trend effects are not inferred when the trend may in fact be only a proxy for the most current occurrence.

Table 4 also presents PFP trend interactions with the most recent PFP. We found support for Hypotheses 7a and 7b, which predicted that the effect of merit pay and bonus pay on future performance would be weaker when merit and bonus trends were high. The merit pay by merit trend (Model 4) and bonus pay by bonus trend (Model 5) interactions were both negative and statistically significant ($p < .001$), indicating support for the hypotheses (i.e., short-term PFP effects were weaker when PFP trend was high). In the top graph in Figure 4, increasing merit pay one standard deviation was associated with a .12 standard deviation increase in future performance when merit trend was high. The effect for the same merit pay increase was twice as great, or a .24 standard deviation increase in future performance, when merit trend was low. Similarly, in the bottom graph, increasing bonus pay one standard deviation was associated with a .45 standard deviation increase in future performance when bonus trend was high and a .57 increase when bonus trend was low, which was a 27% stronger effect. The results remained consistent when modeling both interactions simultaneously (Model 6).

Job Characteristics, PFP, and Future Performance

Finally, in Hypotheses 8a and 8b we predicted that the effect of PFP would be stronger in those jobs where performance is more precisely measured. To explore these hypotheses, we first tested the PFP by sales jobs interactions. Table 5's Models 1 and 2 reveal support for both hypotheses, as the statistically significant ($p < .001$) interaction term coefficients indicate that both merit pay and bonus pay have positive effects on future performance that are of greater magnitude for individuals in sales jobs. To more clearly show how our models changed according to job function, we then split the sample into sales jobs employees (N = 2,099) and nonsales jobs employees (N = 10,060; splitting the sample was warranted,

Table 4. Fixed Effects Regression of Future Performance on Pay System Experience

	$Perf_{t1}$ H6a	$Perf_{t1}$ H6b	$Perf_{t1}$	$Perf_{t1}$ H7a	$Perf_{t1}$ H7b	$Perf_{t1}$
	1	2	3	4	5	6
Constant	.68	.20	.25	.67	.23	.28
	.96	.91	.91	.96	.91	.90
Tenure	–.00	–.02	–.00	–.00	–.02*	–.01
	.01	.01	.01	.01	.01	.01
Male	–.11***	–.10***	–.10***	–.11***	–.10***	–.10***
	.02	.02	.02	.02	.02	.02
Age	–.06***	–.07***	–.06***	–.06***	–.07***	–.06***
	.01	.01	.01	.01	.01	.01
Exempt	–.11***	–.01	–.04	–.12***	–.01	–.05
	.03	.03	.03	.03	.03	.03
Promotion	–.00	–.01*	–.01	–.00	–.01	–.01
	.01	.00	.01	.01	.00	.01
Salary	.17***	–.18***	–.13***	.18***	–.18***	–.11***
	.02	.02	.02	.02	.02	.02
Supervisor merit alignment	–.00	.01	–.00	–.00	.01	–.00
	.01	.01	.01	.01	.01	.01
Supervisor bonus alignment	–.01	–.01	–.01	–.01	–.01	–.01
	.01	.01	.01	.01	.01	.01
Average performance	.47***	.41***	.41***	.48***	.41***	.42***
	.01	.01	.01	.01	.01	.01
Merit pay	.12***		.07***	.18***		.12***
	.01		.01	.01		.01
Merit pay trend	.03**		.02**	.08***		.06***
	.01		.01	.01		.01
Merit pay × merit pay trend				–.06***		–.04***
				.00		.00
Bonus pay		.51***	.48***		.51***	.47***
		.01	.01		.01	.01
Bonus pay trend		–.04**	–.02		–.01	.02
		.01	.01		.01	.01
Bonus pay × bonus pay trend					–.06***	–.06***
					.01	.01
F	225	339	328	229	331	319
Adjusted R^2 within	.24	.32	.33	.25	.32	.33
Δ in adjusted R^2	.00[a]	.00[b]		.01*[c]	.00[d]	

N_{obs} = 26,788. Variables were standardized prior to the analyses, with the exception of male, exempt, job family, and year. All fixed effects regressions were fixed on supervisor. Coefficients for 22 job family dummy variables and 3 years included in each calculation are not presented due to space considerations, but are available from the lead author.

a. Comparison to Model 2, Table 3.
b. Comparison to Model 3, Table 3.
c. Comparison to Model 1, Table 4.
d. Comparison to Model 2, Table 4.

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

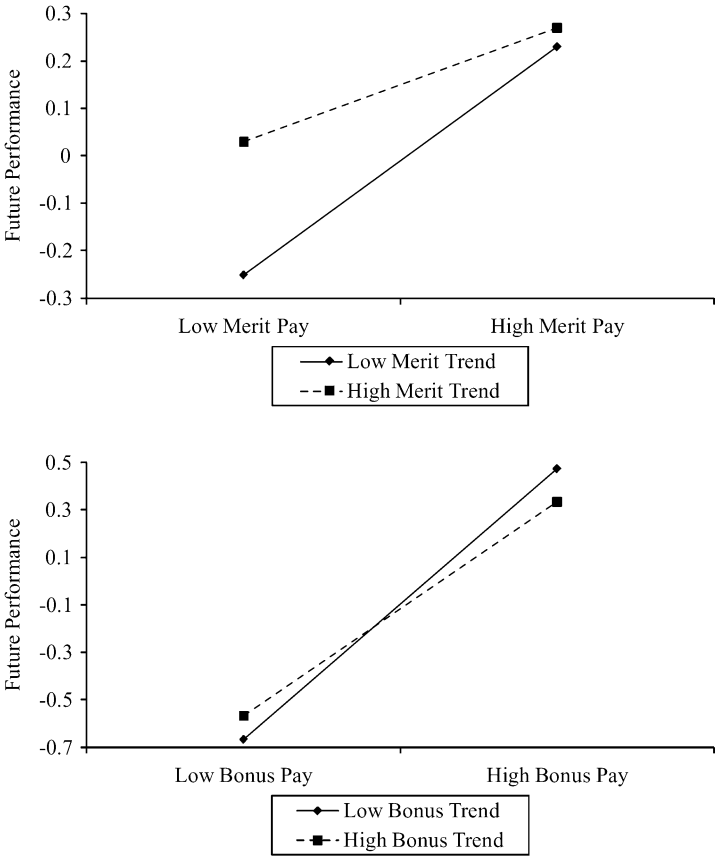

Figure 4. Pay-for-Performance (PFP) Trend as a Moderator of PFP on Future Performance (Hypotheses 7a and 7b)

given the Chow test, which indicated that the difference in the two subgroups' sets of coefficients was statistically significant, $p < .001$; Schenker & Gentleman, 2001). In support of Hypothesis 8a, the positive effect of merit pay was statistically stronger ($p < .001$) in sales jobs ($b = .21$; see Model 6) than in nonsales jobs ($b = .12$; see Model 3). Similarly, and supporting Hypothesis 8b, the positive effect of bonus pay was statistically greater ($p < .001$) in sales jobs ($b = .73$; see Model 7) than in nonsales jobs ($b = .45$; see Model 4). Notably, the bonus pay and merit pay effects for sales jobs were the strongest PFP effects anywhere in our analyses.

Discussion

In this study, we theorized about and examined the relationship between PFP and future employee performance. We used a longitudinal approach to explore two undertheorized

Table 5. Fixed Effects Regression of Future Performance on Pay-for-Performance (PFP) by Job Function

			Nonsales Jobs (3, 4, 5)			Sales Jobs (6, 7, 8)		
	$Perf_{t1}$ H8a	$Perf_{t1}$ H8b	$Perf_{t1}$ H8a	$Perf_{t1}$ H8b	$Perf_{t1}$	$Perf_{t1}$ H8a	$Perf_{t1}$ H8b	$Perf_{t1}$
	1	2	3	4	5	6	7	8
Constant	.14***	.13***	.13***	.13***	.11***	.42***	.17*	.26**
	.02	.02	.02	.02	.02	.08	.08	.08
Tenure	–.00	–.02*	.00	–.01	.00	–.04	–.08***	–.05*
	.01	.01	.01	.01	.01	.02	.02	.02
Male	–.11***	–.09***	–.11***	–.10***	–.10***	–.10	–.09	–.10
	.02	.02	.02	.02	.02	.06	.05	.05
Age	–.06***	–.07***	–.07***	–.07***	–.07***	–.05**	–.06***	–.05***
	.01	.01	.01	.01	.01	.02	.02	.02
Exempt	–.13***	–.03	–.15***	–.04	–.05	–.12	–.13	–.18*
	.03	.03	.03	.03	.03	.10	.09	.09
Promotion	–.01*	–.01*	–.01	–.01	–.01*	–.04*	–.02	–.03
	.01	.00	.01	.01	.01	.02	.02	.02
Salary	.14***	–.17***	.14***	–.18***	–.14***	.37***	.18*	.31**
	.02	.02	.02	.02	.02	.10	.09	.09
Supervisor merit	–.00	.01	.00	.01	.00	–.04	–.03	–.05
alignment	.01	.01	.01	.01	.01	.03	.03	.03
Supervisor bonus	–.01	–.01	–.00	–.01	–.01	–.04	–.03	–.03
alignment	.01	.01	.01	.01	.01	.02	.02	.02
Average performance	.47***	.42***	.48***	.43***	.42***	.45***	.36***	.35***
	.01	.01	.01	.01	.01	.02	.02	.02
Sales jobs	–.01	.06*						
	.02	.02						
Merit pay	.12***		.12***		.08***	.21***		.15***
	.01		.01		.01	.02		.02
Bonus pay		.46***		.45***	.44***		.73***	.71***
		.01		.01	.01		.03	.03
Merit pay × sales jobs	.07***							
	.02							
Bonus pay × sales jobs		.17***						
		.02						
F	542	825	536	787	741	86	162	156
Adjusted R^2 within	.24	.32	.25	.32	.33	.20	.32	.33
Δ in adjusted R^2						.00**[a]	.14***[b]	
Observations	26,788	26,788	22,096	22,096	22,096	4,692	4,692	4,692

N_{obs} = 26,788. Variables were standardized prior to the analyses, with the exception of male, exempt, job family, and year. All fixed effects regressions were fixed on supervisor. Coefficients for 22 job family dummy variables and 3 years included in each calculation are not presented due to space considerations, but are available from the lead author.

a. Comparison to Model 3.

b. Comparison to Model 4.

* $p < .05$

** $p < .01$

*** $p < .001$

and little-researched aspects in the PFP literature—PFP operationalization and a contingency perspective—to clarify the PFP–future performance relationship. To this end, we first expanded PFP's operationalization to include multiple PFP types and time frames, arguing that both short- and long-term measures of PFP influence the PFP–future performance relationship. Second, we identified five broad contextual elements relevant to PFP and then hypothesized about and tested four of them: pay system characteristics, employee characteristics, pay system experience, and job characteristics.

Our results speak to the importance of both conceiving of PFP more broadly and considering how context may affect the influence of certain PFP types. The present findings support PFP efficacy, as they show that both merit and bonus pay are positively associated with future performance. Our results also indicate that bonus pay appears to be more influential than merit pay and compensatory effects exist between PFP components. Specifically, when one PFP type (e.g., merit pay) is low, the other (e.g., bonus pay) becomes a more potent predictor of future performance.

The results also support the notion that the effects of PFP evolve over time to influence future performance. In addition to merit trend's positive effect on future performance, both merit trend and bonus trend moderated the PFP–future performance relationship, indicating that employees' pay system experience influences the effects of current PFP. Specifically, current PFP (merit pay or bonus pay) had a smaller positive effect on future performance when the relevant PFP trend was high. While it is a new finding that employees are less influenced by a single short-term PFP disappointment (or success) when the PFP future seems bright, it is also consistent with a broad literature on outcome favorability (e.g., Brockner & Wiesenfeld, 1996). Overall, the long-term PFP findings speak to the importance of researchers and practitioners conceiving of PFP effects from more than a short-term perspective and suggest that there is likely to be a PFP duration effect that has not previously been studied.

In addition to the moderated effects that emerged through a longer term perspective on the PFP construct, several other interdependencies provided contextual information on when PFP will lead employees to perform better. Employee tenure moderated the effects of current PFP, supporting the general principle that employee characteristics can influence the PFP– future performance relationship. We found evidence for this interaction when PFP was operationalized as bonus pay (but not when operationalized as merit pay). We note, however, that employees who deem their merit increases and bonuses to be dissatisfying or inequitable are more likely to leave the organization (e.g., Tekleab, Bartol, & Liu, 2005), thereby gradually creating a tenured cohort that may be somewhat more optimistic about future PFP outcomes than their low-tenured colleagues. As such, our considerations regarding the role of tenure may be affected. Moreover, since observations with only a single year of tenure could not be analyzed, we might have found stronger support for our rationale had it been possible to include lower-tenured employees.

Implications for Theory

We synthesize aspects of psychological (primarily via expectancy theory) and economics (primarily via the incentive intensity principle) theories to identify crucial contextual influences on the PFP–future performance relationship. Our conclusions are consistent with the idea that instrumentality, valence, and incentive intensity are all factors in directing employees' effort and thus affecting their future performance. Our findings are consistent

with recognition that employees do not always have time or all of the information to determine the "appropriate" effort to exert (Schwab, Olian-Gottlieb, & Heneman, 1979). Thus, combining psychological- and economic-based tools presents a novel mechanism for understanding how, when, and why PFP works. For example, our conclusions provide insight into inconsistencies in PFP and other motivation-related research, such as why Van Eerde and Thierry's (1996) meta-analytic findings found weaker than expected expectancy theory effects across studies. By stipulating conditions under which expectancy theory predictions should be weaker via reduced valence and instrumentality, our work may provide explanation for such results.

Our findings on merit and bonus pay interdependence also expand our knowledge about PFP boundaries concerning multiple employment outcomes by showing that employees react to more than a single PFP component. This addresses a gap concerning interdependencies among PFP types. Results are consistent with research on trade-offs among general distributive justice outcomes (i.e., Brockner & Wiesenfeld, 1996; Trevor & Wazeter, 2006) and among pay outcomes, such as position in multiple pay hierarchies (Trevor & Wazeter, 2006). Our finding that the bonus pay effect on future performance is greater when merit pay is low thus speaks to a larger literature on multiple employment outcomes (pay and otherwise), is consistent with a substitution effect among PFP types in terms of motivating performance, and highlights the limitations of solely considering PFP and its motivational processes from a single PFP component perspective.

Our results also suggest theoretical challenges to traditional pay and economic paradigms. In these paradigms, pay has often been considered a transactional event. However, as the long-term PFP results show, pay relationships evolve over time. This could affect how we think about pay because it may be that long-term pay takes on the attributes of relational rather than transactional events. This suggests that theorists may want to consider the potential relational implications of pay, particularly when considered over time, which may differ from the traditional repercussions of pay associated with purely economic transactions.

Overall, our demonstration of the value of considering context in the PFP–future employee performance relationship provides a unique vehicle for addressing discrepancies in previous PFP research. For example, while our results support the position that merit pay is positively related to future performance (e.g., Gerhart et al., 2009), they also shed light on why many studies may have struggled to find these results. This is, in part, because the merit pay effect on future performance appears to be related to the roles of bonus pay and merit pay over time. Thus, studies that do not take these contextual factors into account may produce little consensus regarding the influence of merit (and bonus) pay.

Implications for Practice, Limitations, and Future Research

In addition to contributing to theory, our work also has practical implications. Managers want to entice maximum employee performance, and PFP practices are a primary tool used to achieve this goal. Our results provide evidence that PFP is associated with future performance, but has important limitations. Future performance appears more favorably associated with bonus than with merit pay. Contrary to conventional wisdom and traditional economic models of rational self-interest, our results suggest that employees may be more motivated to improve performance when bonus pay is the carrot. Furthermore, by awarding more bonus pay, relative to merit pay, firms would have more flexibility in

managing cash flow (Gerhart & Milkovich, 1990). By moving to higher percentages of bonus pay, companies may be able to increase productivity (through better employee performance) while generating greater cash flow flexibility, which means that bonus pay can be particularly advantageous for an organization trying to mitigate expenditures during fluctuating organizational business cycles (Gerhart & Trevor, 1996).

As an example of the practical manifestations of this difference, we use a simplified cost– benefit analysis. A reasonable assumption in such an analysis is that a one standard deviation increase in employee performance is worth approximately 60% of an employee's salary to the company (Sturman, Trevor, Boudreau, & Gerhart, 2003). In our sample, this suggests that increasing performance one standard deviation for an average employee is worth approximately $28,406 to the company. Based on our results, when accounting for merit and bonus pay together (Table 3, Model 4), mean employee performance (102.2) will increase about 2.44% (or .47 standard deviations) when employees receive bonus pay one standard deviation above the mean (9%, or $4,261). This equals a $13,351 (i.e., .47 times $28,406) gross benefit to the company (and a $9,090 net benefit), or a return on investment of about 213%. If merit pay is increased to the same dollar value as bonus pay, the predicted result is a 0.46% increase in mean performance (.09 standard deviations), equal to a $2,557 gross benefit at a cost of $4,261, or about a 40% loss on investment. This suggests that firms can receive more "bang for their buck" by rewarding with bonuses.

We use this simple illustration to highlight the larger bonus main effect, rather than to suggest that merit pay is not a worthwhile practice. In fact, firms that do not offer merit pay may have problems attracting and retaining high quality employees (which is not accounted for in our abbreviated example). Research indicates, for example, that it is the top performers who are most likely to decide to quit as a result of salary growth that is incommensurate with performance (Nyberg, 2010; Trevor et al., 1997). Moreover, a more complete utility analysis would necessitate accounting for not only merit (and bonus) effects on attraction and retention, but also the future performance implications of merit trend, bonus trend, and the interaction between merit and bonus pay (see Sturman et al., 2003, for a comprehensive approach to cost–benefit analysis with PFP).

Largely paralleling the psychological rationale, the merit–bonus interaction can be interpreted as a substitution effect. We found that if one PFP type (e.g., merit pay) is low, then employees will be more responsive to the other PFP type (e.g., bonus pay). However, it is also possible that our results simply show that employees tend to respond to the larger payout (with perception of payout magnitude partially a function of the relative bonus and merit sizes), rather than act in strict accordance to substitution effect stipulations. Future research is needed to explore how PFP components affect employee performance relative to the entirety of the PFP payout.

One key to the relative bonus and merit effects is the lump sum aspect of bonus payments. While we derived our hypotheses based on loss aversion and endowment effects associated with receiving the lump sum bonuses, related explanations are also worth noting. Employees may become more accustomed to salary increases spread across pay periods, or may perceive these two components differently in terms of organizational obligations; employees may view merit pay as a common obligation that should be fulfilled (e.g., an entitlement), whereas bonus pay may be seen as a reward that needs to be earned yearly. In addition, the one-time bonus may give employees a more vivid goal to strive toward. Although an equivalent dollar value ought to be valued more by an employee when delivered via merit pay, due to the potential for compounding the increase in fu-

ture periods, our results suggest that employees may not respond as expected. One limitation is that our results may be partially driven by the size of PFP. That is, if merit pay differentiated more between high and low performers, its effects might be larger (Mitra et al., 1997). Similarly, more could be done to examine the role that job complexity plays in influencing these relationships since it has been shown that employee responses can vary across jobs (Maltarich, Nyberg, & Reilly, 2010). However, if our results generalize, then it could be argued that bonus pay should be the preferred organizational incentive. Future research is of course needed. For example, because merit pay and bonus pay are both used to motivate performance in the company studied here, and are interdependent, research examining merit pay and bonus pay in organizations that use one without the other may offer additional insight into the merit versus bonus investment choices that organizations face.

One potential effect not examined in this study involves supervisor effects. Supervisors may influence the PFP–future performance relationship through a variety of actions. To the extent that supervisors are poor evaluators of talent, we would expect that the PFP–future performance relationship would necessarily be weaker because employees would not have confidence that their performance would be accurately adjudicated. Similarly, to the extent that supervisors were incapable or unwilling to differentiate among employee performance, employees may lose confidence in the process and thus not be as motivated by PFP. We were unable to test these possibilities in our sample, but we did try to account for potential rater heterogeneity by fixing on supervisor in our fixed effects regressions.

The current study also presents a glimpse into a gap in our knowledge about the role that PFP plays in influencing the majority of employees who, particularly compared with executives, represent an understudied group of workers. Our results show that PFP is associated with future employee performance even for lower ranking employees. Thus, to maximize employee performance, managers should consider using PFP for jobs throughout the organization. However, our data did not distinguish between individual and collective effort. Employee evaluations within our sample are based on individual performance, meaning that further work needs to be conducted to see how our results apply in situations that are more team oriented.

This study may also indicate value in expanding PFP research to the broader human capital resource literature where it is increasingly evident that human capital, as a unit's resource, can lead to performance differentiation (Nyberg, Moliterno, Hale, & Lepak, 2014). For instance, future pay research could consider PFP effects on human capital resources. Such an application may be similar to recent unit level turnover theory advancements (e.g., Hausknecht & Holwerda, 2013; Nyberg & Ployhart, 2013). These new turnover theories have advocated considering turnover at the collective level while including time and the reciprocal influences of hiring and turnover on the quality and quantity of a unit's human capital resource (Reilly, Nyberg, Maltarich, & Weller, in press). Likewise, based on the results reported here regarding the motivational effects of PFP, future PFP research may benefit from examining the sorting and retention effects of PFP systems on establishing and maintaining a unit's human capital resource.

We acknowledge that our examination of PFP effects in sales jobs versus nonsales jobs, though likely indicative of job characteristics as an important contingency factor in the efficacy of PFP, is not necessarily a test of performance measurability and incentive intensity. While the results are consistent with these principles, it is not possible in our sample to determine if the outcomes result from job differences in the performance measurabil-

ity aspect of the incentive intensity principle or from self-selection into sales/nonsales jobs (i.e., employees more motivated by pay may tend to pursue certain types of jobs). Additional competing explanations are also possible (e.g., managers in sales functions better using PFP to motivate employees). It is also the case that to the extent that our sales jobs do not have measurable output, then the results supporting our hypothesis may be based on something other than what we expected.

Finally, we emphasize that our data are derived from a single firm, and thus our results may not generalize to other firms or other industries. For instance, if the firm evaluated here is unusually adept (poor) in implementing PFP policies and communicating these polices to employees, then the results found using this firm may be more (less) supportive of PFP than we would expect in other firms. Similarly, different firms may exhibit (by design or default) different merit pay versus bonus pay relationships. This general limitation of using only a single firm is somewhat mitigated by the large number of employees, offices, jobs, and locations.

Conclusion

Our results demonstrate that the value of PFP cannot be understood without taking a more nuanced view of the PFP construct and context. Two commonly used PFP components (merit and bonus pay), as well as their cumulative effects over time, were linked to future employee performance. Important interdependencies existed among PFP components (e.g., the merit pay by bonus pay interaction), and bonus pay appears to be more influential than previously discussed, as it was a substantially better predictor of future performance than was merit pay. In addition, PFP was more effective in jobs where performance can be more easily measured. Finally, our results provide evidence that PFP efficacy must be addressed using both economic and psychological perspectives. These perspectives and our empirical analyses lead us to conclude that PFP's effect on future performance, as well as the applicability of PFP predictions derived from sound PFP-relevant theory, can be substantially influenced by employee characteristics, job characteristics, pay system characteristics, and pay system experience. As such, we believe our study makes clear that researchers and practitioners alike should turn their energies toward understanding *when* PFP works, rather than *if* PFP works.

Notes

1. A combined psychological (i.e., expectancy theory) and economic investigation (i.e., incentive intensity principle) into *pay-for-performance* (PFP) yields five factors that can influence the efficacy of PFP. In addition to the four that we examine (i.e., *employee characteristics, job characteristics, pay system characteristics*, and *pay system experience*), organizational idiosyncrasies, which we cannot examine due to our single firm sample, can also influence PFP efficacy.
2. We thank an anonymous reviewer for leading us in this direction. There is an alternative explanation for why tenure (particularly as associated with age) may lead to differences in responsiveness to PFP. Lower tenured employees are likely to be paid less. Because these employees may then find that each marginal dollar is more necessary for accumulating necessary goods than might someone who has been there longer (and is paid more), the same PFP percentage could lead lower tenured employees to respond more to PFP than would higher tenured employees. Thus, we control for age and salary to try to account for these concerns. At the reviewer's advice, we also checked for the interaction between age and merit and age and bonus. In both cases, as expected, age returned results very similar to tenure.

3. We chose not to adjust the dollar values for inflation, which would effectively have replaced "no" merit increase with a pay cut. Furthermore, inflation was low during the study window and adjusting for inflation yields no material differences in our results, but complicates the interpretation.
4. Conversations with senior management at our focal company assured us that all salary increases were based on employee performance. While some companies build nonperformance factors such as cost-of-living increases into "merit" increases, senior management at the focal company informed us that such factors played no role in their merit pay decisions.
5. We note that there were a number of possibilities to fix on. In addition to supervisor, we also fixed on department (517), location (574), job type (719), and job family (22) as potential robustness checks. Substantively different effect sizes did not exist across analyses. We chose to fix on supervisor because supervisors have responsibility for determining performance ratings and influence PFP. Fixing on supervisor, while also controlling for supervisor PFP alignment and job family, represented the most thorough analysis. We included job family dummy variables because according to senior HR executives at the company where we acquired the data, employees will primarily compare themselves with others within job family to determine if their pay is commensurate with others.

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