

Show Me the Money! Pay Structure and Individual Performance in Golden Teams¹

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Using the Italian Serie A football league as an example, we analyse the unresolved relationship between pay structure and individual performance in organizational golden team settings, namely, groups of interdependent high-skilled, high-paid employees. We contribute to existing compensation literature by focusing on individual (rather than collective) performance, considering both absolute and relative (within team-within role) pay structures, and investigating the moderating role of pay dispersion in the relationship between pay level and performance. Our analysis confirms the complexity of the understanding of the effects of pay structures on individuals. Specifically, both (absolute and relative) pay level and pay dispersion have a positive impact on the individual performance. However, when absolute and relative pay levels are jointly considered, only the latter displays a significant impact. Moreover, because of its direct positive relationship with individual performance, absolute (and relative) pay dispersion shows to have a partial substituting effect on the impact of absolute (and relative) pay on individual performance. The theoretical and managerial implications of our results and the issue of the extendibility of the findings to non-sport organizations are discussed.

Keywords: compensation systems; pay structure; pay dispersion; relative pay; individual performance; golden teams; football

Introduction

The management of compensation systems is commonly recognized as one of the main strategic issues in modern organizations, as it represents at the same time a major operative financial cost and a key tool to influence employee behaviour and improve organizational performance (Dulebohn and Werling, 2007; Gerhart *et al.*, 2009; Milkovich *et al.*, 2011).

However, the effects of different pay structures on employee performance are far from being clearly understood (Guthrie, 2007) also because of the relative scarcity of research on the topic compared to the other HRM policies and practices (see Gupta and Shaw, 2014). For instance, while it has been strongly demonstrated that high pay levels are positively related to performance (e.g., Brown *et al.*, 2003; Trevor *et al.*, 2012), the issue of the relative importance of absolute versus relative pay levels remains quite unexplored, despite its potential

relevance in terms of managerial implications. Additionally, the debate on pay dispersion is largely unresolved (Gupta *et al.*, 2012; Downes and Choi, 2014), and the existing literature offers controversial evidence, suggesting that dispersed pay structures may have negative (e.g., Harder, 1992; Pfeffer and Langton, 1993; Bloom, 1999; Bloom and Michel, 2002; Fredrickson *et al.*, 2010), non-linear (e.g., Brown *et al.*, 2003; Trevor *et al.*, 2012), positive (e.g., Becker and Huselid, 1992; Heyman, 2005; Kepes *et al.*, 2009), and non-significant (e.g., Conyon *et al.*, 2001; Grund and Westergaard-Nielsen, 2008) effects on performance. Overall, the effects of pay dispersion seem to be contingent upon several contextual factors, such as other characteristics of the pay system and the work design (e.g., Shaw *et al.*, 2002; Kepes *et al.*, 2009; Trevor *et al.*, 2012).

This study enriches these debates by analysing the relationships between pay level, pay dispersion and individual performance in ‘golden team’ settings, namely, groups of high-skilled, high-paid employees who perform their individual tasks interdependently to reach a common objective. By relying on the main theoretical approaches to strategic compensation (i.e., equity, tournaments, and efficiency wages theories), we identify some unresolved issues to be investigated in the unique

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setting of the Italian *Serie A* football league's players. In doing so, we contribute to the debate on the effects of pay structures on performance in several ways. First, we focus on individual performance in team settings, while the major part of the literature considers the effects of compensation systems on team or organizational performance (e.g., Batt, 2002; Shaw *et al.*, 2002; Heyman, 2005; Siegel and Hambrick, 2005; Dineen *et al.*, 2007; Trevor *et al.*, 2012). Second, we analyse pay structures in both absolute and relative terms. In particular, we analyse relative pay structures within role and within team, while existent studies typically refer to across role and/or across team pay structures (e.g., Cowherd and Levine, 1992; Brown *et al.*, 2003; Grund and Westergaard-Nielsen, 2008; Fredrickson *et al.*, 2010). Third, together with analysing the direct relationships between pay levels, pay dispersion and performance we also test the role of pay dispersion as a moderator of the (supposed) positive relationship between pay levels and individual performance. This increases the understanding of how the different characteristics of the pay structure interact with each other in affecting performance (Bloom and Michel, 2002; Brown *et al.*, 2003). Finally, we also contribute to reduce the North American perspective bias that characterizes compensation research (Werner and Ward, 2004), offering evidence from an unexplored research setting, namely, the Italian *Serie A* football league. The use of sport research contexts is common in compensation research (e.g., Harder, 1992; Bloom 1999; Werner and Mero, 1999; Trevor *et al.*, 2012) and, like the American sports, the Italian football league represents an ideal setting where to test compensation theories given that wages, relevant individual and team characteristics, and clear measures of individual and collective performance are somehow easily available.

The rest of the paper is structured as follows. The next section defines the theoretical framework and reviews the empirical literature on pay structures and performance in golden teams in order to develop four key hypotheses to be tested in the empirical part of the paper. Subsequently, the institutional framework of the Italian *Serie A* football league is depicted and the methods and results of the empirical analysis are described. We conclude by discussing theoretical and practical implications of our findings, as well as their extendibility to non-sport contexts.

Pay and performance in golden teams

Several theoretical approaches have been developed to analyse the relationship between pay levels, pay dispersion, and performance. With regards to the effects of pay levels, efficiency wages theory (Yellen, 1984) suggests that paying employees high wages attracts talented employees and incentivizes all employees to increase

their level of performance because of the greater risks associated with losing their current jobs and the related wage premium. This incentive effect becomes particularly effective in contexts where pay levels are strongly related to individual performance, because the negative consequences related to poor performances become more apparent to the employees (Yellen, 1984; Gerhart and Rynes, 2003). Moreover, together with the importance of absolute pay levels predicted by efficiency wages theories, equity theory (Adams, 1963, 1965) predicts that also the relative level of pay is relevant, as individuals make social comparisons to determine their personal condition. In Adam's (1963, 1965) formulation, the inequity issue arises when the ratio between one's own inputs (e.g., skill, education, effort) and outcomes (e.g., pay, promotion) is perceived to be different from those of the comparable others (Carrell and Dittrich, 1978). If the individuals perceive to be in a deprived situation with respect to their proximal colleagues (negative inequity), then they will try to restore an equitable situation through job performance decrements (Adams, 1963; Carrell and Dittrich, 1978; Dulebohn and Werling, 2007). Therefore, together with the absolute level of pay, also the relative pay level acquires relevance in terms of employees' reactions to the pay structure.

Turning to pay dispersion, the theoretical and empirical debate is largely focused on the antithesis between the hierarchical and the compressed hypotheses. On the one hand, the hierarchical hypothesis, which has its theoretical foundation in the tournament theory (Lazear and Rosen, 1981), views pay distributions as 'networks of incentives [. . .] that attract talent and motivate individual performance [. . .] Hierarchical pay distributions are expected to induce higher employee performance because they create a meritocracy in which rewards for effort or human capital increase monotonically' (Bloom, 1999: 26). On the other hand, the compressed hypothesis, which is anchored in equity theory, 'focuses on how pay distributions affect collaborative work and cooperation. From this perspective, hierarchical pay distributions create "disincentives" for cooperation, instil feelings of inequity, promote dissatisfaction, and diminish performance [. . .]. Conversely, following the compressed hypothesis, pay distributions are said to inculcate feelings of fairness, foster notions of common fate, and reduce interpersonal competition [. . .]. According to the compressed model, greater dispersion in pay levels within an organization will lead to lower individual performance' (Bloom, 1999: 27). Empirical support for the hierarchical hypothesis is quite strong in work settings where employees perform independent tasks and individual performance is clearly measurable (e.g., Becker and Huselid, 1992; Shaw *et al.*, 2002; Kepes *et al.*, 2009), while the compressed hypothesis found support when the level of interdependency between tasks is high and the focus is on team or

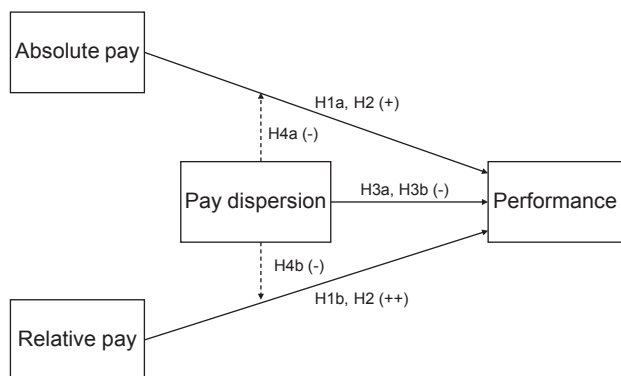


Figure 1 Analytical model for testing the relationship between pay structure and individual performance in golden teams.

organizational performances (e.g., Shaw *et al.*, 2002). Moreover, it has been shown that the relationship between pay dispersion and performance is moderated by other characteristics of the pay system, such as the level of pay (e.g., Brown *et al.*, 2003) and the presence of incentives (e.g., Shaw *et al.*, 2002), and by contextual factors such as the technology intensity of the firm (e.g., Siegel and Hambrick, 2005).

Management research shows a scarcity of studies that address the relationship between pay level, pay dispersion and individual performance in team settings characterized by high interdependency between tasks. Individual (rather than collective/team) performance is of paramount importance because, even in teams with high interdependencies between teammates, what ultimately determines collective performance is each teammate's individual performance. In other words, individual performance is a more proximal outcome of pay strategies than collective team performance. In order to overcome such deficiencies that characterize the current literature, we adopt an analytical model (Figure 1) that enables us to test the influences of pay structures on individual performance in golden teams with high task interdependence.

Golden teams represent a particular work setting where all team members possess strong skills and are paid well in general terms. A team competing in one of the major sport leagues, such as the National Basketball Association and the Major League Baseball in the US or the English football Premier League and the German *Bundesliga* in Europe, is a typical example of a golden team, as its members are among the most talented employees worldwide in their roles and earn considerably higher salaries compared to a common employee in a business organization (e.g., a service or manufacturing company) or, more importantly, in minor sport leagues. However, golden teams are not limited to sport contexts. They are present in business organizations as well: a team or a task-force composed by executives or senior managers is a golden team, as executives and senior

managers are typically highly skilled employees and earn considerably higher salaries compared to lower-level managers and non-managerial employees. Despite the strategic role of top management teams in organizations, the effects of pay structures on performance in such kinds of teams are surprisingly under-researched (Carpenter and Sanders, 2002). Such scarcity of literature is amplified by the fact that the large majority of studies that use sport settings to test for the effect of pay structure on performance often fails to recognize the specificity of such contexts (i.e., the nature of golden teams) and to discuss the extendibility of the results to non-sport organizations (see Wolfe *et al.*, 2005). In the following sections we discuss the main literature on pay structure in golden teams and, by relying on the predictions of the theories depicted above, we develop four hypotheses (Figure 1) to be tested in the empirical part of the paper.

Absolute and relative pay level

High pay levels are commonly acknowledged as a strong motivator for the employees, and the empirical support for this view is quite strong. Levine (1993) analysed data on more than 8,000 employees in American and Japanese manufacturing firms and found that workers receiving high wages work harder than they have to, have a higher commitment to the organization and are less likely to quit. At the organizational level, Shaw *et al.* (1998) studying a sample of firms in the trucking industry found that the average level of pay is a strong negative predictor of quit rates. With regard to golden teams, Trevor *et al.* (2012) analysed the US National Hockey League's teams and found that the absolute value of the mean player salary within team-year is positively and strongly related to both on-ice measures of team performance studied (i.e., points and rounds).

Moreover, high levels of pay are theorized to incentivize employees particularly in contexts where pay-for-performance systems are in place (Gerhart and Rynes, 2003), as it is the case in golden teams (Harder, 1992; Simmons and Berri, 2011). With regard to our specific research context, Montanari *et al.* (2008) showed that pay levels in the *Serie A* are mainly influenced by the player's and the team's performance, the team tenure in the *Serie A*, the player's reputation and his career seniority. They commented on these results by depicting the compensation model in the Italian Football League as a hybrid, as it is partially performance-based and partially skill-based: 'After all, a sort of meritocratic system seems to emerge, in which the more experienced, the better reputed and the higher performing a player is, the higher his pay' (Montanari *et al.*, 2008: 40–41). In the same type of context, Forrest and Simmons (2000) analysed the Italian, German and English football leagues and found that team wage bills are a strong

predictor of team success in Italian and German football, while it is weaker for English football (but such results may be explained by the longer time-series employed for English football).

At the theoretical level, if employees perceive to be paid a high salary, and if they know that their salary is, at least partially, related to their performance, they will be incentivized to perform at a high level in order to maintain their salary equitable (i.e., to maintain the balance between inputs and outputs) and to reduce the risk of losing their highly paid job because of poor performance. Empirically, the positive effects of high pay levels on team performance have been clearly demonstrated both for sport and non-sport contexts (e.g., Brown *et al.*, 2003; Trevor *et al.*, 2012). At the individual level, Bloom (1999), in his influential study on pay dispersion among Major League Baseball players, found that the absolute level of individual pay was positively related to two out of three indicators of individual performance (the third relationship was not significant). Similarly, Brandes and Franck (2012), analysing data of German *Bundesliga* football players, found evidence that pay strategies that lead (or lag) the market pay line positively (or negatively) influence individual performance. Considering the strong theoretical and empirical arguments, we expect the absolute level of pay to be positively related to individual performance. This leads to the following hypothesis:

Hypothesis 1a: Absolute pay level is positively related to individual performance.

Compensation literature shows that, next to the absolute level of pay, the relative pay level also strongly influences individual performance. Bloom and Michel (2002: 39), in their study on managerial turnover, commented on their results sustaining that ‘organizations may need to adjust both absolute and relative pay levels to achieve the proper fit with their context’. Here, the notion of social comparison becomes relevant (Festinger, 1954; Adams, 1965). If individuals earn different pay while performing similar tasks, then they will perceive a feeling of inequity and they will try to restore an equitable situation by reducing their inputs through job performance decrements, higher absenteeism or by leaving the organization. However, in sport golden teams, absenteeism is not a viable strategy for the players given the expected behaviour and the high degree of control that clubs have on the private lives of the players (and in business golden teams the conditions are quite similar), while choosing to leave the team and look for another one with more equitable compensation systems can only be done in the half (in January) or at the end of the football season at the earliest. Therefore, job performance decrements (or increments) are among the more immediate and suitable strategies for golden team’s members to restore equity. If individuals perceive

to be in a deprived situation, they will try to restore equity by reducing their level of performance. If they feel to be overpaid they will try to restore equity too by putting more effort into the job and thus increasing their level of performance. Bloom (1999), found that that the difference and the ratio between the player’s pay and the maximum pay on a team are both positively related to individual performance.

Considering equity theory predictions, we expect the relationships between relative pay and individual performance to be even stronger when the comparison others are individuals that cover the same role in the same team, given that individuals that are on the same role are ‘more similar others’ than individuals that cover a different role. As noted by Shaw *et al.*, (2002: 509), ‘horizontal pay distributions [i.e. pay distributions between employees that are in the same role] hold constant many potentially confounding factors (e.g., differences in status, social class, job titles) that could reasonably explain variations in pay levels’. In football, different roles have quite different objectives. For example, the main objective of a defender is to prevent the rival team to score goals, while that of a forward is to score goals against rivals. Therefore it is reasonable to suppose that, for example, a defender tends to compare his pay level with that of the other defenders of the team, rather than with that of teammates that cover other roles. We capture these arguments in the following hypothesis:

Hypothesis 1b: Relative (within team within role) pay level is positively related to individual performance.

Moreover, considering that in golden teams all teammates earn a salary that is high, one can expect that the absolute level of pay is less significant than its relative level. Being in a work context where all the employees are paid high salaries, increases the relevance of the relative position of the players in the team’s pay distribution, and particularly in the pay distribution among teammates that cover the same role. In other words, we expect that in golden team settings the amount of money a player earns, compared to what his teammates make, is what particularly encourages (or discourages) a player to perform well. In line with that, we propose the following hypothesis:

Hypothesis 2: Relative pay level counts more than absolute pay level in explaining individual performance.

Pay dispersion and interaction effects

Together with pay level, pay dispersion covers a special role in the pay-performance relationship. Conversely to pay level, however, its effects are rather controversial, both theoretically and empirically. Both compressed and

hierarchical pay structures may have positive effects on performance (Gupta *et al.*, 2012; Downes and Choi, 2014). Increasing the understanding of the effects of pay dispersion on individual performance in teams can be accomplished by considering some contingent factors, such as the level of interdependence among teammates, the nature (individual or collective) of the output, the kind of market competitiveness, and the visibility and measurability of individual performance. At the individual level, Pfeffer and Langton (1993) found that greater pay dispersion within academic departments reduces the cooperative behaviours of faculty members, as well as their satisfaction and productivity. As synthesized by Frick *et al.* (2003: 476) 'the optimal degree of pay inequality depends on the type of behaviour the firm wants to encourage and the ability to monitor performance. Greater dispersion is likely to induce higher levels of effort if the individual's performance can be measured, if risk-taking behaviour is encouraged, if the individual tends not to affect the performance of others and if cooperative team efforts are not important. Conversely, a more egalitarian pay structure may be merited if risk-taking behaviour is not important, if it is difficult to disentangle the individual's performance from that of the team, if the team members affect one another's performance in ways that are difficult to measure and reward and if team effort is important'. If the outcomes produced by the team are collective in nature and strongly depend on the ability and willingness of teammates to coordinate each other, then pay dispersion may have detrimental effects in terms of performance. On the contrary, if the tasks are completely independent from each other, pay dispersion may act as an incentive for higher performance (Shaw *et al.*, 2002).

With respect to golden teams, Fredrickson *et al.* (2010) analysed pay dispersion in top management teams of public firms and found that pay dispersion was negatively related to subsequent organizational performance, particularly when it exceeds what is justifiable given the industry, firm and team characteristics. On a similar line, Siegel and Hambrick (2005) found that pay dispersion in top management teams has detrimental effects on firms' performance. This particularly applies to high-tech firms, because in such firms a greater amount of cooperation among senior executives is needed.

It should be recognized that in sport golden teams a high degree of pay dispersion could be explained by the presence of a star player who earns an extremely high salary. Lucifora and Simmons (2003: 51) estimated a human capital earnings equation to verify the presence of a superstar effect on pay in the Italian *Serie A* football league and they found support for 'the existence of a convex structure of rewards across a set of performance measures, with strong convexity in career goal-scoring rates and in assist rates'. The presence of a star-player in the team may be seen as a source of motivation for the

teammates, and consequently may have positive effects on their performance. However, empirical evidence for golden teams does not support this view and tends to favour the compressed hypothesis rather than the hierarchical hypothesis (e.g., Bloom, 1999; Bloom and Michel, 2002; Siegel and Hambrick 2005; Fredrickson *et al.*, 2010). It is especially the need for cooperative behaviours between teammates that makes pay dispersion undesirable in golden teams. Harder (1992: 328) analysed individual performance in sport golden teams and found that in basketball (i.e., the sport setting in some way rather similar to European football, see Keidel 1986) 'under-rewarded players acted in their economic self-interest while over-rewarded players engaged in more cooperative actions. The fact that under-rewarded players scored fewer points for [the] shots taken might be further evidence of selfish behaviour, in that more difficult shots were taken. This suggests that, under greater conditions of interdependence, rewards should be structured to encourage cooperation rather than competition'. Overall, existing research in golden teams seems to suggest that pay dispersion has negative effects on performance because it increases the fragmentation of the group, increases the competitive dynamics between teammates and reduces the cooperation within the team (Fredrickson *et al.*, 2010).

As we consider individual performance as the overall result of the ability of the player to rightly perform his tasks and to harmoniously coordinate with the others – first of all with the teammates that cover the same role – we measure pay dispersion both in absolute and in relative (within team within role) terms. This choice is consistent with the measures we adopt for pay levels, and, as suggested by Gupta *et al.* (2012), permits us to control, at least partially, for the inputs put into the job by the players, given that the kind and level of inputs required are presumably the same for a given role, while the vary between roles. On the base of these arguments, we propose:

Hypothesis 3a: Dispersion in absolute pay levels is negatively related to individual performance.

Hypothesis 3b: Dispersion in relative pay levels (within team within role) is negatively related to individual performance.

This line of reasoning also brings us to consider the interactions between pay dispersion and pay level in golden teams. Particularly, we expect high levels of absolute (and relative) pay dispersion to attenuate the positive effects of high absolute (and relative) pay levels. Surprisingly enough, although pay level and pay dispersion represent the two main characteristics of the pay structure, this kind of interaction remained largely untested in the compensation literature. Bloom and Michel (2002) suggested that high pay levels could com-

compensate for the negative effects of high levels of pay dispersion, and Brown *et al.* (2003) found support for such hypothesis at the team level. We reverse this reasoning, expecting that in teams with high task interdependence, when the pay structure is highly dispersed, receiving high pay is not enough to compensate for the negative effects of being in an inequitable situation with respect to teammates. This holds not only when absolute pay level is considered, but also when the focus is on the relative level of pay. Because the hierarchical pay structure tends to incentivize competitive rather than cooperative behaviours, and because individual performance in golden teams is highly determined by the ability of the individual to cooperate with teammates, and particularly with those that have the same role, we can expect that high pay dispersion fosters the willingness of individuals to appear better than their colleagues and to play individualistically rather than collaboratively in order to reach higher pay, thus having detrimental effects on their individual performances. This should occur both for low and high levels of pay. Under hierarchical pay structure, individuals that are positioned in the low tie of the pay distribution will try to reach a higher level of pay, while individuals that are in the high tie of the distribution will try to maintain their better position or even to increase it, given that in golden teams the possibility of reaching a much higher salary is always realistic. We capture this possibility in the following hypotheses:

Hypothesis 4a: Dispersion in absolute pay levels moderates the relationship between absolute pay level and individual performance: at high levels of pay dispersion the positive relationship between absolute pay level and individual performance is weaker.

Hypothesis 4b: Dispersion in relative pay levels (within team within role) moderates the relationship between relative pay level and individual performance: at high levels of pay dispersion the positive relationship between relative pay level and individual performance is weaker.

Research methods

Research context

The Italian major football league *Serie A* (today officially called “Serie A TIM” after the mobile telecommunication sponsor) is considered worldwide among the top three competitive national championships along with the Spanish *La Liga* and the English Premier League. The quality of *Serie A* is also in the historical records of successful participation of its teams in international competition. In fact, AC Milan is only second to Real Madrid for the Champions League (formerly known as

the European Cup) title (7 vs. 9), although it is the top club in terms of overall international titles (18 equal to Boca Juniors). Moreover, two other Italian teams, Inter Milan and Juventus, are among the top ten winners of the Champions League with three and two titles respectively.

The quality of Italian *Serie A* reflects also in the fact that, in the context of competition among national teams, Italy won the football World Cup four times (1934, 1938, 1982 and 2006), in that second only to Brazil with five titles.

Serie A was first created in 1898 with the participation of only two teams, Genoa and Torino. The football club that won the most is Juventus with 29 national titles, followed by the two teams from the city of Milan, AC Milan and Inter Milan (Internazionale) with 18 titles each. In its more than secular history, *Serie A* had different numbers of participating teams, 16 or 18 for example, and only starting with the season 2004–05 it has adopted the current organisation with 20 teams.

Starting with the season 1994–95, and following a harmonisation of rules run by UEFA (Union of European Football Associations), *Serie A* adopted the typical English system of points by giving 3 point to each victory, 1 point to a draw and no points for a loss. The championship is played within the regular season only (no playoffs) and the winning team is the one able to collect most points. The three teams ranked lowest are relegated to the second division *Serie B*. The access to the next European competitions (Champions League and Europa League) depends not only on the positioning at the end of the season, but also on a very complex UEFA ranking system that allocates available seats to teams of the same nation based on the performances of the previous years. At the end of season 2012–13, the three teams ranked highest were admitted to the Champions League, while the teams from the 4th to the 6th position were admitted to the Europa League.

Teams in the *Serie A* competition can hire without limits both Italian and EU players. Some limitations exist for the players coming from outside the European Union. These limitations have frequently changed over the past ten years. In the season 2007–08, it was decided that only one non-EU player could be transferred from abroad under the conditions that another non-EU player playing for the same team had to be transferred abroad. The only derogation was for the three promoted teams from the second division *Serie B* for which a maximum of three non-EU players was allowed for each team.

Dataset

All the data used for this research stems from a secondary source. The main origin of the data is *La Gazzetta dello Sport*, the daily newspaper most sold in Italy, also well known as *il foglio rosa* (‘the pink page’). Over the period taken into examination (2008–10), we collected

from the paper and its online site, elements typical of each player and of each team (more than 400 players in total for each season). Elements for players included: the team, the role, the number of matches played, the salary, the length of the contract, the number of goals scored (and goals scored against for goalkeepers only), the number of assists provided, the number of yellow and red cards received, and the value of the player that changes every week according to the performance provided in the framework of a game (*Il Fantacalcio*, the equivalent of the Fantasy Football) available to readers of *La Gazzetta dello Sport*. In addition, for each player the average of his season performance is also available through two scores: one with and one without the bonuses (+1 per assist; +3 per goal; -0.5 per yellow card; -1 per red card; and -1 per each goal conceded – applicable to goalkeepers only). This is the average of the grade (from 0 the lowest, to 10 the highest, +/- bonuses) given by newspaper journalists to each player playing a match. Age and nationality of each player were collected from the *Almanacco del Calcio Italiano*.

Measures

Dependent variable. Our dependent variable individual performance is available in the secondary dataset and captures the average of the season (2009–10) performance assessment (with bonuses) of the player by the newspaper. The use of composite indexes developed by specialized journalists is suggested by Frick (2007) in order to be able to capture the different dimensions of football players' performance, while existing literature tends to adopt performance measures only based on the number of assists or goals scored (e.g., Lucifora and Simmons 2003; Torgler and Schmidt, 2007; Kuethe and Motamed, 2010). This measure incorporates quantitative elements (goals, assists, red and yellow cards), but also the assessment of the performance according to the observing journalists. A better way to capture the effects of pay structure on individuals would be a measure of the level of effort that the players put into the job (rather than their performance), given that final performance could be influenced by other factors such as, for example, the teammates' performance or the physical health of the player. However, capturing the players' effort proves particularly difficult in this type of context. In business organizations, a proxy commonly used is the propensity of the employees to be absent from work (e.g., Van Yperen *et al.*, 1996; Dineen *et al.*, 2007), while in golden teams absenteeism is not a viable strategy for the players (as discussed above).

In order to have an indication of the content validity of our dependent variable measure, we correlated this measure with the monetary value attributed by *La Gazzetta dello Sport* in the framework of *Il Fantacalcio*. This is a highly popular, free online game on the Italian *Serie A* tournament that reflects how much football fans

value the performance of each player. The correlation between the individual performance measure used in this study and the monetary value attributed to players in this online game amounts to a strong 0.57 ($p < 0.001$).

Independent and intermediate variables. The variable absolute pay level refers to the net salary (million euro) received by the player in the playing season 2009–10. Relative pay level expresses the salary received by the player in 2009–10 relative to the total amount of salaries paid out by the player's team in that season to all players in a given role. Inspired by the CEO pay slice measure of Bebchuk *et al.* (2011), it thus represents the share (%) the individual player had in 2009–10 in the total sum of salaries of all players within the same role (defender, attacker, etc.) within the team.

To measure pay dispersion (of absolute and relative pay) we turned to a commonly used measure: the absolute (relative) pay level coefficient of variation (Trevor *et al.*, 2012). This coefficient is calculated by dividing the within-role-within-team 2009–10 absolute (relative) pay level standard deviation by its mean level.

Control variables. As control variables we include the players' role (goalkeeper (1), defender (2), midfielder (3) and attacker (4)), age and his previous individual performance in season 2008–09. These controls were suggested by previous empirical findings on the pay-performance relationship in team sports (Harder, 1992; Bloom, 1999; Torgler and Schmidt, 2007; Montanari *et al.*, 2008). The non-linear effects of age (Torgler and Schmidt, 2007 found evidence about such effects) and pay dispersion (Brown *et al.*, 2003; Trevor *et al.*, 2012) were tested but we found no significant relationships and therefore we excluded them from the models. Role will be analysed through corresponding dummy variables with the defender role as reference category. We also controlled for the contractual years left at the start of the current playing season (deadline contract). Team-related control variables included are the team's size (number of players it employs), its rank in the previous competition year, its ratio of international (non-Italian) players and the lump sum of salaries paid (million euro) to all team players. All of these variables can affect the (assessment of) the players' performance.

Analysis

We use hierarchical moderated regression to test our hypotheses. The hierarchical approach permits groups of variables to be added to the model step-by-step, starting with the control variables. This approach is particularly appropriate when analysing potentially correlated independent variables and/or when investigating multiplicative terms (Cohen and Cohen, 1983). The main variables have been mean centred to avoid problems of multicollinearity.

Table 1 Regression analyses for H1a, H1b and H2

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Previous individual performance	0.29** (0.32; 0.07)	0.28** (0.31; 0.07)	0.26** (0.29; 0.07)
Age	0.01 (0.00; 0.00)	−0.02 (−0.00; 0.00)	−0.05 (−0.00; 0.00)
Deadline contract (years)	−0.02 (−0.00; 0.01)	−0.03 (−0.01; 0.01)	−0.05 (−0.01; 0.01)
Goalkeeper	0.21** (0.21; 0.06)	0.20** (0.19; 0.06)	0.08 (0.08; 0.08)
Midfielder	0.08† (0.05; 0.04)	0.08 (0.04; 0.04)	0.10† (0.06; 0.04)
Attacker	0.12* (0.08; 0.04)	0.10* (0.07; 0.04)	0.08 (0.05; 0.04)
Team international player ratio	−0.06 (−0.11; 0.13)	−0.06 (−0.11; 0.13)	−0.05 (−0.10; 0.13)
Team salary lump sum	0.08 (0.00; 0.00)	0.01 (0.00; 0.00)	0.10 (0.00; 0.00)
Team size	−0.11* (−0.02; 0.01)	−0.11* (−0.02; 0.01)	−0.11* (−0.02; 0.01)
Team rank (previous year)	−0.11† (−0.01; 0.00)	−0.11† (−0.01; 0.00)	−0.10† (−0.01; 0.00)
Absolute pay level		0.13* (0.04; 0.02)	0.01 (0.00; 0.02)
Relative pay level			0.22* (0.06; 0.03)
R ²	0.21	0.22	0.23
Adj. R ²	0.18	0.19	0.20
F	7.81**	11.33**	16.32**
Δ F	7.81**	3.52†	4.99*

Figures in table are standardized regression coefficients; unstandardized coefficients and standard errors in parentheses.

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$ (1-tailed).

N = 311.

linearity when creating the interaction effect to test the moderation hypothesis. We further monitored the variance inflation factors (VIFs) to check the possible occurrence of multicollinearity in our analyses. All VIFs recorded remain well below the proposed threshold of 10 (Belsley *et al.*, 1980).

Results

Appendix A lists detailed information on the descriptives of and on the bivariate correlations among the study's variables.

In order to test our hypotheses we ran several regression models. We start with presenting the results of the models used to assess Hypotheses 1a, 1b and 2. Specifically for this model, we standardized the independent variables absolute and relative pay level so that the effect of both can be adequately compared. In a first step (model 1) we introduce the control variables. In model 2 the absolute pay level is introduced as an independent variable. In the third Model we additionally introduce relative pay level. All models are displayed in Table 1.

Model 2 of Table 1 shows that absolute pay level is positively and (weakly) significantly related to individual performance. When relative pay level is introduced, however, absolute pay level is no longer significantly linked to individual performance, meaning that it does not explain any performance variance over and above the relative pay level. Hypothesis 1a can therefore not be fully confirmed. Model 3 illustrates that hypothesis 1b predicting a positive relationship between the relative pay level and individual performance is confirmed. As in Model 3 the coefficient of the absolute pay level is no longer significant whereas that of relative pay level is, we also find support for Hypothesis 2.

The next models presented allow us to assess the support for Hypotheses 3a, 3b, 4a and 4b. We first look at the models focusing on absolute pay level and absolute pay level dispersion (models 4–6), listed in Table 2. For the initial model containing only the control variables we refer to model 1. In model 4 we observe a positive and significant linkage between the absolute pay level and individual performance. In model 5, upon the introduction of the absolute pay level dispersion, the regression coefficient of absolute pay level is (barely) insignificant ($p = 0.107$), however. Further, in models 5 and 6, the coefficient of absolute pay dispersion is positive and significant, going against Hypothesis 3a that predicted a negative linkage. Finally, in model 6 we add the interaction effect between the absolute pay level and its dispersion. The interaction effect is significant. For its interpretation we refer to Figure 2, which displays the interaction graphically. The figure shows that for all levels of absolute pay dispersion the relationship between absolute pay level and individual performance is positive. However, the positive linkage is the strongest for players active in a team characterized by a low degree of absolute pay dispersion and the weakest for those players in a team with high absolute pay dispersion. This confirms Hypothesis 4a.

Finally, we also look at models with a build-up similar to models 4 to 6 but focusing on relative pay level and relative pay level dispersion (models 7–9). These are listed in Table 3. In models 7–9 we observe a positive and significant linkage between the relative pay level and individual performance. Models 8 and 9 show that relative pay level dispersion is positive and significantly related to individual performance which goes against Hypothesis 3b (negative linkage). To conclude, model 9 shows that the interaction between relative pay level and its dispersion is significant. Figure 3 reveals that

Table 2 Regression analyses for H3a and H4a

	<i>Model 1</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>
Previous individual performance	0.29** (0.32; 0.07)	0.28** (0.31; 0.07)	0.29** (0.32; 0.07)	0.29** (0.32; 0.07)
Age	0.01 (0.00; 0.00)	-0.02 (-0.00; 0.00)	-0.00 (-0.00; 0.00)	-0.02 (-0.00; 0.00)
Deadline contract (years)	-0.02 (-0.00; 0.01)	-0.03 (-0.01; 0.01)	-0.02 (-0.01; 0.01)	-0.04 (-0.01; 0.01)
Goalkeeper	0.21** (0.21; 0.06)	0.20** (0.19; 0.06)	0.14** (0.14; 0.06)	0.15** (0.15; 0.06)
Midfielder	0.08† (0.05; 0.04)	0.08 (0.04; 0.04)	0.06 (0.03; 0.04)	0.05 (0.03; 0.04)
Attacker	0.12* (0.08; 0.04)	0.10* (0.07; 0.04)	0.04 (0.03; 0.04)	0.02 (0.01; 0.04)
Team international player ratio	-0.06 (-0.11; 0.13)	-0.06 (-0.11; 0.13)	-0.04 (-0.08; 0.13)	-0.04 (-0.07; 0.13)
Team salary lump sum	0.08 (0.00; 0.00)	0.01 (0.00; 0.00)	0.01 (0.00; 0.00)	-0.06 (-0.00; 0.00)
Team size	-0.11* (-0.02; 0.01)	-0.11* (-0.02; 0.01)	-0.15** (-0.03; 0.01)	-0.14* (-0.02; 0.01)
Team rank (previous year)	-0.11† (-0.01; 0.00)	-0.11† (-0.01; 0.00)	-0.08 (-0.00; 0.00)	-0.05 (-0.00; 0.00)
Absolute pay level		0.13* (0.03; 0.01)	0.09 (0.02; 0.01)	0.22* (0.04; 0.03)
Absolute pay dispersion			0.16** (0.22; 0.09)	0.18** (0.24; 0.09)
Absolute pay level x absolute pay dispersion				-0.13† (-0.05; 0.03)
R ²	0.21	0.22	0.23	0.24
Adj. R ²	0.18	0.19	0.20	0.20
F	7.81**	11.33**	17.86**	19.60**
Δ F	7.81**	3.52†	6.53*	1.74

Figures in table are standardized regression coefficients; unstandardized coefficients and standard errors in parentheses.

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$ (1-tailed).

N = 311.

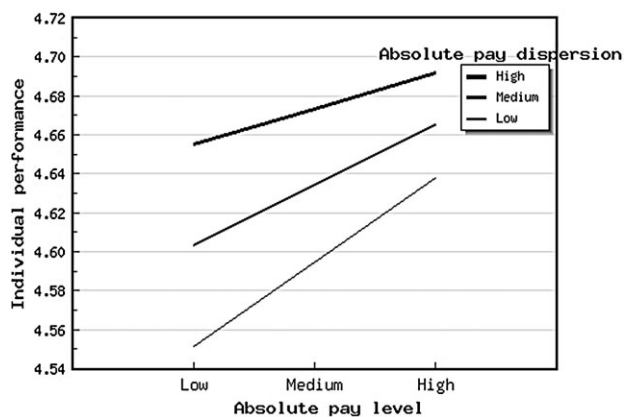
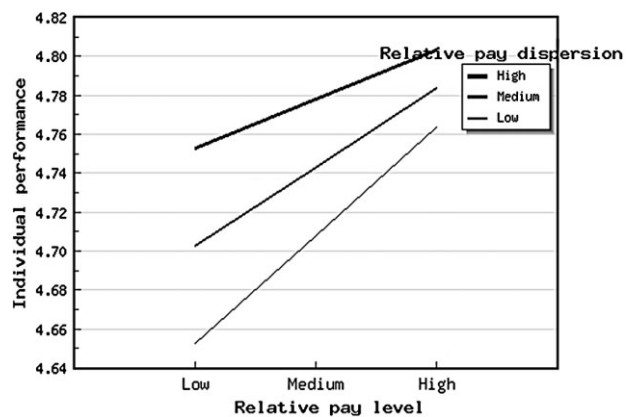
Table 3 Regression analyses for H3b and H4b

	<i>Model 1</i>	<i>Model 7</i>	<i>Model 8</i>	<i>Model 9</i>
Previous individual performance	0.29** (0.32; 0.07)	0.26** (0.29; 0.07)	0.27** (0.30; 0.07)	0.27** (0.30; 0.07)
Age	0.01 (0.00; 0.00)	-0.05 (-0.00; 0.00)	-0.03 (-0.00; 0.00)	-0.03 (-0.00; 0.00)
Deadline contract (years)	-0.02 (-0.00; 0.01)	-0.05 (-0.01; 0.01)	-0.04 (-0.01; 0.01)	-0.05 (-0.01; 0.01)
Goalkeeper	0.21** (0.21; 0.06)	0.08 (0.08; 0.07)	0.04 (0.04; 0.07)	-0.01 (-0.01; 0.08)
Midfielder	0.08† (0.05; 0.04)	0.10† (0.06; 0.03)	0.08 (0.04; 0.03)	0.07 (0.04; 0.03)
Attacker	0.12* (0.08; 0.04)	0.08 (0.05; 0.04)	0.02 (0.01; 0.04)	-0.02 (-0.01; 0.04)
Team international player ratio	-0.06 (-0.11; 0.13)	-0.05 (-0.10; 0.13)	-0.04 (-0.07; 0.13)	-0.03 (-0.05; 0.13)
Team salary lump sum	0.08 (0.00; 0.00)	0.10 (0.00; 0.00)	0.08 (0.00; 0.00)	0.08 (0.00; 0.00)
Team size	-0.11* (-0.02; 0.01)	-0.11* (-0.02; 0.01)	-0.14* (-0.03; 0.01)	-0.14* (-0.03; 0.01)
Team rank (previous year)	-0.11† (-0.01; 0.00)	-0.10† (-0.01; 0.00)	-0.07 (-0.00; 0.00)	-0.06 (-0.00; 0.00)
Relative pay level		0.22** (0.42; 0.14)	0.19** (0.36; 0.14)	0.28** (0.54; 0.17)
Relative pay dispersion			0.16** (0.21; 0.08)	0.21** (0.28; 0.09)
Relative pay level x relative pay dispersion				-0.13* (-0.54; 0.31)
R ²	0.21	0.23	0.25	0.25
Adj. R ²	0.18	0.20	0.22	0.22
F	7.81**	16.39**	22.77**	25.87**
Δ F	7.81**	8.58**	6.38*	3.10†

Figures in table are standardized regression coefficients; unstandardized coefficients and standard errors in parentheses.

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$ (1-tailed).

N = 311.

**Figure 2** Interaction absolute pay level – absolute pay dispersion.**Figure 3** Interaction relative pay level – relative pay dispersion.

the interpretation of this effect is in fact quite similar as the one of Figure 2 and that Hypothesis 4b receives support.

Discussion

In this paper we offer some new elements to the literature on the effects of pay structures on performance. First, we analysed individual rather than collective performance in team settings, and we operationalized it by mixing an objective measure and a subjective appreciation of performance (against purely quantitative measures such as points, yards, goals or innings adopted by previous management studies in the sport contexts). Second, we considered both absolute and relative pay structures, adopting measures for relative pay structures at the within role-within team level. Third, together with the direct relationships between pay level, pay dispersion and performance, we also tested for the moderating role of pay dispersion in the relationship between pay level and performance. Finally, we used an unexplored research context, namely, golden teams in the Italian *Serie A* football league.

In the following subsections, we first present the theoretical contribution of our study, followed by the managerial implications. Regarding the latter, we present the managerial implications for the golden sport industry directly coming from the results of our analysis, and then we discuss the issue of the extendibility of our findings to non-sport organisations.

Theoretical contribution

Recently, Downes and Choi (2014) raised a call for the adoption of integrated theoretical approaches to the study of the effects of pay structures on performance (see also Gupta *et al.*, 2012). In this paper, we adopted different theoretical perspectives in order to advance the understanding of the effects of pay levels and pay dispersion on individual performance.

Our results offer interesting insights in terms of how different compensation theories work in golden teams contexts. First, pay levels are confirmed to be significantly and positively related to individual performance (Levine, 1993; Bloom, 1999; Brown *et al.*, 2003; Trevor *et al.*, 2012). However, while absolute and relative (within role-within team) pay levels show a positive relationship with individual performance when they are separately considered, it is only the relative level of pay that is significantly related to performance when they are jointly considered. At the theoretical level, this means that, in work settings characterized by very high pay, horizontal equity processes (i.e., the comparison between one's level of pay and that of him/his colleagues that are in the same role) seem to work better than efficiency wage

theories in explaining employees reactions to pay policies. In other words, the reaction of the employees to pay level policies is contingent upon their position in the team's pay distribution within role rather than upon their position with regard to teammates that performs a different task or upon the market pay line.

Second, our results confirm that pay dispersion (absolute or relative) cannot be interpreted through universalistic lenses (Guthrie, 2007); its effects are not good or bad in absolute terms. While similar studies found evidence for the negative influence of pay dispersion on individual and team performance (Bloom, 1999; Depken, 2000; Siegel and Hambrick, 2005; Fredrickson *et al.*, 2010), our results suggest that in golden team settings a high variance in the pay levels of players of the same team and in the same role (as well as high variance in absolute pay levels of the whole team) may incentivize players to perform better, no matter whether they are in the high or in the low section of the pay distribution. This result can be explained with the performance-based structure of pay in sport golden teams (Harder, 1992; Montanari *et al.*, 2008). By integrating equity, expectancy and tournament theory, Gupta *et al.* (2012: 110) proposed that 'horizontal pay variation leads to higher performance when (a) employees value pay, (b) see performance as achievable, and (c) see strong positive links between performance and pay'. Our results represent a first support for this proposition showing that, in golden teams, equity theory predictions alone are not enough to fully explain the processes through which pay structures affect performance.

Third, the need for an integrated theoretical approach is confirmed when the interaction between pay levels and pay dispersion are considered. For both absolute and relative pay structures, pay dispersion reduces the positive effects of pay levels on individual performance (though the interaction effect is stronger for relative pay structures). Such findings are consistent with those by Brown *et al.* (2003) who found that, at the organizational level, pay levels moderate the relationship between pay dispersion and performance. To our knowledge, our study is the first to consider the moderating role of pay dispersion. The presence of such an effect in golden teams demonstrates that while pay dispersion *per se* incentivizes employees to perform better, when it interacts with pay level it seems that it has a substitution effect on pay levels (see Figures 2 and 3). At high levels of pay dispersion, low pay levels are associated with much higher performance levels than at low levels of pay dispersion. As a consequence of such a substitution effect, the relationship between pay level and performance is weaker at high levels of pay dispersion. Therefore, we can conclude that the positive effects of pay level and pay dispersion on individual performance are not additional, rather they have diminishing

marginal effects when jointly considered. This is an interesting finding for compensation theories. In settings where pay is, at least in part, performance-based, pay dispersion has a substitution effect on pay levels in motivating individuals to perform better.

Managerial implications for sport golden teams

Some interesting managerial implications for sport golden teams come from the results of our study. Our findings clearly suggest that football players, while considering their level of salary, show to have a different mind-set depending on whether they look only internally at their organisation, whether they compare their salary with the market level, or whether they do both.

In the latter scenario, footballers take into account the ability of their team to pay before making a judgement about their level of pay. Consistent with the social comparison theory (Festinger, 1954), we might argue that players tend to compare their pay in relation to their level of performance within their organisation (same team and same role), rather than with the rest of the market. In other words, this means that players who are better paid in the framework of the same team and same role tend to perform better. This implies that, more than paying top salaries, teams should therefore focus on the effective distribution of the lump sum they already have at their disposal. This implication is also supported by Ribeiro and Lima (2012: 602) who, upon analysing the Portuguese Football League, found that 'some clubs are spending more on wages than they should, given that the more spending does not translate into efficient use of resources in every case'. Interestingly, smaller clubs seem to get more out of their resources than larger clubs that spend more on players and achieve top position in the league. This implication is particularly catchy for managers of sport golden teams. In such a context, considering player pay in relative terms, in fact, enabled us to control for the so called 'ability to pay' of the team (i.e., the amount of money the team can spend for players' pay) somehow compensating the fact that in the Italian *Serie A* the salary cap limiting the salary amount of players does not exist as it is in the top US team sports.² All in all, therefore, the difference in absolute terms between the pay of a defender playing for a top team (Juventus, for example), and the pay of another player playing for a team that habitually struggles not be relegated in the lower division *Serie B* (Atalanta, for example), should not have any impact on the individual performance if relative pay level within same role and same team is in the picture.

²UEFA recently introduced the financial fair play which links the revenues of clubs to their expenditures establishing limitations to debts. This measure, however, was not effective in the seasons of the dataset (2008–10).

Our study also shows that when football players consider their compensation in absolute terms, both the fact of receiving higher pay and that of the existence of higher pay dispersion in the market predict higher individual performance. Although it may sound unexpected, in a context of professional football, where the perception of making much more money is realistic, the fact of enhancing a remuneration policy that might determine some absolute significant differences in terms of pay is something that can have a positive effect on individual performances. However, when the pay differences among players in the market are higher, the effect of absolute pay will be less strong on the individual performance of a player (see Figure 2), given that they are already incentivized by the higher level of pay dispersion in the market. The same phenomenon emerges when players consider pay level and pay dispersion in relative terms only within the same role and the same team (see Figure 3). Managers of sport golden teams should therefore realize that the effects of higher pay levels and higher pay dispersion don't merely add to each other. The positive returns to invest in higher pay levels in a situation of high pay dispersion are partially reduced by the incentive effect of pay dispersion. However, in the situation of lower pay dispersion, increasing the level of pay has a stronger effect on the individual performance of players.

All in all, when football players consider both pay level and pay dispersion distinctly in absolute or relative levels, the same kind of relationships emerge. When, instead, footballers consider at the same time absolute and relative pay level, only the latter plays a role in the relation with individual performance.

Finally, a question that remains open is how pay dispersion, that should incentivize individualistic behaviour of players, relates to team performance. Franck and Nüesch (2011) found evidence that highly pay dispersed teams reach as high performance as teams with high compressed wage structure do. What differs is the way the performance is achieved: in highly pay dispersed teams, performance is achieved not only through individual behaviours of certain players (i.e., they are more likely to try to finalize the actions), but also through the overall way of playing centred on those highly paid and highly performing players. The problem is that this might be a quite risky strategy for teams given that in their absence (injuries or lack of top physical conditions), the team ends up in not having alternative ways of playing, therefore suffering from the fact that the overall performance of the team is too dependent from the performance of the highly paid and performing players.

Context and extendibility of findings

Sports are increasingly considered as an ideal research setting to test hypotheses derived from organizational

theories. Among these, compensation systems may be considered as the topic that has received most attention (e.g., Harder, 1992; Bloom, 1999; Werner and Mero, 1999; Trevor *et al.*, 2012). This occurs because of the commonly acknowledged advantages that team sports offer in terms of research context: wages; relevant individual and team characteristics; and clear measures of individual and collective performance are available and easily accessible over time in various sport team settings. At the same time, however, sport also presents some relevant limits in terms of generalizability of the findings to non-sport organizations. These include, for example, the above mentioned golden pay, the size and the homogeneity in the composition of the team in terms of age, gender, and (strongly developed) skills and the competitiveness of the market. Surprisingly enough, Wolfe *et al.* (2005) reviewed 18 management articles that adopted a sport research context and found that the issue of the generalizability of the results was addressed to greatly varying extents, with a number of studies that did not address it at all.

A very useful contribution to understand (and overcome) the limits of extendibility of sport contexts is the theoretical sports-model framework developed by Keidel (1987). He defined team sports as a 'living laboratory for organizational inquiry' because, together with the above mentioned advantages, they also offer 'archetypal organizational designs'. After comparing the three major American sports (baseball, American football and basketball), Keidel concluded that basketball can be considered a normative (i.e., superior) organizational model with respect to baseball and American football, because its organizational design is more similar to the proposed model of successful non-sport organizations than that of American football or baseball. From this point of view football (soccer) seems more similar to basketball than to baseball and American football: 'What soccer and basketball have in common – and what sets them apart from [American] football and baseball – is an emphasis on the horizontal dimension, on shared decision-making. Soccer and basketball place a premium on the capacity of players to coordinate themselves as a unit while play is in progress. The coach serves as a facilitator' (Keidel, 1986: 122).

Notwithstanding these similarities between basketball and football, North American team sports also differ from football on relevant institutional and market characteristics, such as the presence of a salary cap, the status of free-agent of some players, the role of sponsors and the heterogeneity of the market value among teams competing in the same league (Frick, 2007). These differences have a great impact on the structure of wages and on its relationship with individual and team performance. As an example, Hall *et al.* (2002) tested the direction of the relationship between pay and performance in the American Major League Baseball and in

the English Premier League and found no evidence that the relationship runs from payroll to performance in the MLB, while such direction was confirmed in English football. They commented on these differences with institutional arguments: 'Restrictive agreements that limit player spending, player mobility, roster sizes, the right to trade players, and so forth have made it less likely that teams can fully use their financial muscle to buy success in baseball. The absence of any of these restrictions in English football makes it more likely that teams can buy success' (Hall *et al.* 2002: 165). Therefore, football provides a research setting that, in terms of extendibility of the results to non-sport organizations, can overcome some of the institutional limits of the American sports, while also representing a model of a modern and successful firm with the same advantages of American sports in terms of availability of large datasets, clarity of individual and team performance and transparency among teammates about others' performance and pay level.

The managerial implications developed in the precedent section for sports might therefore be extended, up to a certain extent, to other contexts characterized by the presence of group of workers, generally executive or senior managers, having high skills and receiving high compensation (golden teams). Some industries like merchant banking and financial services usually have golden teams, but the same happens for the most capitalized companies worldwide, regardless of the specific industry.

However, the complexity of non-sport business contexts usually comes from the fact that members of golden teams, in comparing their salaries in the market, may not only refer to companies operating in the same sector, but also to other more remunerating contexts. In fact, the higher the position (in general), the less relevant the specific knowledge of technicalities of the sector is, and therefore the higher the mobility across sectors will be. On the opposite, we might assume that for lower positions with higher level of specialisation, companies will be less concerned with the comparison with the external market given the lower tendency of employees to change sector.

Study limitations and additional research

Following the methods used by many companies to assess performance in terms of results and behaviours, we adopted a way to measure the dependent variable individual performance of the player that was never previously used in sports research setting. The literature on pay and performance in the sport industry is particularly rich in those sports in which quantitative proxies are used in order to measure the performance of each player. This is the case, for example, of touch downs and yards run for American football, bases and

innings for baseball, and points and savings for basketball. In football, however, besides assists and goals, which are more relevant for the more offensive role a player can be in (very relevant for a forward, not at all for a goalkeeper), no other measures in research have practically been used at the individual level to complement those measurable at the team level (season ranking and won trophies). To cope with this problem, in our study we have used the seasonal average grade given by *La Gazzetta dello Sport* to each player as a proxy for the measurement of individual performance. The average grade (from 0 to 10) is the result of a collection of different perceptions coming from different journalists watching the games over the same season which includes a quantitative dimension in extra-points linked to the number of goals, assists, etc. This way of measuring is somehow consistent with the way performances are assessed in business organisations according to measurement of results and the adequacy of behaviours. After all, this is the most popular and accepted way used by experts to assess individual football player performance at the end of each game.

Still, our research presents several limitations mainly linked to the dataset. First, the data regarding the salary of football players is of secondary nature. Although the source is of high reliability, the direct collection of the data from the clubs would have been a better option. However, after direct and indirect investigation, experienced football journalists explained that clubs of *Serie A* are very reluctant to directly diffuse information on the salary panel of their players, but rather they prefer to delegate the publishing to a couple of very famous sports newspapers such as *La Gazzetta dello Sport*. Second, the same data about pay does not take into account the additional remuneration coming from sponsors and the image rights. Although this is a portion of the pay which is significant for a reduced number of star players only, it may have played a role and therefore its absence represents a limitation of the study. At the moment this problem cannot be solved because this type of extra remuneration is sometimes regulated by the team, for example, when players release the image rights in favour of the club, while in other circumstances by the player when the image rights are retained. Third, the transfer of players abroad does not allow developing a study of more longitudinal nature over several consecutive seasons due to the lack of consistent data. Fourth, although our relative pay measure takes into account direct pay comparison and can be embedded more firmly in existing literature, we acknowledge also that this measure is not universally recognized. Further and related, we cannot entirely rule out a measurement problem associated with absolute and relative pay. Future research, employing different measures of in particular relative pay, is to bring clarity on these measures related issues.

Besides the fact of overcoming the above mentioned limitations, a direction for future research may be found in the finding that, in our research, among several control variables tested, the individual performance of the previous year showed to have an effect on the level of performance of the current year. This confirms that professional team sports can be considered as pay-for-performance contexts (Harder, 1992; Montanari *et al.*, 2008). This link should be more exploited by compensation scholars that aim to increase our understanding of the pay-performance relationship. Together with the advantages that such contexts offer, however, future studies should try to develop comparative analyses between sport-context and golden teams in non-sport organisations in order to explore further the level of similarity and therefore the extent to which results of one context can be extended to the other one.

References

- Adams, J. S., 1963, "Toward an understanding of inequity". *Journal of Abnormal Psychology*, **67**: 422–436.
- Adams, J. S., 1965, "Inequity in social exchange". In Berkowitz L (eds.) *Advances in experimental social psychology*. New York: Academic Press, pp. 267–299.
- Batt, R., 2002, "Managing customer services: Human resource practices, quit rates, and sales growth". *Academy of Management Journal*, **45**: 587–597.
- Bebchuk, L. A., M. K. J. Cremers and U. C. Peyer, 2011, "The CEO pay slice". *Journal of Financial Economics*, **102**: 199–221.
- Becker, B. E. and M. A. Huselid, 1992, "The tournament effects of tournament competition systems". *Administrative Science Quarterly*, **37**: 336–350.
- Belsley, D. A., E. Kuh and R. E. Welsch, 1980, *Regression diagnostics: Identifying influential data and sources of collinearity*. New York: Wiley.
- Bloom, M., 1999, "The performance effects of pay dispersion on individuals and organizations". *Academy of Management Journal*, **42**: 25–40.
- Bloom, N. and J. C. Michel, 2002, "The relationships among organizational context, pay dispersion, and managerial turnover". *Academy of Management Journal*, **45**: 33–42.
- Brandes, L. and E. Franck, 2012, "Social preferences or personal career concerns? Field evidence on positive and negative reciprocity in the workplace". *Journal of Economic Psychology*, **33**: 925–939.
- Brown, M. P., M. C. Sturman and M. J. Simmering, 2003, "Compensation policy and organizational performance: The efficiency, operational, and financial implications of pay levels and pay structure". *Academy of Management Journal*, **46**: 752–762.
- Carpenter, M. A. and G. Sanders, 2002, "Top management team compensation: The missing link between CEO pay and firm performance?" *Strategic Management Journal*, **23**: 367–375.
- Carrell, M. R. and J. E. Dittrich, 1978, "Equity theory: The recent literature, methodological considerations, and new directions". *Academy of Management Review*, **3**: 202–210.

- Cohen, J. and P. Cohen, 1983, *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Conyon, M. J., S. I. Peck and G. V. Sadler, 2001, "Corporate tournaments and executive compensation: Evidence from the UK". *Strategic Management Journal*, **22**: 805–815.
- Cowherd, D. M. and D. I. Levine, 1992, "Product quality and pay equity between lower-level employees and top management: An investigation of distributive justice theory". *Administrative Science Quarterly*, **37**: 302–320.
- Depken, C. A., 2000, Wage disparity and team productivity: Evidence from Major League Baseball. *Economic Letters*, **67**: 87–92.
- Dineen, B. R., R. A. Noe, J. D. Shaw and C. Wiethoff, 2007, "Level and dispersion of satisfaction in teams: Using foci and social context to explain the satisfaction-absenteeism relationship". *Academy of Management Journal*, **50**: 623–643.
- Downes, P. E. and D. Choi, 2014, "Employee reactions to pay dispersion: A typology of existing research". *Human Resource Management Review*, **24**: 53–66.
- Dulebohn, J. H. and S. E. Werling, 2007, "Compensation research past, present, and future". *Human Resource Management Review*, **17**: 191–207.
- Festinger, L., 1954, "A theory of social comparison processes". *Human Relations*, **7**: 117–140.
- Forrest, D. and R. Simmons, 2000, "The relationship between pay and performance: Team salaries and playing success from a comparative perspective", Paper presented at the Conference on Economics of Professional Soccer, Berlin: Deutsches Olympisches Institut, 2 June.
- Franck, E. and S. Nüesch, 2011, "The effect of wage dispersion on team outcome and the way team outcome is produced". *Applied Economics*, **43**: 3037–3049.
- Fredrickson, J. W., A. Davis-Blake and G. Sanders, 2010, "Sharing the wealth: Social comparisons and pay dispersion in the CEO's top team". *Strategic Management Journal*, **31**: 1031–1053.
- Frick, B., 2007, "The football players' labor market: Empirical evidence from the major European leagues". *Scottish Journal of Political Economy*, **54**: 422–446.
- Frick, B., J. Prinz and K. Winkelmann, 2003, "Pay inequalities and team performance. Empirical evidence from the North American major leagues". *International Journal of Manpower*, **24**: 472–488.
- Gerhart, B. and S. L. Rynes, 2003, *Compensation. theory, evidence, and strategic implications*. Thousand Oaks, CA: Sage.
- Gerhart, B., S. L. Rynes and I. S. Fulmer, 2009, "Pay and performance: Individuals, groups, executives". *Academy of Management Annals*, **3**: 251–315.
- Grund, G. and N. Westergaard-Nielsen, 2008, "The dispersion of employees' wage increases and firm performance". *Industrial and Labor Relations Review*, **61**: 485–501.
- Gupta, N. and J. D. Shaw, 2014, "Employee compensation: The neglected area of HRM research". *Human Resource Management Review*, **24**: 1–4.
- Gupta, N., S. A. Conroy and J. E. Delery, 2012, "Tha many faces of pay variation". *Human Resource Management Review*, **22**: 100–115.
- Guthrie, J. P., 2007, "Remuneration: Pay effects at work". In P. Boxall, J. Purcell and P. Wright (eds.) *The Oxford handbook of human resource management*. New York: Oxford University Press, pp. 344–356.
- Hall, S., S. Symanski and A. Zimbalist, 2002, "Testing for causality between team performance and payroll: The cases of major league baseball and English soccer". *Journal of Sports Economics*, **3**: 149–68.
- Harder, J. W., 1992, "Play for pay: Effects of inequity in a pay-for-performance context". *Administrative Science Quarterly*, **37**: 321–35.
- Heyman, F., 2005, "Pay inequality and firm performance: evidence from matched employer-employee data". *Applied Economics*, **37**: 1313–1327.
- Keidel, R. Q., 1986, "The soccer-basketball connection". *The New York Times*, July 17, A22.
- Keidel, R. Q., 1987, "Team sports models as a generic organizational framework". *Human Relations*, **40**: 591–612.
- Kepes, S., J. E. Delery and N. Gupta, 2009, "Contingencies in the effects of pay range on organizational effectiveness". *Personnel Psychology*, **62**: 497–531.
- Kuethe, T. H. and M. Motamed, 2010, "Returns to stardom: Evidence from US Major League Soccer". *Journal of Sports Economics*, **11**: 567–579.
- Lazear, E. and S. Rosen, 1981, "Rank order tournaments as optimal labor contracts". *Journal of Political Economy*, **89**: 841–64.
- Levine, D. I., 1993, "What do wages buy?" *Administrative Science Quarterly*, **38**: 462–483.
- Lucifora, C. and R. Simmons, 2003, "Superstar effects in sport: Evidence from Italian soccer". *Journal of Sports Economics*, **4**: 35–55.
- Milkovich, G. T., J. M. Newman and B. Gerhart, 2011, *Compensation*, 10th edn. New York: McGraw-Hill.
- Montanari, F., G. Silvestri and F. Bof, 2008, "Performance and individual characteristics as predictors of pay levels: The case of the Italian 'Serie A' ". *European Sport Management Quarterly*, **8**: 27–44.
- Pfeffer, J. and N. Langton, 1993, "The effect of wage dispersion on satisfaction, productivity, and working collaboratively: Evidence from college and university faculty". *Administrative Science Quarterly*, **38**: 382–407.
- Ribeiro, A. and F. Lima, 2012, "Portuguese Football League efficiency and players' wages". *Applied Economics Letters*, **19**: 599–602.
- Shaw, J. D., N. Gupta and E. I. Delery, 2002, "Pay dispersion and workforce performance: Moderating effects of incentive and interdependence". *Strategic Management Journal*, **23**: 491–512.
- Shaw, J. D., J. E. Delery, G. D. Jenkins, and N. Gupta, 1998, "An organizational-level analysis of voluntary and involuntary turnover". *Academy of Management Journal*, **41**: 511–525.
- Siegel, P. A. and D. C. Hambrick, 2005, "Pay disparities within top management groups: Evidence of harmful effects on performance of high-technology firms". *Organization Science*, **16**: 259–274.
- Simmons, R. and D. J. Berri, 2011, "Mixing the princes and the paupers: Pay and performance in the National Basketball Association". *Labour Economics*, **18**: 381–388.
- Torgler, B. and S. L. Schmidt, 2007, "What shapes player performance in soccer? Empirical findings from a panel analysis". *Applied Economics*, **39**: 2355–69.

- Trevor, C. O., G. Reilly and B. Gerhart**, 2012, "Reconsidering pay dispersions effect on the performance of interdependent work: Reconciling sorting and pay inequality". *Academy of Management Journal*, **55**: 585–610.
- Van Yperen, N. W., M. Hagedoorn and S. A. Geurts**, 1996, "Intent to leave and absenteeism as reactions to perceived inequity: The role of psychological and social constraints". *Journal of Occupational and Organizational Psychology*, **69**: 367–372.
- Werner, S. and N. P. Mero**, 1999, "Fair or foul?: The effects of external, internal, and employee equity on changes in performance of Major League Baseball players". *Human Relations*, **52**: 1291–1311.
- Werner, S. and S. G. Ward**, 2004, "Recent compensation research: an eclectic review". *Human Resource Management Review*, **14**: 201–227.
- Wolfe, R. A., K. E. Weick, J. M. Usher, J. R. Terborg, L. Poppo, A. J. Murrell, J. M. Dukerich, D. D. Core, K. E. Dickson and J. S. Jourdan**, 2005, "Sport and organizational studies. Exploring synergy". *Journal of Management Inquiry*, **14**: 182–210.
- Yellen, J.**, 1984, "Efficiency wage models of unemployment". *American Economic Review*, **74**: 200–205.

Appendix A Correlations and descriptives of the study's variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Individual performance	1															
2. Previous individual performance	0.38**	1														
3. Age	0.06	0.09	1													
4. Deadline contract (years)	0.05	0.24**	-0.47**	1												
5. Goalkeeper	0.23**	0.15**	0.11*	-0.04	1											
6. Midfielder	0.03	0.14**	-0.08	-0.02	-0.23**	1										
7. Attacker	0.05	0.05	-0.02	0.06	-0.16**	-0.41**	1									
8. Defender	-0.21**	-0.28**	0.03	-0.01	-0.21**	-0.54**	-0.37**	1								
9. Team international player ratio	0.09	0.19**	0.02	0.14**	-0.06	-0.01	0.03	0.02	1							
10. Team salary lump sum	0.15**	0.26**	0.18**	0.03	0.02	-0.00	-0.02	0.01	0.57**	1						
11. Team size	-0.09	-0.05	0.14**	-0.03	0.02	-0.01	0.02	-0.02	-0.01	0.39**	1					
12. Team rank (previous year)	-0.22**	-0.31**	-0.04	-0.05	-0.03	0.00	0.06	-0.04	-0.50**	-0.61**	-0.00	1				
13. Absolute pay level	0.23**	0.28**	0.27**	0.02	0.13*	-0.05	0.08	-0.10*	0.36**	0.63**	0.25**	-0.41**	1			
14. Absolute pay dispersion	0.25**	0.12*	0.02	0.02	0.28**	-0.11*	0.27**	-0.29**	0.07	0.28**	0.28**	-0.21**	0.38**	1		
15. Relative pay level	0.31**	0.25**	0.24**	0.03	0.64**	-0.30**	0.13**	-0.18**	-0.06	-0.02	-0.01	-0.02	0.45**	0.31**	1	
16. Relative pay dispersion	0.25**	0.12*	0.02	0.02	0.28**	-0.11*	0.27**	-0.29**	0.07	0.28**	0.28**	-0.21**	0.38**	1**	0.31**	1
Mean	5.90	5.95	27.76	2.78	0.08	0.37	0.22	0.33	0.40	22.40	22.49	9.46	1.05	0.47	0.19	0.47
Standard deviation	0.27	0.25	4.14	1.26	0.27	0.48	0.41	0.47	0.14	19.68	1.54	5.23	1.36	0.20	0.14	0.20

* $p < 0.05$; ** $p < 0.01$.

N = 311.