Does Stability Foster Team Performance?

A European Football (Soccer) Inquiry

Key Words: GROUP PERFORMANCE, TEAM STABILITY, MEMBERSHIP CHANGE, TEAM DYNAMICS, PROFESSIONAL FOOTBALL/SOCCER

Abstract

Does team stability promote performance? This archival research investigated the impact of player stability (vs. change) on the performance of professional football (soccer) teams in the English Premier League and in the Italian Serie A. As predicted, the more stable teams outperformed the less stable teams on a range of performance indicators (i.e., league ranking, aggregate points goals scored, goals conceded). These effects could not be attributed to other obvious factors such as the past performance or wealth of a team, average contract length or average player age. Additionally, manager stability exerts an independent, though weaker effect, on team performance. Discussion speculates about the benefits of stability in competitive team settings involving high levels of coordination and cooperation.

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> "There are always going to be times when things don't go the way you expected. But the wrong thing would be to panic and suddenly change everything. The best way is to stay calm."
>
> - Marcel Brands (Director AZ Alkmaar football club, Dutch Premier Division) commenting on a tricky spell for the club

Membership change is an inevitable part of any group's life cycle. Whether through personal choice, injury, illness or retirement sometimes an individual's group membership ends prematurely, forcing groups to look out for new members. Theorists in the social and organisational sciences have had a long-standing interest in the effects of membership change on groups and teams (Arrow & McGrath, 1995; Carley, 1991; Hackman, 1990; Hemphill, 1950; Moreland & Levine, 1982). Yet the empirical literature is still relatively modest with some notable exceptions (e.g., Argote, Insko, Yovetich, & Romero, 1995; Berman, Down, & Hill, 2002; Katz, 1982; Murnighan & Conlon, 1991).

Most experimental research concentrates on groups in which membership is held constant. Although this focus serves an internal validity purpose it undermines the ecological validity of group dynamics research, because most real-world groups have open rather than closed group boundaries (cf. Ziller, 1965). Take competitive team sports such as baseball, basketball, American football or European style football (which we focus on here).[1] Not only do teams often change players during matches players also frequently switch between teams in and during the league season (i.e., the “standing” team). For instance, of all the 529 players who started in the English Premier League in 2006/7 177 (33.5%) were first-timers at their club.

What is the impact of player stability (versus change) on team performance? Do teams with a high turnover perform less well than teams with a low turnover, or perhaps the reverse? How does a change in management or coaching staff affect team performance? We know little yet about the effects of such membership dynamics on the performance of natural groups such as sports teams. Applied research has mostly concentrated on the relationship between team cohesion and performance (e.g., Carron, 1982; Mullen & Copper, 1994). Although cohesion is an influential factor, and is probably related to team stability in some way, they are not the same (Arrow & McGrath, 1995; Carley, 1991), and we believe that issues of membership stability deserve a more independent inquiry.

Here we examine how team stability affects performance in professional football teams playing in two major European Leagues (the English Premier League and Italy’s Serie A). Professional football is an ideal environment for testing hypotheses concerning membership dynamics, first, because it is a team game involving high degrees of coordination and cooperation between the players. Second, at least in Europe, professional football is a volatile market with a substantial annual turnover in team players and managers; thus, there should be some variance in our measures. Third, performance data from competitive team sports (as opposed to, say, businesses) are reasonably objective and easy to compare, because one simply examines the league rankings and number of goals scored (or conceded) of different teams over a fixed time period (e.g., a season). Finally, due to the popularity of the game of football, team statistics are easy to get hold of through the internet and these datasets are nearly always complete.

Coordination and Motivation Gains Versus Losses in Sports Team Performances

Sports teams perform a myriad of different tasks, from physical to cognitive, and from planning to execution tasks (McGrath, 1964). These activities require players to work together and coordinate their efforts on behalf of their team. Team performance exceeds individual performance on many, if not most, tasks; nevertheless, teams often do worse than what they are capable of (Brown, 1999; Cartwright & Zander, 1968; Forsyth, 1999). Team performance deficiencies can be attributed to two common causes, coordination or motivation losses (Hackman & Morris, 1975; Kerr, 1983; Levine, Moreland, & Ryan 1998; Steiner, 1972).

Football teams consist of 11 players on the pitch (10 field players and a goal keeper) who must try to win matches by coordinating their activities to score more goals than an opposing team of 11 players. To achieve this objective each player must constantly monitor and evaluate their own position on the field and those of their co-players. Equally, they must have a good awareness of their own and their fellow players' abilities, weaknesses, and strengths --e.g., is Cristiano Ronaldo left- or right footed, is he quick or not so quick, should he get the ball in the foot or deep? To synchronize their activities teams develop, through training and playing matches, a shared knowledge and memory base, sometimes referred to as a transactive memory system (Wegner, 1995), which enables them to work together in the pursuit of team victory.

In addition, teams must motivate their players and try to minimize conflicts between them. Teams frequently face social dilemmas, activities in which the interests of individual players and the whole team are at odds (De Cremer & Van Vugt, 1999; Komorita & Parks, 1994). Whereas all team players profit, more or less equally, from a victory, each individual player is better off by free-riding on the efforts of others—for instance, not pulling their weight in matches or in training. Yet if many players do what is best for themselves their team is likely out-competed by rivals. Thus, most teams have mechanisms in place to motivate players to do their best and restrict opportunities for social loafing or free-riding (Kerr, 1983).

We hypothesize that team stability attenuates the coordination and motivation problems commonly observed in sports teams. First, when team members play together for a certain duration they may have had more opportunity to develop a transactive memory system that helps them coordinate and fine-tune their activities on the pitch. Having shared team experience enables players to use each other's expertise to the team's advantage—for instance, knowing which players are better at taking penalties, corners, or free-kicks. Second, there might be fewer opportunities to free-ride in more stable teams. When people have played for a team longer their personal interests and those of the team are more aligned and, as a result, they exhibit greater team commitment, team identification, willingness to punish free-riders, and, generally, a greater motivation to go the proverbial extra mile for their team (Van Vugt, 2001).

So far we have been concerned with team stability in terms of player turnover. What about the impact of a management transition? One argument is that it equals the departure of a normal player, and nothing more. However, there are reasons to believe that a managerial change might have wider ranging implications, perhaps similar to when political or business leaders leaves their organizations (Berman, Down, & Hill, 2002). Football managers select players and team tactics; they therefore have a disproportionate influence on team performance. In addition, football managers play a key role in motivating players and taking disciplinary action against disruptive players. Accordingly, if a manager were to leave (or be sacked) the costs might be substantially higher (Audas, Dobson, & Goddard, 2002).

Preliminary Evidence

Preliminary support for the stability-performance hypothesis comes from several lines of inquiry. Using archive data Berman et al. (2002) found that player stability (operationalized in terms of shared experience) enhanced the performance of professional basketball teams in the NBA. They attributed the superior performance to improvements in tacit team knowledge ("knowing who knows what") although this was not actually tested in their study. In another study on musical string quartets in Britain Murnighan and Conlon (1991) found that bands that had been together longer sold more CD's and attracted larger audiences at performances.

The social dilemma literature also suggests a positive relationship between team stability and performance. When team members have a sense of a shared future they contribute more (Axelrod, 1984; Rapoport & Chamah, 1965). Experimenters often observe a steep decline in team cooperation towards the latter parts of a game when individuals realize they are not going to be interdependent much longer (cf. endgame effect; Komorita & Parks, 1994; Murnighan & Roth, 1983). Using a public goods game Croson (1996) found that free-riding decreased when players could not switch between teams (but see Andreoni, 1988). Finally, research in the social identity tradition also suggests that stability improves group action via social identification. The argument is that when group boundaries are closed, group identification increases, and, as a result, individuals are more willing to engage in collective actions on their group's behalf (De Cremer & Van Vugt, 1999; Ellemers, Doosje, & Spears, 1997).

Together, these findings support the stability-performance effect. However, with the exception of the Berman et al. study (2002) there are, to our knowledge, no studies that have looked specifically at stability in the context of a competitive team sport like football. Furthermore, we know very little about the impact of a management change on team performance (Audas et al., 2002). Here we present the results of an archive analysis that was conducted on team data from the English Premier League, the English Second Division, and the Italian Serie A. We investigated the effects of player and manager stability on team performance and looked at some possible moderators of this relationship, such as past performance, team wealth, average contract length, and the average age of players.

Methods

Selection of Archives

Our primary archive analysis focused on the English Premier League, which many regard as the best and most exciting football league in the world. We anticipated a considerable degree of turnover in both players and managers within this league, given the competitiveness of the league, the wealth of the clubs involved, and the possibility of transferring players year round--the latter has changed: currently, clubs are only allowed to trade players during the summer and winter transfer periods. Additionally, there are many internet sites on the English Premier League and the relevant datasets were therefore easy to compile. After a brief inspection of available websites we decided to concentrate on two sites, titled “European football: Clubs and squads” (www.eufo.de/football/football.htm), which provided data on team players, their dates of birth, and when they were signed to their club, and “Soccerbase” (www.soccerbase.com), which provided data on league performance, manager stability, and transfers. From these websites we were able to extract complete datasets of nine consecutive seasons in the English Premier League soccer (seasons 1998/9 to 2006/7).

We created a stability index of each of the 20 teams in the Premier League at the start of each season. To test our hypotheses, we focused on the whole team, including all the squad players because these were the people who trained and practiced together, and from whom the manager would select 11 players for any particular match (for a similar procedure, see Berman et al., 2002). Throughout the league season most players in the squad would feature in the games. There are no restrictions in Premier League clubs on squad size so the number of players differs across clubs per season and within clubs over different seasons.

The stability index is simply expressed as the percentage (0-100%) of players who at the start of the league season were also playing for the same team at the beginning of the previous season (for an example, see Table 1).[2] In season 2002/3, Manchester United had a stability index of 67.9%, indicating that, at the start of season 2002/3, 19 out of their squad of 28 players were also with the club at the start of the previous year (2001/2). We created a separate variable to indicate whether the same manager was still in place (0= no change, 1 = change).

As performance indicators we used (1) the league ranking at the end of the season (1-20, with a lower number corresponding to a better performance), (2) the aggregate number of points gathered (per game, 0 = loss, 1 = draw, 3 = win) , (3) goals scored for, and (4) goals conceded at the end of the season. These performance indices are obviously strongly correlated. Table 1 contains a full dataset for season 2002/3. Additionally, we collected data on a number of potentially moderating factors that could affect the relationship between team stability and team performance, such as past team performance (i.e., ranking in previous season), average contract length, the wealth of a team, or the average age of the players.

Results

Team Stability

The mean player stability index for the teams across the nine seasons was 62.6% (SD = 12.8, minimum = 30.3%, maximum = 92.0%). For the performance indicators, teams were awarded on average 52.0 (SD = 15.6) points at the end of each season, and they scored and conceded an average of 49.0 (SD = 13.5) goals per season. As hypothesized, there were significant correlations between team stability and all four performance indicators, league rank, points, goals scored and goals conceded (see Table 2).[3] These indicate that team stability measured at Time 0 is positively associated with performance at Time 1 (i.e., start vs. the end of the season). This correlation is strongest for rank, number of points, and goals for, but is somewhat weaker (yet still significant) for goals conceded – we address this in the discussion.

We inspected both the linear and curvilinear patterns. The linear and quadratic trends were significant for *league rank* (R^2 = .12, $F_{(1, 178)}$ = 23.36, p = 3.0E-06; R^2 = .12,

$F_{(2, 177)} = 12.14$, $p = 6.2E\text{-}04$), *number of points* ($R^2 = .12$, $F_{(1, 178)} = 23.06$, $p = 3.4E\text{-}06$; $R^2 = .12$, $F_{(2, 177)} = 11.65$, $p = 8.0E\text{-}04$), *goals scored* ($R^2 = .11$, $F_{(1, 178)} = 21.29$, $p <= 7.6E\text{-}06$; $R^2 = .11$, $F_{(2, 177)} = 10.60$, $p = 1.4E\text{-}03$), and *goals conceded* ($R^2 = .07$, $F_{(1, 178)} = 12.46$, $p = 5.3E\text{-}04$; $R^2 = .07$, $F_{(2, 177)} = 6.28$, $p = .013$). Examination of the trends suggests that a linear trend best describes the relationship between team stability and the various performance indicators (see Figure 1).

Past team performance. Not surprisingly, there are strong correlations between the various league performance indicators across the various seasons (e.g., league ranks in 2001/2 and 2002/3: $r_{(178)} = .71$, $p < 1.0E\text{-}99$; see Table 2 for zero-order correlations between stability, league performance, and all four moderating variables). After partialling out the past performance indicators between seasons, the stability-performance coefficients remain significant for *rank* ($r_{(177)} = -.20$; $p = .007$), *number of points* ($r_{(177)} = .18$; $p = .016$), and *goals scored* ($r_{(177)} = .18$; $p = .016$); only the effect on *goals conceded* becomes non-significant ($r_{(177)} = -.08$; $p = .286$).

The league performance indicators were each regressed simultaneously on past performance and team stability. Confirming the correlations reported above, team stability still predicted team performance when past performance was included in the model for *rank* ($R^2 = .41$; team stability: $\beta = -0.16$, $t_{(177)} = -2.66$, $p = .009$; past performance: $\beta = 0.57$, $t_{(177)} = 9.32$, $p = 1.0E\text{-}99$), *number of points* ($R^2 = .47$, team stability: $\beta = 0.14$, $t_{(177)} = 2.45$, $p = .015$; past performance: $\beta = -0.63$, $t_{(177)} = -10.89$, $p = 1.0E\text{-}99$), and *goals scored* ($R^2 = .39$; team stability: $\beta = 0.15$, $t_{(177)} = 2.45$, $p = .015$; past performance: $\beta = -0.55$, $t_{(177)} = -8.92$, $p = 1.0E\text{-}99$). However, team stability no longer predicted *goals conceded* when past performance was included in the model ($R^2 = .39$;

team stability: $\beta = -0.07$, $t_{(177)} = -1.09$, $p = .277$; past performance: $\beta = 0.60$, $t_{(177)} = 9.64$, $p = 1.0E-99$). Therefore, past performance has an independent effect on league performance and it moderates the strength of the relationship between league performance and team stability. However, past performance does not eliminate the stability-performance effect.

Contract length. The stability index may reflect the nature of member contracts, since teams that are most stable have players signed to long term contracts. To examine this, the date that each player was signed to their present team was coded. The difference (in months) between date of signing and start of season was calculated. An average was then calculated per team per season.[4] Across nine football seasons, the average contract length was 31.60 months ($SD = 33.21$). Once again, analysis revealed that when average contract length was controlled for, the stability index remained significantly correlated with all performance indicators; *rank* ($r_{(177)} = -.29$; $p = 8.3E-05$), *number of points* ($r_{(177)} = .29$; $p = 8.2E-05$), *goals scored* ($r_{(177)} = .28$; $p = 1.5E-04$) and *goals conceded* ($r_{(177)} = -.22$; $p = .003$).

The league performance indicators were each regressed simultaneously on contract length and team stability. Confirming the correlations reported above, team stability still predicted team performance when contract length was included in the model for *rank* ($R^2 = .12$; team stability: $\beta = -0.33$, $t_{(177)} = -4.62$, $p = 7.5E-06$; contract length: $\beta = -0.34$, $t_{(177)} = -0.48$, $p = .632$), *number of points* ($R^2 = .12$; team stability: $\beta = 0.33$, $t_{(177)} = 4.59$, $p = 8.5E-06$; contract length: $\beta = 0.36$, $t_{(177)} = 0.50$, $p = .618$), *goals scored* ($R^2 = .11$; team stability: $\beta = 0.32$, $t_{(177)} = 4.47$, $p = 1.4E-05$; contract length: $\beta = 0.01$, $t_{(177)} = 0.19$, $p = .850$), and *goals conceded* ($R^2 = .06$; team stability: $\beta = -0.25$, $t_{(177)} = -3.41$, $p =$

8.1E-04; contract length: $\beta = -0.02$, $t_{(177)} = -0.20$, $p = .842$). Therefore, contract length does not moderate the relationship between league performance and team stability and it does not independently affect league performance.

Club wealth. Wealthier clubs perform better, according to an analysis of 77 professional football league clubs in England (Dobson & Goddard, 1998). Furthermore, Szymanski and Smith (1997) examined the English football industry over a period of 15 seasons and claimed that the team's wealth determines its position in the League. For each team the money spent per season on buying in new players (a high amount could be interpreted as *gaining* skilled players) and the money received by selling players (a high amount could be interpreted as *losing* skilled players) was coded. A difference score was then calculated (amount spent on buying players – amount received selling players), as one possible indicator of club wealth.

Overall, the average difference score for buying and selling players per team per season was £7,020,716.30 (*SD* = £16,373,720.18). This positive amount implies that teams, on average, spend more on buying players than they receive from selling players. The enormous variation of money spent on buying and selling players reflects the vast differences in wealth between teams in the Premier League. However, analysis revealed that when club wealth was controlled for, the stability index remained significantly correlated with all performance indicators; *rank* ($r_{(177)} = -.34$; $p = 3.3\text{E-}06$), *number of points* ($r_{(177)} = .33$; $p = 6.6\text{E-}06$), *goals scored* ($r_{(177)} = .32$; $p = 1.3\text{E-}05$) and *goals conceded* ($r_{(177)} = -.24$; $p = .001$).[5]

The league performance indicators were each regressed simultaneously on team wealth and team stability. Confirming the correlations reported above, team stability still predicted team performance when wealth was included in the model for *rank* (R^2 = .21; team stability: β = -0.32, $t_{(177)}$ = -4.69, p = 5.5E-06; club wealth: β = -0.31, $t_{(177)}$ = -4.51, p = 1.2E-05), *number of points* (R^2 = .22; team stability: β = 0.31, $t_{(177)}$ = 4.67, p = 6.0E-06; club wealth: β = 0.33, $t_{(177)}$ = 4.96, p = 1.7E-06), *goals scored* (R^2 = .16; team stability: β = 0.31, $t_{(177)}$ = 4.47, p = 1.4E-05; club wealth: β = 0.23, $t_{(177)}$ = 3.26, p = .001), and *goals conceded* (R^2 = .17; team stability: β = -0.23, $t_{(177)}$ = -3.20, p = .002; club wealth: β = -0.33, $t_{(177)}$ = -4.80, p = 3.4E-06). Therefore, club wealth appears to have a positive effect on league performance but this effect is independent from that of team stability.

Player age. Research has shown that the skills necessary for success in professional athletic sports may decline with age (Berman, Down, & Hill, 2002). It could be that age attenuates the stability-performance effect. Therefore the date of birth of each Premier League member was obtained. An average age for team per season was then computed. Overall, the mean player age across nine seasons of football was 25.75 years (SD = 1.25). Partial correlations revealed that the stability-performance coefficients were not affected by average player age and remained significant for rank ($r_{(177)}$ = -.35; p = 1.6E-06), number of points ($r_{(177)}$ = .35; p = 1.6E-06), goals scored ($r_{(177)}$ = .34; p = 3.3E-06) and goals conceded ($r_{(177)}$ = -.27; p = 2.6E-04).

The league performance indicators were each regressed simultaneously on player age and team stability. Confirming the correlations reported above, team stability still predicted league performance when player age was included in the model for *rank* (R^2 = .18; team stability: β = -0.34, $t_{(177)}$ = -5.01, p = 1.4E-06; player age: β = 0.24, $t_{(177)}$ = 3.56, p = 4.8E-04), *number of points* (R^2 = .17; team stability: β = 0.34, $t_{(177)}$ = 4.96, p =

1.7E-06; player age: $\beta = -0.23$, $t_{(177)} = -3.41$, $p = 8.0E-04$), *goals scored* ($R^2 = .15$; team stability: $\beta = 0.33$, $t_{(177)} = 4.74$, $p = 4.4E-06$; player age: $\beta = -0.21$, $t_{(177)} = -3.06$, $p = .003$), and *goals conceded* ($R^2 = .13$; team stability: $\beta = -0.26$, $t_{(177)} = -3.67$, $p = 3.2E-04$; player age: $\beta = 0.26$, $t_{(177)} = 3.65$, $p = 3.5E-04$). Thus, although player age negatively affects league performance it does not affect the relationship between league performance and team stability.

Ancillary analyses. Given that some of the predictors exhibited an independent effect on league performance the league performance indicators were each regressed simultaneously on past performance, contract length, club wealth, player age, and team stability. Although the strength of the relationship between team stability and league performance was moderated, team stability still predicted league performance for *rank* ($R^2 = .45$; team stability: $\beta = -0.16$, $t_{(174)} = -2.63$, $p = .009$; past performance: $\beta = 0.50$, $t_{(174)} = 7.87$, $p = 1.0E-99$; contract length: $\beta = -0.04$, $t_{(174)} = -0.72$, $p = .475$; club wealth: $\beta = -0.20$, $t_{(174)} = -3.43$, $p = .001$; and player age: $\beta = 0.08$, $t_{(174)} = 1.35$, $p = .180$), *number of points* ($R^2 = .52$; team stability: $\beta = 0.14$, $t_{(174)} = 2.37$, $p = .019$; past performance: $\beta = -0.56$, $t_{(174)} = -9.50$, $p = 1.0E-99$; contract length: $\beta = 0.04$, $t_{(174)} = 0.77$, $p = .443$; club wealth: $\beta = 0.22$, $t_{(174)} = 3.97$, $p = 1.1E-04$; and player age: $\beta = -0.05$, $t_{(174)} = -0.92$, $p = .358$), and *goals scored* ($R^2 = .40$; team stability: $\beta = 0.16$, $t_{(174)} = 2.46$, $p = .015$; past performance: $\beta = -0.51$, $t_{(174)} = -7.74$, $p = 1.0E-99$; contract length: $\beta = 0.01$, $t_{(174)} = 0.21$, $p = .835$; club wealth: $\beta = 0.12$, $t_{(174)} = 1.99$, $p = .048$; and player age: $\beta = -0.06$, $t_{(174)} = -0.89$, $p = .372$). However, team stability no longer significantly predicted the number of *goals conceded* in the new model ($R^2 = .44$; team stability: $\beta = -0.07$, $t_{(174)} = -1.10$, $p = .274$; past performance: $\beta = 0.52$, $t_{(174)} = 8.19$, $p = 1.0E-99$; contract length:

β = -0.03, $t_{(174)}$ = -0.44, p = .659; club wealth: β = -0.22, $t_{(174)}$ = -3.74, p = 2.5E-04; and player age: β = 0.09, $t_{(174)}$ = 1.42, p = .156).

Manager Stability

Previous research has shown that a manager change is predictive of subsequent poor performances in both basketball (Grusky, 1963) and football (Audas, Dobson, & Goddard, 2002). We were interested to see whether manager stability affects team performance in the same way as player stability. Thus, a dummy variable was created if the team manager at the start of the current season was the same as (1), or different from (0), the manager at the start of the previous season.

Of the 180 teams featured across nine seasons, there were 131 instances of manager stability (73%) and 49 instances of change (27%) from one season to the next. Compared with those teams that experienced managerial stability, those teams that experienced change were ranked lower at the end of the season (M = 11.92, SD = 5.41 vs. M = 9.97, SD = 5.85; $t_{(178)}$ = -2.03, p = .044), collected fewer points (M = 47.63, SD =13.53 vs. M = 53.69, SD = 16.01; $t_{(178)}$ = 2.35, p = .020), and scored fewer goals (M = 46.16, SD = 10.08 vs. M = 50.09, SD = 14.49; $t_{(178)}$ = 1.745, p = .083). However, teams with managerial change did not concede more goals (M = 50.71, SD = 11.03 vs. M = 48.76, SD = 12.05; $t_{(178)}$ = -.989, p = .324).

Moderating predictors. As with team stability, it is possible that past performance, contract length, club wealth, and player age may affect, or even account for, the relationship between manager stability and league performance. Therefore, the league performance indicators were each regressed simultaneously on past performance, contract length, club wealth, and player age. Although the strength of the relationship between manager stability and league performance was further moderated, manager stability still predicted league performance for *number of points* (R^2 = .51; manager stability: β = 0.11, $t_{(172)}$ = 2.05, p = .042; past performance: β = -0.60, $t_{(172)}$ = -10.49, p = 1.0E-99; contract length: β = 0.08, $t_{(172)}$ = 1.48, p = .141; club wealth: β = 0.21, $t_{(172)}$ = 3.88, p = 1.5E-04; and player age: β = -0.04, $t_{(172)}$ = -0.78, p = .436). However, managerial stability no longer significantly predicted -- though the trend was still present -- *league rank* (R^2 = .44; manager stability: β = -0.09, $t_{(172)}$ = -1.63, p = .106; past performance: β = 0.54, $t_{(172)}$ = 8.84, p = 1.0E-99; contract length: β = -0.08, $t_{(172)}$ = -1.42, p = .159; club wealth: β = -0.20, $t_{(172)}$ = -3.34, p = .001; and player age: β = 0.07, $t_{(172)}$ = 1.15, p = .250) and *goals scored* (R^2 = .39; manager stability: β = 0.08, $t_{(172)}$ = 1.36, p = .175; past performance: β = -0.55, $t_{(174)}$ = -8.67, p = 1.0E-99; contract length: β = 0.05, $t_{(172)}$ = 0.84, p = .400; club wealth: β = 0.12, $t_{(172)}$ = 1.94, p = .054; and player age: β = -0.04, $t_{(172)}$ = -0.71, p = .480).[6]

Player and managerial Stability. Player and manager stability are correlated, as indicated in Table 1. Which of these two factors is more important in predicting team success? To test this each league performance indicator was regressed simultaneously on managerial stability and team (player) stability. Team stability still predicted league performance when manager stability was included in the model for *rank* (R^2 = .12; team stability: β = -0.32, $t_{(177)}$ = -4.48, p = 1.4E-05; manager stability: β = -0.81, $t_{(177)}$ = -1.13, p = .262), *number of points* (R^2 = .13; team stability: β = 0.32, $t_{(177)}$ = 4.39, p = 2.0E-05; manager stability: β = 0.12, $t_{(177)}$ = 1.47, p = .143), *goals scored* (R^2 = .11; team stability: β = 0.31, $t_{(177)}$ = 4.32, p = 2.6E-05; manager stability: β = 0.06, $t_{(177)}$ = 0.86, p = .391), and *goals conceded* (R^2 = .07; team stability: β = -0.25, $t_{(177)}$ = -3.38, p = .001; manager stability: $\beta = -0.02$, $t_{(177)} = -0.27$, $p = .789$). Although manager stability has performance-enhancing effects it appears that team stability is a stronger predictor of league performance.

Ancillary Analyses

Is it possible that these results are specific to the English Premier League and cannot be easily generalized to other leagues? To look into this we sampled a random season (2000/1) and analyzed the same data for the First Division in England (the Championship) and the Italian Serie A.

The analysis of the First Division League in England yields the same relationship between team stability and team performance as our main analysis on three of the four indicators, rank, points, scored goals (respectively $r(22) = -.30, .27, .33$), while the correlation between stability and goals conceded was negligible ($r = -.02$). The strength of the relationship between stability and the four performance indicators was not significantly moderated by past performance either (respectively partial $r(21) = -.28, .28, .23, .04$), contract length ($M = 25.35$, $SD = 8.33$; respectively partial $r(21) = -.29, .31, .34, -.16$), club wealth ($M$ = £83,958.33, SD = £4,279,439.02; respectively partial $r(21) = -.28, .24, .31, -.002$), mean age of players ($M = 25.23$, $SD = 1.09$; respectively partial $r(21) = -.26, .23, .31, .04$), or managerial stability (12 of 24 teams (50%) maintained their managers; respectively partial $r(21) = -.42, .38, .43, -.08$).[7]

The results for the Serie A in Italy (season 2000/1) were consistent with those of the English football leagues for the relationship between team stability and several performance indicators, *league rank* (r (16) = -.40), *points* (r(16) = .29), *scored goals* (r (16) = .33), *conceded goals* (r (16) = -.29). The strength of the relationship was not much affected by past performance (respectively partial $r(15) = -.46, .35, .35, -.41$), club wealth ($M$ = £154,117.60, SD = £690,136.39; respectively partial $r(16) = -.50, .41, .45, -.40$), mean age of players ($M = 25.14$, $SD = 1.16$; respectively partial $r(16) = -.40, .28, .32, -.27$), or managerial stability (7of 18 teams (38.9%) maintained their managers; respectively partial $r(16) = -.42, .38, .43, -.08$).

Yet controlling for average contract length reduced the relationship between stability and performance ($M = 18.15$, $SD = 10.96$; respectively partial $r(16) = -.02, -.09, -.06, .08$). This may be due to the relatively low contract length in the Serie A League altogether (as compared to the English leagues) causing large groups of players to move at the same time, resulting in contract length being substantially correlated with team player stability.

Discussion

This archive study shows that stability fosters the performance of teams operating in a highly challenging and competitive environment, professional football (soccer) in Europe. Specifically, football teams with a lower player turnover performed relatively better, measured over an entire league season, than teams with higher player turnover. The stability-performance effect appeared to be quite robust when controlling for some obvious variables such as past team performance, club wealth, average contract length, player age or the stability of management.

These results may come as little surprise to football fans around the world as there have been numerous reports in the international media consistent with our findings. The primary inspiration behind this study was a media story on Italian football a few years ago suggesting that the decline in international competitiveness of Italian football could be attributed to a climate of opportunism in which teams treated players as investment objects trading them at a fast rate to make quick money.

The group dynamics literature provides important insights into the underlying causes behind the stability-performance effect. One explanation focuses on improved team coordination. As players spend more time together their coordination improves due to the establishment of a shared knowledge base of team activities (cf. transactive memory system; Wegner, 1995). Moreland (1999; Exp. 2) showed that member change impaired the shared memory system of a team working on a radio assembly task, resulting in a performance loss. Similarly, Berman et al. (2002) attributed the superior performance among more stable NBA basketball teams to improvements in the tacit knowledge base of the team. They note: “Other things being equal, high turnover in a group will disrupt the ability of members to draw upon experientially constructed schemata in order to operate in a synchronous fashion (p. 16).” To our knowledge, this is the first study to demonstrate benefits of team stability in the context of football (soccer).

In football (and presumably in other highly interactive team sports) the task of winning matches is so complex that there is no rule book depicting every possible situation and instruction of what to do. The only way for teams to improve is by training and playing together so that they can perfectly synchronize their activities on the field. If there is such a thing as a “group mind” (LeBon, 1895) then we would expect this to be well developed in competitive sports teams.

In addition to tacit coordination, there might also be motivational advantages associated with team stability. To weigh team interests above personal interests requires that people adopt a long-term perspective on their team membership. This has two advantages. First, players who stay longer with a team become more psychologically connected to the team and, as a result, are more prepared to engage in activities that benefit the team (Brewer, 1979; De Cremer & Van Vugt, 1999). Second, in stable teams free-riding is deterred because long-serving players are more concerned about their reputation and that of their club. As an illustration, social research has found that long-term residents are more likely to engage in pro-community actions than temporary residents (Van Vugt, 2001).

Thus, the competitive advantage of stable teams might be due to a combination of coordination and motivation gains. However, as is the nature with archival data, there was not an effective way to distinguish between these underlying mechanisms in the current study. Therefore, this is an important question for future research. It would be of interest to conduct experiments on the benefits of team stability, comparing stable versus unstable teams and contrasting their performance in social cooperation (like the Prisoner's Dilemma) versus social coordination games (like Battle of the Sexes). This would allow us to assess the relevant contribution of each factor.

Two other issues deserve attention. First, this study found a positive effect of manager stability on team performance, although this relationship was not as strong as for player stability. Nevertheless this positive association is remarkable because common wisdom suggests that teams change managers when things are not going well. Due to the "law of averages" teams should normally be expected to do better after a managerial change, regardless of the quality of the new management. Yet, our data suggest that a management change reinforces a downward spiral with teams in the long-run doing even worse than before.

An unexpected result is that team stability appeared to have a more positive influence on the league rank and numbers of goals scored than the goals conceded. This was the case for both player and manager stability. How do we explain this? Football experts often claim that it is easier for teams to defend than attack. For instance, when teams have an excellent goalkeeper, such as Petr Chech at Chelsea, Iker Casillas at Real Madrid, or Oliver Kahn at Bayern Munich, this will create a competitive defensive advantage. Yet developing an effective strategy to score goals is arguably a more complex task involving the entire team and this requires greater coordination among the players and among players and manager. Thus, we see greater benefits of team stability for scoring than conceding goals.

Some final issues must be addressed. First, our findings do not suggest that teams do better if they never change. Note that the average player stability score across the sample was 63% (with a maximum of 92%), indicating that on average, teams changed 4 out of 10 squad players per season. Earlier research (Berman et al., 2002) found some evidence for an inverted U-shaped relationship between team stability and performance. We failed to replicate this, perhaps due to the absence of any extreme stability/change scores in our sample. Our hunch is that football teams that hold on to their players (or manager) for too long eventually lose their competitive edge because they may be running out of “legs” or innovations. Consistent with this is the negative correlation between team performance and average player age, which replicates the Berman et al. (2002) result in NBA basketball.

Conclusions and Implications

These findings reveal that stability fosters team performance in professional football, possibly through promoting cognitive and physical cooperation. Given the inevitability of player change we must consider how team stability can be promoted in competitive teams. One solution is to narrow the transfer window so that players can only switch teams during a limited period, say, between league seasons. Currently there is both a summer and winter transfer period in European football. Concerns have been expressed by clubs and managers regarding the benefits of bringing in new players in the middle of the season. Yet another way to foster team stability is to raise players' club loyalty. This can be secured through external incentives, such as offering long-term contracts, which can make it costly for players to leave before their contract expires. Alternatively, team stability can be fostered by increasing players' loyalty and identification with the team (Ellemers et al., 1997; Van Vugt & Hart, 2004). It has been suggested that home-grown players have stronger club feelings but we do not know of any data to confirm this. Regardless, without some degree of team loyalty there can be no stability and, without stability, teams perform less well than what they are capable of.

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Footnotes

[1] In the rest of the paper we will stick to the term "football" as this is how the sport is named in the world, except for the US where it is known as soccer.

[2] Each season, three out of twenty clubs were renewed in the League due to promotion and relegation regulations. Initially, we treated them as missing data but, when we included them in the dataset (calculating a stability index based on data from the previous season in the lower league), the results were virtually the same. For reasons of statistical power, we decided to keep them in the data set.

[3] The league ranking data are of ordinal level and should therefore be analyzed with a nonparametric test, such as Spearman's Rho. However, the Spearman's Rho results were in fact quite similar to Pearson's *r*. Therefore only the Pearson's *r* results have been reported.

[4] Data pertaining to average contract length were only available from seasons 2000/2001 onwards.

[5] The relationship between the team stability and league performance indicators remained significant when money spent on buying skilled players, and money received from selling skilled players were controlled for separately; for rank ($r_{(177)} = -.33$; $p < .001$ and $r_{(177)} = -.34$; $p < .001$, respectively), number of points ($r_{(177)} = .33$; $p < .001$ and $r_{(177)} = .34$; $p < .001$, respectively), goals scored ($r_{(177)} = .32$; $p < .001$ and $r_{(177)} = .33$; $p < .001$, respectively) and goals conceded ($r_{(177)} = -.24$; $p = .001$ and $r_{(177)} = -.25$; $p < .001$, respectively).

[6] Because conceded goals were not affected by managerial stability the moderating analyses are not included here.

[7] Unfortunately the number of cases are too few to do any meaningful statistical tests.

Table 1. *Indices of Team Stability and Performance in the English Premier League (Season 2002/3).*

Club	Stability index (%)	Rank	Points	Goals scored	Goals conceded
Arsenal	63.3	2	78	85	42
Aston Villa	53.3	16	45	42	47
Birmingham City	40.0	13	48	41	49
Blackburn Rovers	61.2	6	60	52	43
Bolton Wanderers	37.5	17	44	41	51
Charlton Athletic	59.3	12	49	45	56
Chelsea	64.5	4	67	68	38
Everton	55.6	7	59	48	49
Fulham	71.0	14	48	41	50
Leeds United	66.7	15	47	58	57
Liverpool	55.2	5	64	61	41
Manchester City	65.6	9	51	47	54
Manchester United	67.9	1	83	74	34
Middlesbrough	46.7	11	49	48	44
Newcastle United	71.0	3	69	63	48
Southampton	56.0	8	52	43	46
Tottenham Hotspur	66.7	10	50	51	62
Sunderland	40.0	20	19	21	65
West Bromwich Albion	67.7	19	26	29	65
West Ham United	48.4	18	42	42	59

Table 2. *Correlations of stability and league performance in the English Premier League across Nine Seasons (1998/9 until 2006/7).*

Variable	1	2	3	4	5	6
1. Player stability		-.34***	.34***	.33***	-.26***	.22**
2. Rank			-.95***	-.81***	.83***	-.15*
3. Points				.86***	-.84***	.17*
4. Goals scored					-.57***	$.13^{+}$
5. Goals conceded						-.07
6. Manager stability						

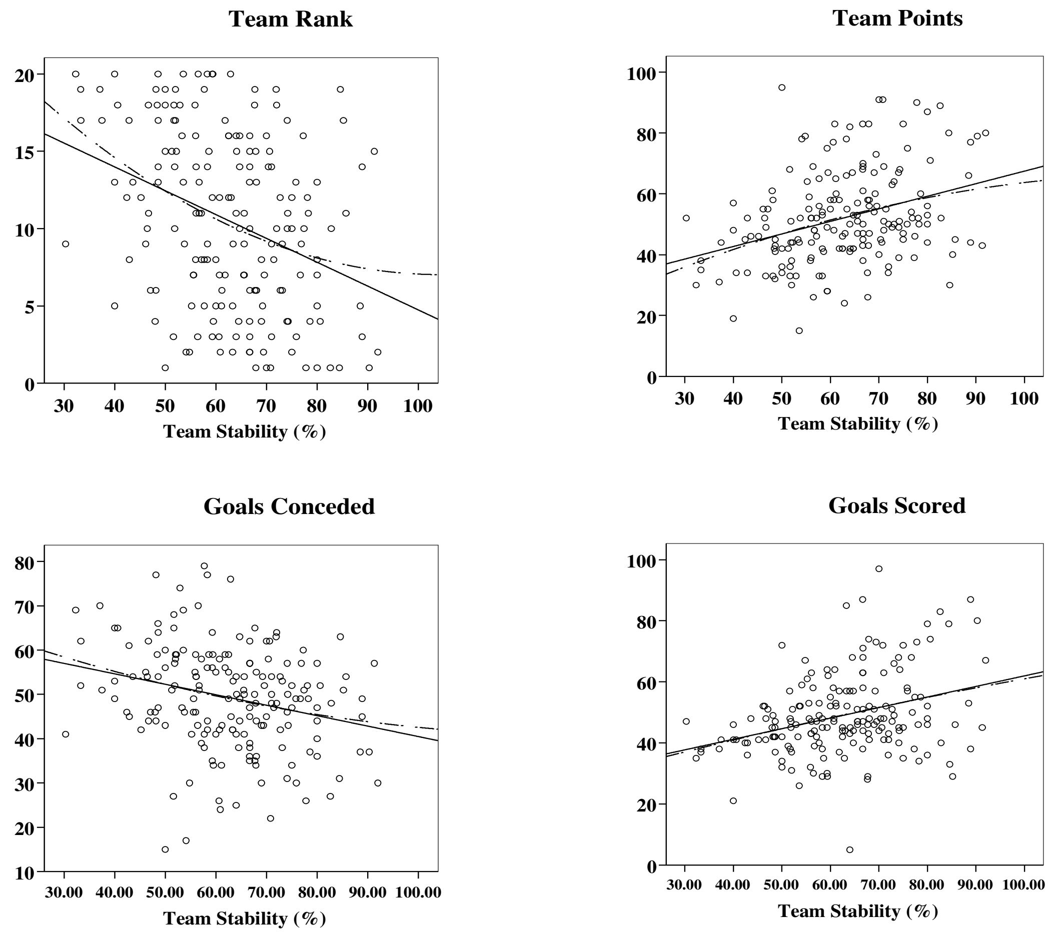
Rank varies from 1 (top team in league) to 20 (bottom team in League); $N = 180$; $^{+}\,p < .10$, * $p < .05$, ** $p < .005$, *** $p < .001$

Table 3. *Zero-order correlations of stability, league performance and possible moderators in the English Premier League across Nine Seasons (1998/9 until 2006/7).*

Variable	1	2	3	4
Stability				
Player stability	-.314**	.204**	.074	.006
Manager stability	-.088	-.116	.077	.017
League performance indicators				
Rank	.619**	-.103	-.328**	.241**
Points	-.672**	.104	.354**	-.232**
Goals scored	-.602**	.080	.250**	-.210**
Goals conceded	.619**	-.066	-.348**	.255**
Possible Moderators				
1. Past performance				
2. Contract length	-.077			
3. Club wealth	-.218**	-.027		
4. Player age	.273	-.004	-.123⁺	

N = 180; ⁺ *p* <.10, * *p* <.05, ** *p* <.01

Figure 1. Estimation trends for team stability and different indices of team success



Note that the dotted line indicates the quadratic trend estimate