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## RESEARCH ARTICLE

# Base pay and bonus pay for high-wage employees: A multi-study approach to organizational performance

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This paper studies how the compensation of high-wage workers is associated with organizational performance. Based on organizational justice arguments, cognitive evaluation theory (CET), and self-determination theory (SDT), we hypothesize that bonuses contingent on organizational performance tends to negatively impact the positive relationship between base pay and organizational performance. We use data from two distinct industry environments to show that the interaction between base pay and bonus pay is associated with reducing organizational performance for high-wage workers. More specifically, bonus pay relates to a decrease in the relationship between base pay and organizational performance.

## JEL CLASSIFICATION

C33, J01, J31, J33

## 1 | INTRODUCTION

Compensation is one of the most critical influence factors on organizational performance as it motivates worker effort (incentive effect) and attracts and retains high-ability workers (sorting effect) (Antoni et al., 2017; Gerhart et al., 2009; Gupta & Shaw, 2014; Jenkins et al., 1998; Locke et al., 1988). Moreover, it is the most significant single operating cost factor for the average organization accounting for 60% to 95% of the average organizational costs (Gerhart et al., 2009; Larkin et al., 2012).

Of particular interest is the compensation of high-wage workers since large sums of money are involved. While there is a substantial body of research showing the relationship between compensation and performance for relatively trivial tasks (Jenkins et al., 1998; Stajkovic & Luthans, 2003; Weibel et al., 2010), there is less evidence on how compensation affects the performance of complex tasks (Kuvaas, 2006). The payment of high-wage workers can be divided into base pay and variable pay. Base pay refers to a fixed amount of money a worker receives to fulfill job requirements (Gerhart & Milkovich, 1990). In contrast, variable payment is contingent on

individual, team, and/or organizational performance and may differ from time to time. Examples are bonuses or merit pay (short term) and stock options or stock prizes (long term) (Gerhart & Milkovich, 1990; Jensen & Murphy, 1990).

We focus on bonus pay because bonuses are one of the most common practices regarding variable payment. They are relatively easy to administer and link to short-term performance goals. Bonus pay for high-wage workers is most often organizational-based (instead of individual-based). One reason is the considerable influence of their behavior on subordinates and collective performance (Gerhart et al., 2009). Other reasons are the complexity of their tasks and their rather qualitatively assessed work. Regarding economic theories of compensation, their behavior cannot be explicitly specified in advance or measured cost-efficiently due to information asymmetry and unobservability (Murphy, 1985).

Organizational justice and autonomy perceptions should be considered, focusing on base and bonus pay composition. High-wage workers develop a sense of affective commitment to an organization (Kuvaas, 2006). While base pay is most often seen as fair due to its dependence on skills or education, organizational-based bonus

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payments might result from all workers in an organization, including high- and low-performing individuals. Thus, justice perceptions might be violated. Another issue is the need for autonomy. Base pay reflects a signal that workers are appreciated and trusted by an organization which strengthens the perceptions of autonomy. Contrarily, bonus pay might create a feeling of being controlled and thus decreases autonomy perceptions. Hence, there is reason to presume a negative interactional effect of base pay and bonus pay on organizational performance. Accordingly, the paper aims to address the following research question: *For high-wage workers, is the relationship between base pay and organizational performance moderated by organizational-based bonus pay?*

Despite a substantial body of evidence suggesting that base and bonus pay might separately influence organizational performance, only a few authors have previously attempted to simultaneously analyze the influence of these two pay components on performance. Kuvaas et al. (2016), for example, investigate the effect of variable pay on work effort and turnover intention and control for base pay. However, there is no study investigating the interactional effect of base pay and bonus pay on organizational performance to the best of our knowledge.

We undertake a detailed examination of this interaction effect to fill this gap, using two data sets from different industries: one containing A-listed Hollywood stars and their compensation, the other covering the British oil crude industry employees. By exploiting two different datasets, we refer to concerns emphasizing that different organizational conditions may affect the relationship between pay and performance (Antoni et al., 2017; Shaw et al., 2002). We find that base pay and bonus pay of high-wage workers enhance organizational performance separately, whereas the combination of both diminishes it. More specifically, implementing organizational-based bonus pay for high-wage workers reduces the positive relationship between base pay and organizational performance.

In essence, we contribute to the compensation literature by analyzing the moderating effect of bonus pay for the critical group of high-wage workers. Bonus pay is the most commonly used practice for this type of worker. We find robust results exploiting two distinct industries.

## 2 | THEORETICAL BACKGROUND AND RESEARCH HYPOTHESIS

Focusing on the relationship between base pay and organizational performance equity theory (Adams, 1963) as well as a broader social exchange view (Blau, 1964) can be considered (Kuvaas, 2006). The more inducement an organization provides to a worker (output), the more that worker will reciprocate by raising effort and becoming more effectively committed to the organization (input) (Lee & Bruvold, 2003). Equity theory argues that base pay represents a strong signal of a worker's worth to the organization. It usually reflects several years of prior performance and other characteristics such as skills, education, and expressed attitudes. Besides, it is less influenced

by temporal factors like industry growth or organizational profit (Gardner et al., 2004). Thus, base pay is an essential payment element in favorably influencing workers' behavior. Most empirical researchers confirm the positive effects of base pay on organizational performance. In a study of French professional employees, Igalens and Roussel (1999) find that base pay is positively related to work motivation (Igalens & Roussel, 1999). Gardner et al. (2004) use field study data from various sources at different time points and show that the base pay level affects employee performance through increased employee self-esteem (Gardner et al., 2004). In a meta-analysis, Judge et al. (2010) found that pay level positively correlates with the job and pay satisfaction. More recently, in a cross-lagged study of approximately 30 months, including 488 respondents, Kuvaas et al. (2020) showed that accumulated base pay is positively related to a social exchange relationship (Kuvaas et al., 2020). It is noticeable that most studies do not find direct associations between base pay and performance but rather between base pay and mediating components of the pay-performance relationship.

Also, in its pure form, bonus pay is theoretically associated with increased performance via job satisfaction and organizational commitment (e.g., Coyle-Shapiro et al., 2002; Meyer et al., 2002; Riketta, 2002). According to the social exchange view (Blau, 1964) and the norm of reciprocity (Gouldner, 1960), affective organizational commitment may be conceptualized as an exchange of loyalty and effort for material benefits and social rewards (Eisenberger et al., 1990). Organizational bonus payments imply that the organization puts more at risk in terms of providing bonuses also to employees who do not perform well. Thus, organizational incentives may message that the organization does not expect free riding or other forms of opportunistic behavior, thereby communicating trust in employees (Kuvaas, 2006). Especially former studies find positive effects of bonus pay. Abowd (1990) uses data on more than 16,000 managers at 250 large corporations from 1981 to 1986 and shows that the payment of an incremental 10% bonus for good economic performance is associated with a 30 to 90 basis point increase in the expected after-tax gross economic return in the following fiscal year (Abowd, 1990). Using data from a third-party survey on compensation practices at 151 Dutch firms, Bouwens and van Lent (2006) show that higher cash bonuses are associated with improved employee selection and better-directed effort (Bouwens & van Lent, 2006).

While these studies are based on a single consideration of bonus pay, more recent studies include base and bonus pay. Kuvaas (2006) uses data for knowledge workers from two business units in a large Norwegian multinational company and finds that bonus pay, including collective components, is not related to self-reported work performance (Kuvaas, 2006). He and his colleagues published a longitudinal study spanning more than 2 years where salespeople of a Norwegian insurance company were surveyed 10 years later. The authors show a negative net effect of annual variable pay on work effort obtained via a positive relationship between pay and controlled motivation and a negative relation between pay and autonomous motivation (Kuvaas et al., 2016). These results indicate that, especially for high-wage

workers, bonus pay, including collective components, might not work as desired by employers.

One reason might be the violation of justice perceptions. Shaw et al. (2002) show a positive relationship between pay dispersion and workforce performance when accompanied by formal *individual* incentive systems (Shaw et al., 2002). Consistent with Suchman's (1995) descriptions of moral legitimacy or the normative evaluation of an organization's activities, formal individual incentives are perceived as legitimate and are socially accepted (Suchman, 1995). In contrast, *organizational* incentive plans like bonuses based on organizational performance may be seen as unfair and illegitimate, especially for higher-performing individuals, who to a greater extent contribute to the organization's performance. They may view collective components as violating justice rules and weakening the sense of perceived control (over the pay) (Folger & Greenberg, 1985). Consequently, the productivity of high-wage workers and their organizational commitment might decrease when being compensated by bonus pay (Kepes et al., 2009; see also organizational justice arguments by Sheppard et al., 1992).

In support of this argument, motivational theories such as cognitive evaluation theory (CET) and self-determination theory (SDT) (Deci et al., 1999; Gagné, 2005) can be contemplated (Kuvaas et al., 2016). Base pay signals that an organization trusts workers to perform well without being externally regulated or controlled by performance contingencies. This strengthens an individual's perception of autonomy and self-regulation (Gagné, 2005) and, according to CET and SDT, also a worker's intrinsic motivation (Kuvaas, 2006). Empirical support for this claim is in part provided by Igalens and Roussel (1999). They found a positive relationship between base pay and work motivation among French professional employees (Igalens & Roussel, 1999). A positive association between intrinsic motivation and work performance is (indirectly) supported by several studies (Callahan et al., 2003; Fried & Ferris, 1987; Ganesan & Weitz, 1996; Vansteenkiste et al., 2004). Concerning base pay of knowledge workers, one study has found that autonomous motivation partly mediates the positive relationship between base pay level and work performance (Kuvaas, 2006). Contrarily, bonus pay may decrease autonomous motivation (Cerasoli et al., 2014; Gagné, 2005; Weibel et al., 2010) as—according to SDT—environmental structures such as contingent rewards make people feel controlled or pressured (Deci et al., 1999). This effect varies depending on the reward's impact on feelings of autonomy and competence (Moller & Deci, 2014). Organizational-based incentives may fade out feelings of self-regulation and autonomy, and particularly high-wage workers might suffer a drop in autonomy perceptions. Gagné and Forest (2008) argue “that the ratio of variable to fixed pay portions would influence work motivation, such that the higher the proportion of variable pay based on performance, the lower the autonomous motivation” (Gagné & Forest, 2008). Thus, bonus pay might negatively impact the positive relationship between base pay and organizational performance.

Based on previous research findings and the above theoretical arguments, we presume a negative interactional effect of base pay

and bonus pay for high-wage workers and anticipate a moderating effect of organizational-based bonus payments. As such, we test the following research hypothesis:

Hypothesis: For high-wage workers, the positive relationship between base pay and organizational performance is moderated by organizational-based bonus payments in such a way that it tends to decrease with enhanced bonus pay.

### 3 | ANALYSIS

To empirically test our hypothesis, we use two different data sets. The first data set includes a sample of randomly selected A-listed Hollywood film stars who get above-average income in the movie industry. The second data set considers the oil industry and contains a sample of high-wage workers in the British oil crude industry.

### 4 | STUDY I

We focus on A-listed Hollywood actresses and actors for several reasons. First, the change from the studio system (where actresses and actors have signed long-term contracts with the production company) to a free agent and project-based system caused a shift in the payment plans from base pay to a combination of base and contingent pay (Ravid, 1999). Second, Hollywood stars present a homogeneous group. They spend almost the same time and effort acting on a film set, excluding the possible effects of different work hours, conditions, or other productivity-related factors (Dean, 2008). Third, movie stars are an income group compared to other top performers, such as athletes, academics, and executives (Chisholm, 2004). Thus, factors that influence payment to Hollywood stars will most likely influence the organizational pay characteristics for other high-wage workers. We, therefore, conclude that Hollywood stars represent an appropriate sample to analyze the compensation effect of high-wage workers on organizational performance.

We analyze a data sample of 684 actor-movie observations from 1964 to 2014. The data is obtained from the Internet Movie Database (IMDb) and Box Office Mojo. All monetary measures are inflation adjusted and logarithmized to correct skewed distribution (Gemser et al., 2007). A summary of key descriptive statistics for variables used in the empirical analysis can be found in Table 1. The dependent variable is an organizational performance measure. To avoid the effects of industrial wealth or mischief, we use an accounting-based measure of performance (instead of a market-adjusted performance measure). Relating to a paper by Richard et al. (2009) on measuring organizational performance, accounting measures are favored due to managers' importance, especially in large organizations. In addition, bonuses used in our paper are also based on accounting measures fulfilling the need that “measurement systems must play an active role in the management [...] to be effective” (Richard et al., 2009). The accounting-based organizational performance is represented by a movie's total gross domestically earned in our first data set. The

TABLE 1 Descriptive statistics—Study I

Variable name	Description	Mean	SD	Min	Max
Total gross	Total gross domestically earned by a movie.	138,158,518.22	138,367,821.37	57,904.58	1,362,021,691.31
Base salary	Base salary earned by a film star.	12,982,741.45	11,949,907.48	84,195.62	111,799,842.58
Bonus	Star gets a bonus for a certain movie.	0.09	-	0	1
Past performance					
Movies acted	The number of movies in which the film star has acted before.	22.96	14.22	0	98
Human capital					
Male	The film star is male.	0.78	-	0	1
High school	The film star has a high school degree.	0.98	-	0	1
College	The film star has a college degree.	0.53	-	0	1
Drama school	The film star has a drama school degree.	0.44	-	0	1
Age	Age of the film star.	39.91	11.73	13	87
Lead Oscar	Number of Oscars for a leading part a film star has.	0.14	0.40	0	2
Support Oscar	Number of Oscars for a supporting part a film star has.	0.09	0.29	0	1
Costs					
Production costs	Production costs of a movie.	86,024,844.93	54,771,510.45	4,567,057.15	294,967,708.44
Genre					
Comedy	The genre of the movie is comedy.	0.28	-	0	1
Horror	The genre of the movie is horror.	0.02	-	0	1
Drama	The genre of the movie is drama.	0.27	-	0	1
Action	The genre of the movie is action.	0.31	-	0	1
Thriller	The genre of the movie is thriller.	0.09	-	0	1
Animation	The genre of the movie is animation.	0.03	-	0	1

minimum total gross accounts for USD 57,905, the maximum for USD 1,362,021,691, and the mean for USD 138,158,518.

Our two main variables of interest are base salary and bonus. Base salary represents the fixed pay a movie star earns for acting in a movie, with a minimum of USD 84,196, a maximum of about USD 111,799,843, and a mean of USD 12,982,741. We have bonus observations for 62 actor-movie observations, which means that some movies in the data set do not grant every represented star an incentive. Some stars are present several times but do not receive incentives for every movie. As stars receive different types of bonuses (such as profit participation, percentage of [box office] gross, or back end pay), and as these bonuses cannot always be identified, we use dummy variables to categorize the bonus pay.

Economic theories of efficient compensation suggest that contracts depend, among others, on past performance (Murphy, 1985). Thus, past performance might correlate with base salary and bonus. As past performance might also influence current organizational performance due to star effects, we add past performance as a control variable. Furthermore, including the past performance helps us partly offset the problem of simultaneous causality. Other controls are the

human capital of the star as well as the production costs and the genre of the movie. Thus, the first regression model is represented by

$$y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 z_{it} + \varepsilon, \quad (1)$$

where  $y$  is the logarithm of the total gross and  $x$  is presented by either base salary, bonus, or the interaction of both terms.  $z$  describes the control variables, represented by past performance, human capital, costs, and genre. Past performance includes the number of movies an actress or actor acted before and the logarithm of the lagged total gross. Human capital contains the variables gender (i.e., female and male), high school, college, drama school, age, age squared, lead Oscar (Oscar for the lead role), and support Oscar (Oscar for a supporting role). Following Ravid (1999), we define a “star” as the observed person who had won a Best Actor or Best Actress Award (Oscar) in the leading or supporting role in prior years. Star actors may have the ability to attract a bigger audience and form a good signal for the overall box office appeal of a movie (Rosen, 1981). Thus, an actor's reputation and ex ante popularity can reflect a movie's artistic and esthetic quality (Ravid, 1999). De Vany (2004) also shows movies with stars on 20% more screens than movies without actors with star potential. The

TABLE 2 Correlation matrix—Study I

Variable name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Total gross	1								
(2) Base salary	.173***	1							
(3) Bonus	.245***	.252***	1						
Past performance									
(4) Movies acted	-.0205	.198***	.0383	1					
Human capital									
(5) Male	.0775*	.186***	.0917*	.113**	1				
(6) High school	.0458	-.0679	.0473	.0529	.0668	1			
(7) College	-.0836*	-.0247	-.0992**	-.0725	.0221	-.0617	1		
(8) Drama school	-.0874*	.0469	-.0925*	.0879*	-.104**	-.170***	.170***	1	
(9) Age	-.0873*	.187***	-.0218	.659***	.302***	-.0148	.130***	.0446	1
(10) Lead Oscar	.0299	.163***	-.0183	.299***	-.0346	.0512	.0435	.0258	.277***
(11) Support Oscar	-.0717	-.00100	-.00946	.292***	-.0474	.0469	-.0739	.160***	.215***
Costs									
(12) Production costs	.396***	.399***	.137***	.173***	.0896*	-.0251	-.0505	-.0108	.0616
Genre									
(13) Comedy	-.0495	-.0466	-.0518	-.0975*	-.0238	.0278	.108**	.0162	-.0224
(14) Horror	.00882	.0513	.0185	.0339	-.0126	.0232	-.0667	-.0189	.0342
(15) Drama	-.119**	-.152***	-.0278	-.118**	-.00673	-.000695	-.0566	-.0258	-.135***
(16) Action	.150***	.176***	.0868*	.147***	.0742	-.0513	-.0150	.0196	.113**
(17) Thriller	-.101**	.0542	-.0110	.0666	-.0567	.0125	-.0176	.0204	.0329
(18) Animation	.196***	-.0985**	-.0246	.0244	-.0142	.0260	-.00966	-.0475	.0169

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

TABLE 2 (Continued)

Variable name	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Total gross									
(2) Base salary									
(3) Bonus									
Past performance									
(4) Movies acted									
Human capital									
(5) Male									
(6) High school									
(7) College									
(8) Drama school									
(9) Age									
(10) Lead Oscar	1								
(11) Support Oscar	.0607	1							
Costs									
(12) Production costs	.0535	.0111	1						
Genre									
(13) Comedy	-.0520	-.0376	-.203***	1					
(14) Horror	.0443	-.0145	.0355	-.0974*	1				
(15) Drama	.0615	-.0249	-.199***	-.377***	-.0928*	1			
(16) Action	-.101**	.0242	.354***	-.420***	-.103**	-.401***	1		
(17) Thriller	.110**	.0441	-.0558	-.199***	-.0489	-.189***	-.211***	1	
(18) Animation	.0279	.0370	.157***	-.109**	-.0269	-.104**	-.116**	-.0548	1

\*p < .05. \*\*p < .01. \*\*\*p < .001.

human capital controls try to show both. On the one hand, the personal investments in human capital (e.g., educational qualification and experience) (see Mincer, 1974), on the other hand, the popularity and star appeal of individuals (Academy Awards wins) (see Ravid, 1999).

The logarithm of the production costs represents total costs, and the genre includes comedy, horror, drama, action, thriller, and animation. Due to the positive correlation between a movie's production costs and theatrical rentals production budget can be seen as a "proxy variable" for the overall technical and artistic quality of a movie, reflecting most of the proportion of the variance explaining box office success (Litman, 1983; Ravid, 1999).

Whereas the production budget represents the supply side, the genre categories represent the demand side. Movie genres represent reputational effects that help consumers assess the quality of a movie

and bring their preferences and perceptions in line with market offerings. Consequently, genre categories can be seen as a signal of quality (Austin & Gordon, 1987; De Silva, 1998). In summary, it can be said that both controls can diminish the information asymmetries between producers and consumers and, in conjunction with the past performance and human capital indicators, represent adequate control variables to show the main effects of organizational performance.

Because similar variables are used to capture the human capital and performance measures, in Table 2, we present correlation coefficients between all variables. The highest levels of correlation can be observed between the age, and the number of movies acted (+.659\*\*\*), divorced and married (−.719\*\*\*), own son and children (.658\*\*\*), and own daughter and children (.741\*\*\*). However, as these correlations are naturally pre-existing, we assume that these relatively high correlations are no potential cause for concern.

**TABLE 3** Regression results—Study I

Independent variables	Dependent variable: lnTotalGross			
	I	II	III	IV
<b>Main effects</b>				
In Base salary	0.146*** (0.051)		0.135*** (0.051)	0.156*** (0.052)
Bonus		0.570*** (0.142)	0.539*** (0.150)	4.287** (1.859)
In Base salary × Bonus				−0.229** (0.113)
<b>Past performance</b>				
Movies acted	−0.009 (0.008)	−0.006 (0.009)	−0.006 (0.009)	−0.005 (0.009)
In Total gross_1	−0.057 (0.047)	−0.046 (0.049)	−0.060 (0.046)	−0.064 (0.047)
<b>Human capital</b>				
Age	−0.047 (0.042)	−0.038 (0.041)	−0.063 (0.042)	−0.069* (0.041)
Age2	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Lead Oscar	0.052 (0.243)	0.153 (0.238)	0.117 (0.246)	0.122 (0.250)
Support Oscar	−0.549 (0.372)	−0.535 (0.344)	−0.541 (0.329)	−0.552 (0.333)
<b>Costs</b>				
In Production costs	0.685*** (0.131)	0.771*** (0.125)	0.677*** (0.129)	0.674*** (0.129)
<b>Genre (reference category: Animation)</b>				
Comedy	−0.870*** (0.183)	−0.665*** (0.147)	−0.870*** (0.174)	−0.861*** (0.171)
Horror	−0.781*** (0.277)	−0.590** (0.263)	−0.809*** (0.265)	−0.787*** (0.260)
Drama	−0.995*** (0.216)	−0.832*** (0.181)	−1.011*** (0.210)	−1.024*** (0.210)
Action	−0.740*** (0.166)	−0.547*** (0.133)	−0.771*** (0.160)	−0.765*** (0.158)
Thriller	−0.998*** (0.206)	−0.809*** (0.169)	−1.019*** (0.202)	−1.009*** (0.203)
Constant	7.071*** (2.529)	7.109*** (2.545)	7.746*** (2.516)	7.670*** (2.498)
Observations	684	684	684	684
R <sup>2</sup>	.285	.288	.299	.303
Number of actors	84	84	84	84
R <sup>2</sup> within	.285	.288	.299	.303
R <sup>2</sup> between	.281	.358	.326	.321
R <sup>2</sup> overall	.234	.261	.252	.252

Note: Robust standard errors in parentheses.

\* $p < .1$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

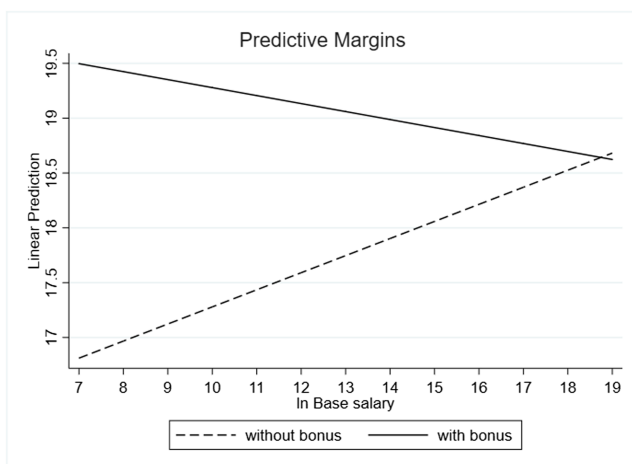


## 5 | RESULTS—STUDY I

Table 3 summarizes the relationships between pay characteristics and performance estimations. Fixed-effects estimations for four different model specifications are displayed to represent the model outlined in Equation 1, recommended by the Hausman test. This allows for controlling the time-invariant unobserved heterogeneity (Hausman, 1978). Nonetheless, some of the control variables mentioned above, such as male or high school, are missing due to time invariances in the fixed-effects regressions. Model I estimates the association between base pay and organizational performance. Model II shows results for the relationship between bonus and performance. Model III illustrates the findings for both pay characteristics. The regression output is remarkably consistent between specifications I-III, demonstrating the robustness of the results. Model IV additionally demonstrates the coefficient of the interaction of both pay characteristics, thereby testing our hypothesis.

Focusing on Model I, it becomes apparent that a 1% increase in the base salary of a film star is associated with a 0.15% higher total gross of the considered film. An increase in base salary of about USD 130,000 thus leads to an increase in a total gross of about USD 207,000, based on the average values of the base salary and the total gross of the stars and movies in the data set. Model II shows that receiving a bonus is associated with a 57% higher total gross (on average USD 78,750,000), representing a solid relationship. As only a few stars are granted bonuses, this high relationship might be that only the best actors with very high presumed performances receive bonus pay. Model III confirms the results of Models I and II. Regarding Model IV, it can be said that a 1% increase in base salary for incentivized actors is associated with a 0.073% lower total gross (on average USD 100,856).<sup>1</sup> Broadly speaking, if a high-wage worker receives a bonus payment, this additional form of incentive may decrease effort due to violated justice perceptions or the perceived loss of autonomy.

Figure 1 uses predictive margin plots to illustrate the relationship between base and bonus pay. A higher base salary is associated with a



**FIGURE 1** Predictive margins—Study I [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

higher total gross for stars without bonus payments, whereas a higher base salary decreases the total gross for stars receiving bonuses. The difference between the two margin plots is exceptionally high for Hollywood stars with a smaller base salary and nearly disappears for actresses and actors with a high base salary. Hence, we can conclude that the higher the wages are, the smaller the impact of bonuses in general, and if wages are very high, bonus payments might be detrimental.

We, therefore, confirm our hypothesis. Base pay of high-wage workers is associated with higher organizational performance, but an additional bonus payment decreases this relationship. However, the analysis of Hollywood movie stars encounters two significant limitations. First, only a small number of actresses and actors have received bonus payments. Second, we encounter a possible selection bias as the data set includes only A-listed actors. Consequently, we analyze a second data set from the oil industry, where the number of bonus payments and the hierarchy levels are considerably larger.

## 6 | STUDY II

The second data set was provided by the hkp group, an international consulting company that primarily provides remuneration consulting. The data set includes hierarchical ranks and personnel data on white-collar workers from 13 British crude oil industry companies between 2010 and 2014. The various ranks have been categorized by the hkp group across all observed companies. The sample includes neither Chief Executive Officers nor Managing Directors of the companies nor unskilled workers. Thus, both extremes at the top and bottom of the wage pyramid have been excluded. The highest rank, Level 1, is attributed to managerial responsibility for a business unit, while the lowest, Level 7, is linked to a simple technical job without any managerial responsibility. The data set contains 3298 individual workers with a total of 5688 observations. All monetary measures are logarithmized to correct skewed distribution (see Gemser et al., 2007).

Compared with data set I, the dependent variable is an organizational performance measure represented by a company's annual revenue (again, an accounting measure). Revenue data were derived from each company's annual reports for each year. The minimum revenue is about GBP 1,425,000,000, the maximum accounts for about GBP 313,469,000,000, and the mean for about GBP 173,840,000,000. We focus our analysis on the two main payment variables: base pay and bonus pay. Base pay is represented by the annual base salary of a worker. The minimum annual base salary in the data set is GBP 71,500, the maximum is GBP 264,330, and the mean is roughly GBP 100,360. Following incentive theory, we use lagged salary variables as we assume that the annual salary affects the performance of the following year rather than the performance of the ongoing year. Bonus pay is represented by the actual bonus amount paid to the employees based on the preceding year's results. Unlike the first data set, we now have actual numbers of the bonus payment for all observations, with only 13 observations having bonus payments equal to zero. The maximum bonus amount is GBP 167,700, and the mean bonus

amount is about GBP 20,860. As mentioned before, we also use lagged variables of the bonus payments.

We include human capital, job-related information, and company dummies as control variables. On the one hand, human capital is related to firm-level performance (Crook et al., 2011). It influences top managers' bonus compensation contracts (Widener, 2006), making it essential to include corresponding control variables. Job-related information should also be considered. Diamantidis and Chatzoglou (2011) show that job and workplace characteristics directly affect firm performance (Diamantidis & Chatzoglou, 2011). As a third category of control variables, we include company dummies. Earlier studies highlight the importance of organizational characteristics of a firm regarding the effect of incentive plans (Bouwens & van Lent, 2006; Gerhart & Milkovich, 1990). Besides, we want to avoid any bias due to revenue effects irrespective of a person. Thus, the second regression model is represented by

$$W_{it} = \gamma_0 + \gamma_1 u_{it} + \gamma_2 v_{it} + \varepsilon, \quad (2)$$

where  $w$  is the logarithm of the revenue and  $u$  is either the logarithm of the lagged salary, the logarithm of the lagged bonus amount, or the interaction of both.  $v$  describes the control vectors represented by human capital, job information, and company. Human capital contains the level of work experience (years of relevant experience gained in all companies worked at from the start of the career), age, and gender. Job information firstly contains the function of an employee, including nine categories of benchmark specialties (e.g., project engineering). Second, we control for the working location, which involves either an offshore location (e.g., working on an oil rig), onshore production (e.g., working on a production site on land), or onshore non-production (e.g., working in an office job on land). Third, we control the pattern (continuous shift vs. day worker; discontinuous shifts have been deleted due to the low number of observations) and over time

(with a dummy indicating if overtime is typically paid). And lastly, we control for the positional rank of the employees, ranging from ranks B to H. Company is a dummy variable indicating the 13 different companies. Table 4 summarizes the descriptive statistics used in our analysis.

Due to multicollinearity concerns, we present correlation coefficients in Table 5. A high correlation between base salary and bonus (.705\*\*\*) can be found. The position of a worker could be an explanation for this correlation. People in higher positions may get higher base salaries and higher bonus amounts, while people in lower positions may earn less in terms of salary and bonus. This is also shown by the correlation between rank and base salary (−.695\*\*\*) and rank and bonus (−.566\*\*\*). Another high but reasonable level of correlation can be seen between the location and work pattern, with a coefficient of .592\*\*\*. Onshore non-production workers are usually day workers, while offshore workers are typically shift workers. Also, a very high level of correlation (.769\*\*\*) can be observed between experience and age, a pre-existing natural condition.

## 7 | RESULTS—STUDY II

Table 6 summarizes the relationships between the pay characteristics mentioned above and the organizational performance of the workers in the data set. Fixed-effects regressions of four different models represent the second model outlined in Equation 2. Similar to the results of data set I, the Hausman test has recommended using fixed-effects estimators to control for time-invariant unobserved heterogeneity (Hausman, 1978). Therefore, the control variables of gender and company are missing due to time invariances in the fixed-effects regressions. Model I shows the relation between the base salary and firm revenue. Model II shows the

**TABLE 4** Descriptive statistics—Study II

Variable name	Description	Mean	SD	Min	Max
Revenue	Annual revenue of a company.	173,839,679,648.45	106,441,950,928.45	1,424,532,224	313,469,239,296
Base salary	Annual salary of a worker.	100,358.60	20,852.68	71,500	264,330
Bonus	Annual bonus amount of a worker.	20,860.09	10,648.19	0	167,702
Human capital					
Experience	Years of relevant experience as a worker.	19.36	7.89	1	45
Age	Age of a worker.	43.70	8.60	24	68
Sex	Sex of a worker.	0.06	-	0	1
Job information					
Function	Category of specialties of the benchmark.	5.07	2.63	1	9
Location	Location of a company (offshore–onshore).	2.26	0.63	1	3
Pattern	Continuous shift–day worker.	1.91	0.29	1	2
Overtime	Overtime is paid.	0.00	-	0	1
Rank	Rank/position of an employee.	3.25	1.00	1	7
Company	Code of a company.	5.40	2.84	1	13

TABLE 5 Correlation matrix—Study II

Variable name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Revenue	1											
(2) Base salary	-.0901***	1										
(3) Bonus	.0667***	.705***	1									
Human capital												
(4) Experience	-.193***	.246***	.108***	1								
(5) Age	-.243***	.261***	.149***	.769***	1							
(6) Sex	-.108***	-.0882***	-.0478***	-.101***	-.0751***	1						
Job information												
(7) Function	.121***	.176***	.141***	-.0797***	-.0716***	-.0511***	1					
(8) Location	.0774***	.126***	.0223	-.162***	-.175***	-.0450***	.0303*	1				
(9) Pattern	-.0679***	.115***	.0585***	.0637***	.0924***	.0473***	-.0680***	.592***	1			
(10) Overtime	-.0560***	-.0252	-.0513***	.00731	.00415	-.00919	-.0333*	-.0224	-.00592	1		
(11) Rank	.118***	-.695***	-.566***	-.323***	-.349***	.0380**	.0330*	-.0715***	-.0959***	.0211	1	
(12) Company	-.455***	.187	.291	-.154***	-.0864***	.0428*	.0550***	.178***	-.00888	-.0544***	-.0887***	1

\*p < .05. \*\*p < .01. \*\*\*p < .001.

results for the relationship between bonus and firm revenue. Model III estimates the inclusion of both pay variables, and Model IV integrates the interactional effect between base and bonus pay. Thus, Model IV directly tests our hypothesis.

Regarding Model I, a 1% higher salary in the preceding year is associated with a significant 0.129% higher company revenue in the ongoing year. In terms of the average values of salary and revenue, an increase in an annual salary of about GBP 1000 leads to an increase in revenue of about GBP 224,253,000. Model II demonstrates the association between the bonus amount a worker has received in a preceding year and the firm revenue. It becomes apparent that a 1% increase in the bonus amount is related to a 0.026% higher revenue for the company in the subsequent year. Regarding the pecuniary numbers of the bonus pay and revenue, an increase in bonus pay of about GBP 209 leads to an increase in the next year's revenue of about GBP 45,198,000 on average. Model III confirms the results of Models I and II. Model IV shows a negative interactional effect of a worker's preceding salary and bonus payment on a firm's performance. This means that the combination of a high salary and a bonus diminishes a firm's performance.

Looking at the predictive margins in Figure 2, where we set the covariates of the bonus amount to fixed values, we see the following: For workers getting lower bonuses (i.e., ln Bonus\_1 = 6), revenues increase when they receive higher salaries. This increase diminishes in size the more significant the bonus amount becomes. Higher salaries are associated with lower revenues for workers with high bonus payments (i.e., ln Bonus\_1 = 13). Figure 2 also indicates that lower bonuses are associated with higher firm revenue for workers getting high salaries, while higher bonuses are associated with lower firm performance.

Thus, increasing bonus payments lead the high-wage workers to reduce their effort, given that collective components in performance-based compensation may disturb perceptions of fairness and autonomy. Contrarily, low bonus payments operate as an incentive to enhance effort, even if salaries rise. The positive relationship between base pay and organizational performance for high-wage workers tends to decrease with enhanced bonus pay. In summary, our hypothesis can be confirmed for high-wage workers.

## 8 | SUMMARY OF THE RESULTS

Both data sets show similar results. While base salaries and bonus payments separately increase organizational performance, the combination of both does the opposite. The first data set concentrates on high-wage individuals and bonus payments. The second data set has more detailed information on the bonus payment amount and can distinguish between ranks.

It can be said that for high-wage workers, increased salaries are associated with enhanced grosses or revenues. Similarly, bonus payments (often only paid to the best performers or often higher for workers in higher positional ranks) also increase organizational

TABLE 6 Regression results—Study II

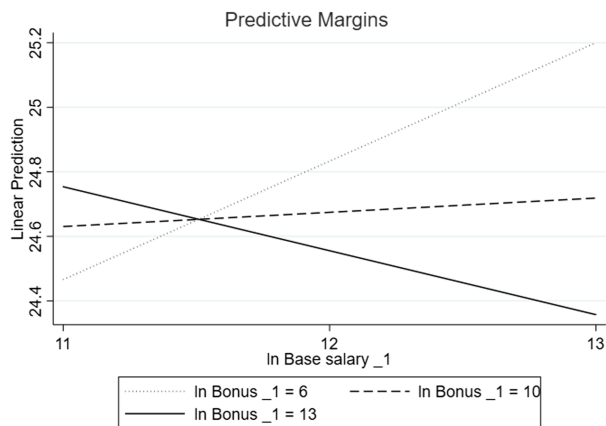
Independent variables	Dependent variable: ln_Revenue			
	I	II	III	IV
Main effects				
In Base salary_1	0.129*** (0.025)		0.109*** (0.024)	0.722*** (0.097)
In Bonus_1		0.026*** (0.004)	0.024*** (0.004)	0.731*** (0.110)
In Base salary_1 × In Bonus_1				−0.062*** (0.010)
Human capital				
Experience	−0.002*** (0.000)	−0.002*** (0.000)	−0.002*** (0.000)	−0.002*** (0.000)
Age	−0.040*** (0.010)	−0.032*** (0.008)	−0.053*** (0.010)	−0.058*** (0.010)
Age2	−0.000 (0.000)	−0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Job information				
Function = 2, DE (Discipline Engineering) (reference category Function = 1, CE [Commercial])	0.029 (0.040)	0.025 (0.040)	0.028 (0.039)	0.025 (0.038)
Function = 3, GE (General Engineering)	0.029 (0.040)	0.026 (0.040)	0.028 (0.039)	0.025 (0.038)
Function = 4, GS (Geosciences)	0.005 (0.038)	0.001 (0.038)	0.006 (0.038)	0.005 (0.037)
Function = 5, HE (HSE)	−0.007 (0.046)	−0.009 (0.047)	−0.006 (0.046)	−0.007 (0.045)
Function = 6, PE (Production Engineering)	−0.021 (0.040)	−0.022 (0.041)	−0.021 (0.040)	−0.023 (0.039)
Function = 7, PJ (Project Engineering)	0.005 (0.042)	0.005 (0.042)	0.006 (0.041)	0.006 (0.040)
Function = 8, RE (Petroleum Engineering)	−0.013 (0.040)	−0.016 (0.040)	−0.015 (0.040)	−0.015 (0.038)
Function = 9, WE (Well Engineering)	0.031 (0.041)	0.027 (0.042)	0.029 (0.041)	0.026 (0.039)
Location = 2, ONNP (Onshore Non-Production) (reference category Location = 1, OFSH [Offshore Location])	0.049*** (0.016)	0.048*** (0.016)	0.050*** (0.016)	0.050*** (0.016)
Location = 3, ONPR (Onshore Production)	0.041* (0.021)	0.044** (0.020)	0.042** (0.021)	0.042** (0.020)
Pattern = 2, DW (day worker) (reference category Pattern = 1, CS [Continuous Shift])	0.003 (0.009)	−0.003 (0.009)	−0.003 (0.009)	−0.004 (0.009)
Overtime				
Rank = 2, C (reference category Rank = 1, B)	0.015*** (0.002)	0.009*** (0.002)	0.005** (0.002)	−0.023*** (0.005)
Rank = 3, D	−0.024 (0.020)	−0.025 (0.021)	−0.023 (0.021)	−0.032 (0.020)
Rank = 4, E	−0.019 (0.013)	−0.017 (0.014)	−0.014 (0.014)	−0.025* (0.013)
Rank = 5, F	−0.021 (0.015)	−0.024 (0.016)	−0.018 (0.016)	−0.026* (0.014)
Rank = 6, G	−0.022 (0.019)	−0.028 (0.019)	−0.020 (0.020)	−0.019 (0.019)
Constant	25.594*** (0.175)	26.558*** (0.190)	25.979*** (0.195)	19.138*** (1.058)
Observations	5688	5688	5688	5688
R <sup>2</sup>	.352	.358	.365	.377
Number of ID	3298	3298	3298	3298
R <sup>2</sup> within	.352	.358	.365	.377
R <sup>2</sup> between	.0738	.0832	.0779	.0790
R <sup>2</sup> overall	.0628	.0717	.0672	.0681

Note: Robust standard errors in parentheses.

\* $p < .1$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

performance. But the negative interactional term shows that the positive relationship between base pay and organizational performance is moderated by bonus pay. It decreases with enhanced bonus pay. Thus, our hypothesis can be confirmed by both data sets. Due to justice and autonomy perceptions, organizational-based bonuses do not

have this motivating power for high-wage workers. Hence, they may not considerably alter performance when being provided with bonuses. High bonus pay may even be a reason for reducing effort. Lower bonuses, in contrast, may desirably incentivize high-wage workers.



**FIGURE 2** Predictive margins—Study II [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

## 9 | CONCLUDING REMARKS

We contribute to the compensation literature by analyzing the moderating effect of organizational-based bonus pay on the relationship between base pay and organizational performance for high-wage workers in two distinct industries. As compensation is the highest single cost for a company, it is vital to analyze whether rising compensation also means rising performance. The rewards of high-wage workers are of particular interest. On the one hand, the compensation of these employees is a critical factor in organizational performance (Peng & Zhou, 2018). On the other, it yields high costs for the company. For incentivizing high-wage workers, organizational-based bonus pay is often used. But the results of different studies investigating the association between bonus pay and organizational performance have not been consistent over the years. While a separate analysis of the effect of bonus pay yields positive results, simultaneous analysis of base and bonus pay leads to somewhat ambiguous results. We analyze the interactional effect of base and bonus pay on organizational performance and provide robust results using two different data sets to shed light on this.

By running fixed-effects regressions, we find that both base pay and bonus pay separately enhance organizational performance, whereas—for high-wage workers—the combination of both diminishes it. Thus, bonus pay is connected with a decrease in the positive relationship between base pay and organizational performance. Hence, high-wage workers should not be provided with high organizational-based bonuses. This additional incentivization may fade out perceptions of fairness and autonomy and thus depresses effort (organizational justice theory, CET, and SDT). As a consequence, organizational performance may suffer. In contrast, low bonuses can be implemented to encourage effort increases.

Considering our theories, this form of additional incentivization should not affect the attitudes of low-wage workers. Therefore, an interactional effect of base and bonus pay on organizational performance should not exist. This research question should be tested in further research projects.

There might be concerns about the proportion of the bonus pay in the overall compensation. Regarding the psychophysics theory view (Mitra et al., 1997; Mitra et al., 2016), a pay rise has to fulfill a minimum percentage (5% to 8%) of the compensation to evoke positive reactions among workers. Kuvaas (2006) also states that bonus opportunities typically represent 5% to 10% of base pay to motivate (Kuvaas, 2006). As in our (second) data set, bonus pay constitutes about 18% of the base salary; these concerns can be eliminated.

However, several limitations should be acknowledged when interpreting our results. First, although panel data were used, we cannot completely rule out the possibility of reverse causality. Nevertheless, reverse causality is not very likely as we have used past performance controls and lagged salaries and bonus amounts. Second, we cannot provide any cost–benefit analysis by using accounting measures as dependent variables. According to Gerhart et al. (2009), it is also essential to consider the costs of incentivizing individuals (Gerhart et al., 2009). Future work should extend our results by analyzing the effect of compensation plans on different forms of performance measures (e.g., ROI). According to Richard et al. (2009), the multidimensionality of performance (predominately related to stakeholders, heterogeneous product market circumstances, and time) could be considered when discussing the dependent variable(s) (Richard et al., 2009). Barkema and Gomez-Mejia (1998) and Gerhart et al. (2009) also emphasize the importance of a firm's governance structure and contingencies such as firm strategy, R&D level, market growth, industry concentration, regulation, and national culture. Thus, further research should include control variables incorporating these contingencies. Determinants of executive pay (e.g., the board of directors, the remuneration committee, and the general public) may also be considered (Barkema & Gomez-Mejia, 1998). Nevertheless, we have considered some of these aspects by using two different data sets with different industrial environments from different countries. However, more profound research is essential for analyzing the relationship between organizational pay characteristics and organizational performance.

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## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## ENDNOTE

<sup>1</sup> In Equation 1, the partial effect of base salary on total gross (holding all other variables fixed) is represented by the aggregation of the main effect of base pay and the interaction effect of base and bonus pay (Wooldridge, 2013, p. 190).

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