Survival or relegation?

The impact of a managerial change in the Premier League

LE London Economics

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Summary

- London Economics investigates the impact of football manager changes in the English Premier League.
- Using data over the past five seasons, we find that teams changing manager gain up to seven extra points over 10 games.
- This result takes into account the strength of opposition faced and quality of the managers arriving and departing.
- The extra points may be the difference between survival and relegation for lower-table teams.
- Avoiding relegation provides broadcasting revenues of approximately £40 million in expectation – significantly larger than the upper-bound compensation of £8.5 million paid out to sacked managers.
- Failure to avoid relegation may have longer-term consequences as clubs struggle to regain Premier League status immediately, impacting the financial health of the club.

Introduction

So often we hear football pundits roll out the inevitable clichés when a manager is sacked mid-season: "he should be given more time"; "the board doesn't understand football"; "the owners are in it for the money" – but is there an upside to sacking a manager?

Despite the negative stigma surrounding most manager sackings, we often see a positive reaction from teams when a new manager is installed – players are keen to impress the new manager and are stimulated by his new ideas, ethos and training methods – and this impetus can often be the difference between survival and relegation. London Economics set out to quantify this impact.

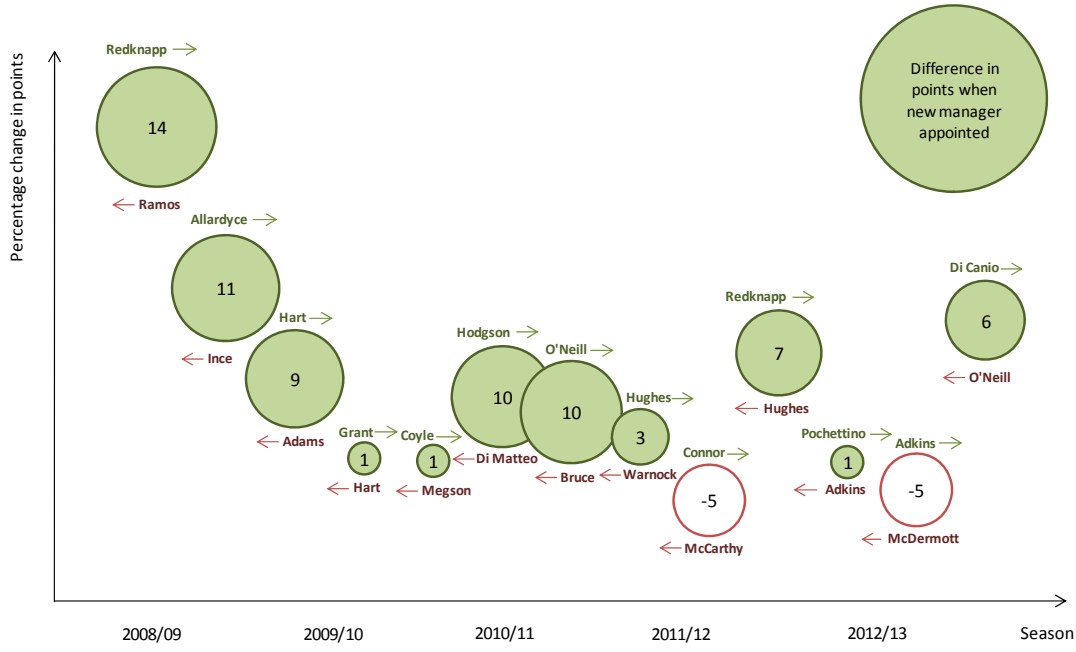
Quantifying the impact is challenging: how do we know that the perceived change in the performance of a team can be attributed to the change in manager? Clearly, there are many other factors that are likely to affect performance. For example, team performance may improve because the team coincidentally has an easier run of games, or because the opposition teams have had a poor run of form coming into the fixture, or simply because the new manager has a higher pedigree than the departing manager. Our model accounts for these factors[1].

[1] Further information on the methodology used can be found in the Annex.

Analysis

The figure below shows all of the 13 manager sackings by lower-table teams in the last five complete Premier League seasons. For example, Steve Bruce was sacked by Sunderland and replaced by Martin O'Neill during the 2010/11 season. Over 10 games, the team managed **10 extra points** under O'Neill compared to the final 10 games under Bruce.

Extra points earned after a manager change in the last five Premier League seasons(1)



Note: (1) Includes mid-season manager sackings by lower-table teams only, where a lower-table team is defined as one that is in the bottom six at the time of the sacking. Extra points earned are calculated over 10 games pre and post manager change with the following exceptions: Juande Ramos at Tottenham managed in the first eight games in the 2008/09 season, Nigel Adkins at Reading managed the last eight games and Paolo Di Canio at Sunderland managed in the final seven games in the 2012/13 season.
Source: London Economics calculations

Change is good

Our calculations show that changing manager could produce **five extra points** over the 10 games after the change[2]. Furthermore, consider the immediate five-game impact: our calculations show that this could be **three extra points** – a larger impact per game[3].

The 10-game result holds true, and may even be greater, when accounting for the strength of opposition and quality of the managers. For example, with this method, a win for Wigan Athletic against Manchester United is given more points than a win against Queens Park Rangers.

Our calculations show the impact could be as large as **seven points** when adjusting for these factors.

[2] This result is calculated for mid-season manager sackings by lower-table teams only, where a team is classified as lower-table if they are placed 15th or lower at the time of the manager sacking.

[3] This result supports the reversion to the mean result found by other similar studies such as Bruinshoofd, A. and ter Weel, B., 2003. 'Manager to go? Performance dips reconsidered with evidence from Dutch football', European Journal of Operational Research, Elsevier, Vol. 148, Iss.2, pp.233-246.

Home bias

A breakdown of the results by home and away games shows that the new managers improve the home performance of their team more than their away performance. This implies that, by instilling new-found positive energy into the fans, the new manager may be improving the atmosphere in the home stadium which spurs the team on.

Moreover, team performance at home improves even more when accounting for strength of opposition and quality of the managers. **This suggests that the new manager may improve the home performance against tougher opposition.**

Impact of avoiding relegation

Consider the points-gap between the last relegation spot (18th) and the first safe spot (17th) in the past five completed Premier League seasons:

Points-gap between relegation and survival						
	2008/9	2009/10	2010/11	2011/12	2012/13	Average
17th	35	35	40	37	39	**37**
18th	34	30	39	36	36	**35**

In the past five seasons, teams needed 37 points to avoid relegation (on average), whilst the number of points accumulated by the team in the final relegation spot was 35 (on average). In **80% (4/5)** of cases, an extra four points would have been the difference between relegation and survival. For example, if Sunderland had not sacked Martin O'Neill and brought in Paulo Di Canio last season, our analysis suggests that they would have been relegated, having amassed five less points:

What would have happened had Sunderland not changed manager in the 2012-13 season?					
Actual			Hypothetical		
Pos	Team	Points	Pos	Team	Points
15	Aston Villa	41	15	Aston Villa	41
16	Newcastle United	41	16	Newcastle United	41
17	**Sunderland**	**39**	17	Wigan Athletic	36
18	Wigan Athletic (R)	36	**18**	**Sunderland**	**34**
19	Reading (R)	28	19	Reading	24
20	Queens Park Rangers (R)	25	20	Queens Park Rangers	21

Note: This is what the bottom of the Premier League table might have looked had the teams that changed manager not done so. In the case of the 2012-13 season, these managerial changes took place at Sunderland, Reading and Queens Park Rangers.
Source: London Economics calculations

Broadcasting revenues

This season, the bottom three Premier League clubs will receive approximately £67 million each in broadcasting revenues[4]. Accounting for any parachute payments they would receive if they were

[4] http://www.express.co.uk/finance/city/398949/Premier-League-teams-estimate-200million-plus-cost-of-relegation. Note that this figure assumes that the outside option is zero broadcasting revenues, which is a simplification. It also assumes that the £200 million is distributed evenly between the three teams that finish in the relegation zone.

relegated last season[5], the additional revenues that can be attributed to their Premier League status is likely to be around £50 million[6].

Applying the 80% probability to this figure, a club looking to avoid relegation by changing their manager can expect to gain £40 million in broadcasting revenues. This expected probability calculation accounts for the fact that the extra broadcasting revenues may not be realised because the extra points resulting from the manager change may, in some cases, not ensure survival.

Compensation

To estimate an upper bound of the compensation payments associated with the removal of a Premier League manager, consider the compensation received by departing Chelsea managers during the Roman Abramovich era:

Compensation received by former Chelsea managers	
Manager	**Compensation**
Claudio Ranieri	£2.0 million
José Mourinho	£20 million
Avram Grant	£3.0 million
Luiz Felipe Scolari	£12.6 million
Carlo Ancelotti	£6.0 million
André Villas-Boas	£13.3 million
Roberto Di Matteo	£2.5 million
Average	**£8.5 million**

Source: The Huffington Post – 'Chelsea sack Roberto di Matteo: Here's their manager payoffs', (http://huff.to/IiH6Q9)

Although a manager's compensation for departing a lower-table team is likely to be significantly lower than at Chelsea, the figures give an indication of the upper-bound compensation level.

Financial benefit

$$\text{Financial benefit} = \text{Expected broadcasting revenues} - \text{Compensation}$$

$$= (\mathbf{£50\ million} \times \mathbf{80\%}) - \mathbf{£8.5\ million} = \mathbf{£31.5\ million}$$

Expected broadcasting revenues of £40 million far exceed the upper estimate of the managerial compensation level of £8.5 million, implying that a manager change is likely to be **financially beneficial**, even accounting for the fact that the extra points may, in some cases, not ensure survival.

Further, the financial benefits of avoiding relegation are likely to be greater when we consider that the benefits may be lost for multiple future seasons. In the past six seasons, only three of the 12 relegated clubs regained Premier League status in the subsequent season in the Championship. Reduced ticket prices and less fruitful sponsorship deals for clubs in the Championship may further signify the financial importance of staying up.

[5] Clubs relegated last season are expected to receive around £16 million each over four years in parachute payments.

[6] This assumes that the lost broadcast revenues and the parachute payments are distributed evenly between the three relegated clubs.

Conclusion

- London Economics investigates the impact of football manager changes in the English Premier League.
- Using data over the past five seasons, we find that teams changing manager gain up to seven extra points over 10 games.
- This result takes into account the strength of opposition faced and quality of the managers arriving and departing.
- The extra points may be the difference between survival and relegation for lower-table teams.
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Annex - Methodology

We quantify the points-impact of a manager using two different points metrics – **actual points** and **effective**, or weighted, points.

Actual points method

Using Premier League data from the past five seasons, manager changes were identified and performance, in terms of accumulated points, was measured before and after these managerial changes. We focus on the short-term impact of the manager change – defined as the first 10 games of the new manager's reign. Specifically:

Actual points ***uplift*** *for team i* $= \sum_{\tau=0}^{9} \boldsymbol{p}_{i,t+\tau} - \sum_{\tau=1}^{10} \boldsymbol{p}_{i,t-\tau}$,

where the manager change occurs at time t, and *p* is the number of points accrued in each game. In other words, the actual points uplift for team *i*, as a result of a manager change, is equal to the sum of points accumulated ten games after the manager sacking, minus the sum of points accumulated ten games prior to the manager sacking. This is calculated for all *i* teams that have sacked their manager mid-season. The average is then taken over all *i* teams that sacked a manager mid-season and are classified as being lower-table. Note that a 'lower-table team' is defined as one that is placed 15th or lower at the time of the manager change.

'Effective' points method

Note that the calculation above assumes that the **'state of the world'**[7] pre and post the manager change is the same. In other words, other factors such as opposition quality and team form are held 'constant' pre and post the manager change. This may be unrealistic. Therefore, we also construct a model that builds an appropriate counterfactual whereby the characteristics of opposition managers and teams are controlled for.

We do this by treating each point earned by a team as **heterogeneous**, or the value of a point varies depending on the opposition (team and manager) or whether the game is played at home or away. For example, we may expect that a win for Wigan Athletic away at Manchester United is effectively *worth more* points than a home win against Queens Park Rangers. Therefore, for each relevant fixture in the past five seasons, we calculate the effective or adjusted points earned per team. This method adjusts the accumulated points pre and post the manager change, which allows us to compare the sum of the points before and after the manager change.

In total, there have been 41 manager changes over the past five complete seasons, of which 25 were sacked and 19 occurred mid-season. We are interested in manager sackings by lower-table teams[8] that occur mid-season, of which there are 13 cases.

[7] A 'state of the world' describes the conditions that prevail pre and post the application of a treatment variable – in this case, the treatment is a manager change, and the state of the world refers to 'conditions' such as opposition quality and team form.
[8] As previously mentioned, the characterisation of a 'lower-table team' is undertaken at the time of the manager change.