Squad analysis: who will win the Champions League?

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1.   Introduction

The world's most popular international club competition has reached the quarter final stage. The CIES Football Observatory proposes an in-depth analysis of the squad composition of teams qualified. The statistical indicators selected are generally correlated to results. It is therefore possible to use them as a guide to identify the teams most likely to win. In all of the cases, we compare the values measured for current teams with those of the last five winners.

The first group of indicators studied relates to the experience of squad members, whether in European cups, in national A-team selections or in domestic leagues (chapter 2). The second type of indicators refers to squad stability: permanence in the first team squad, employment of new players and length of contract remaining (chapter 3). We then analyse transfer policies from the point of view of sums invested in signing players and the level of teams from which they were recruited (chapter 4).

In the conclusion, we present a table summing up the results of our analysis. This suggests that Real Madrid is most likely to win the competition, ahead of Barcelona and Bayern Munich.

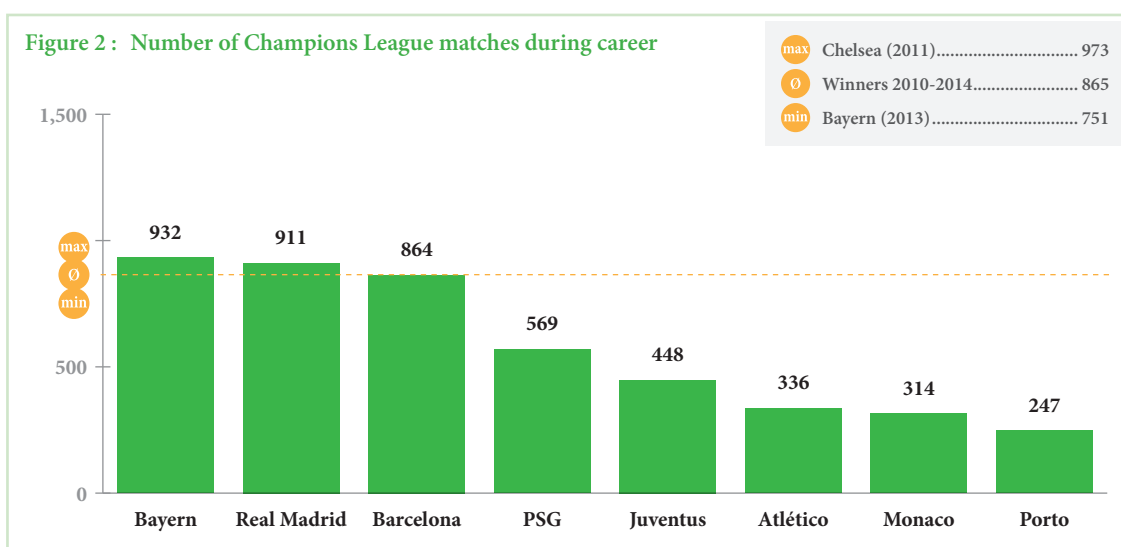**Figure 1 :   Winner and finalists of the last five Champions League editions**

2010	Internazionale Milano FC (ITA)* FC Bayern München (GER)
2011	FC Barcelona (ESP)* Manchester United FC (ENG)
2012	Chelsea FC (ENG)* FC Bayern München (GER)
2013	FC Bayern München (GER)* Borussia Dortmund (GER)
2014	Real Madrid CF (ESP)* Club Atlético de Madrid (ESP)

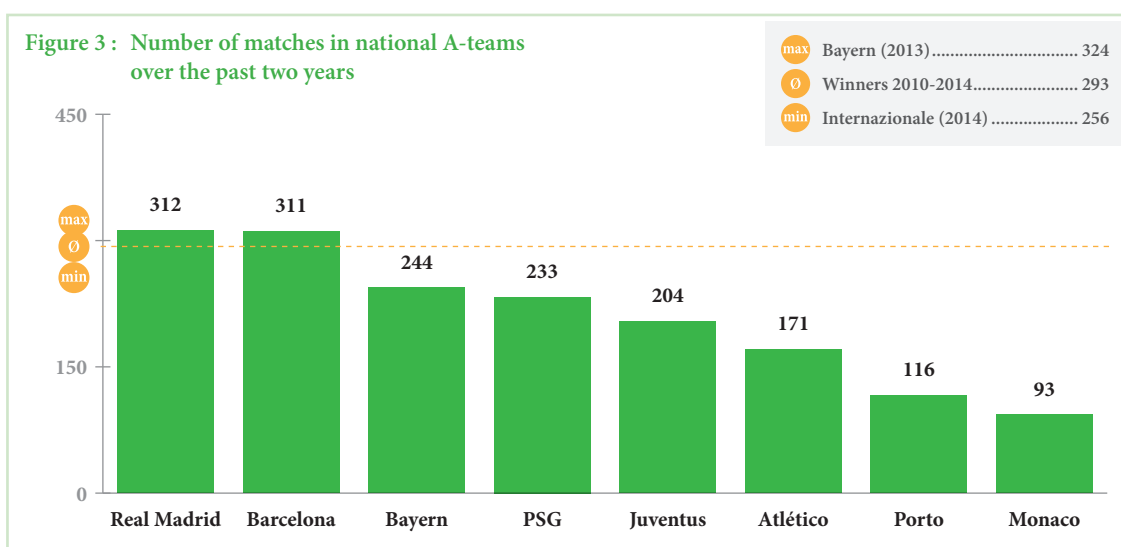* Winners

2.   Experience

The last five winners of the Champions League gathered players with a total experience of 865 matches in the competition. This amounts to 37.6 games per player. Only three out of the eight teams qualified for the quarter finals in the 2014/15 edition have squads with such experience: Bayern Munich, Real Madrid and Barcelona.

The example of Borussia Dortmund in 2012/13 shows, however, that it is possible to reach a final without such considerable experience. Indeed, Dortmund's squad members only had 257 Champions League matches experience: on average about 13 games per player. Porto is the only quarter finalist that has qualified with even less Champions League experience.

Figure 2 : Number of Champions League matches during career

max	Chelsea (2011)	973
Ø	Winners 2010-2014	865
min	Bayern (2013)	751

International experience can also be measured with regard to matches played in national A-teams. In this case, we have limited our analysis to the last two years. This allows us to put more emphasis on active internationals. The last five Champions League winners gathered footballers having played a total of 293 matches in national A-teams over the period of time taken into account. This amounts to 12.8 games per player on average.
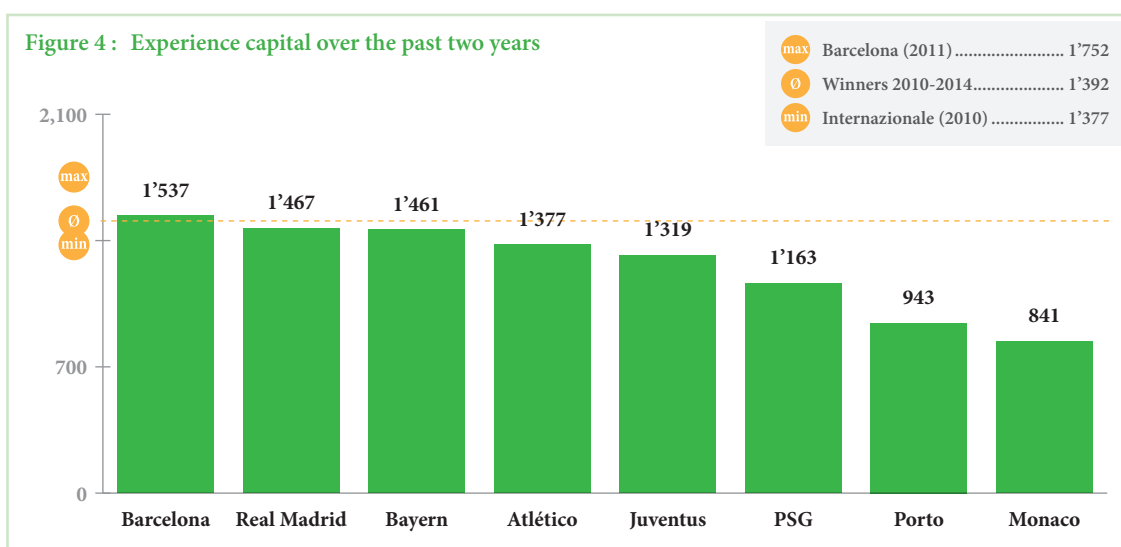
Of the quarter finalists of the current edition, only Real Madrid and Barcelona have higher figures. Conversely, the values for Monaco and Porto are lower not only than those of other teams qualified, but also in comparison to the lowest value of the previous ten finalists: Atlético Madrid in 2013/14 (147 matches).

Figure 3 : Number of matches in national A-teams over the past two years

max	Bayern (2013)	324
Ø	Winners 2010-2014	293
min	Internazionale (2014)	256

The last indicator taken into account to measure experience refers to domestic league matches played over the past two years. To be more relevant, the number of matches is weighted according to the level of the league in which games were played, as well as the results obtained according to the "experience capital" method[1].

This analysis confirms that Barcelona, Real Madrid and Bayern Munich hold a competitive advantage over their rivals. At the opposite end of the table, Monaco and Porto will most probably struggle to reach the final.
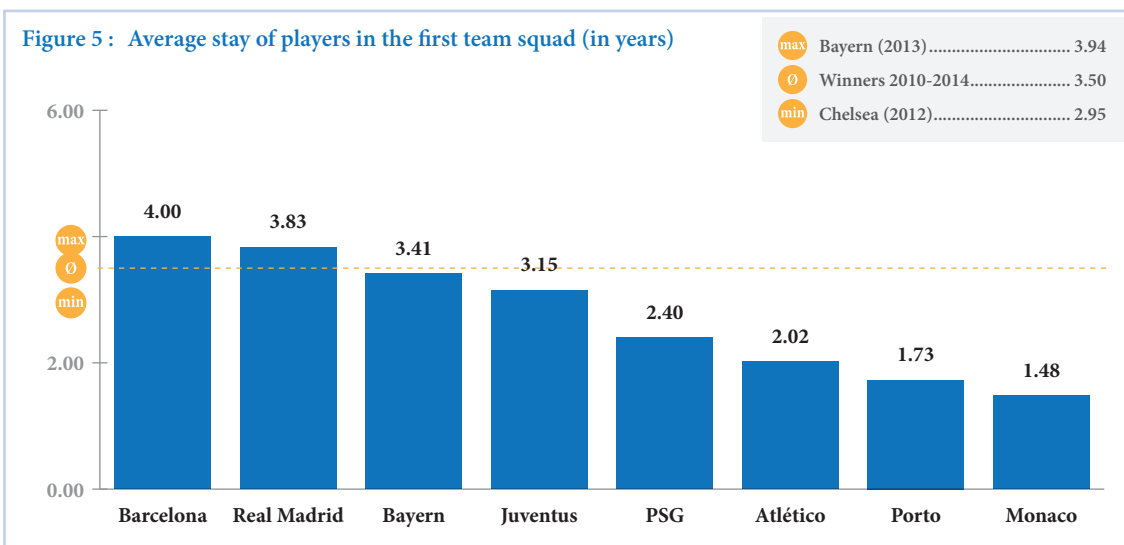
[1] For more ample information on this method, please refer to the Monthly Report number 2 of the CIES Football Observatory.

Figure 4 : Experience capital over the past two years

max Barcelona (2011) .... 1'752
Ø Winners 2010-2014.................... 1'392
min Internazionale (2010) .... 1'377

Team	Value
Barcelona	1'537
Real Madrid	1'467
Bayern	1'461
Atlético	1'377
Juventus	1'319
PSG	1'163
Porto	943
Monaco	841

3. Stability

Though experience is a key part of success, squad stability is just as important when it comes to optimising one's chances in achieving top level performances. The last five Champions League winners had players who were present in the first team squad for 3.5 years on average. This value varied between 3.9 years for Bayern Munich in 2012/13 and 2.9 years for Chelsea in 2011/12.
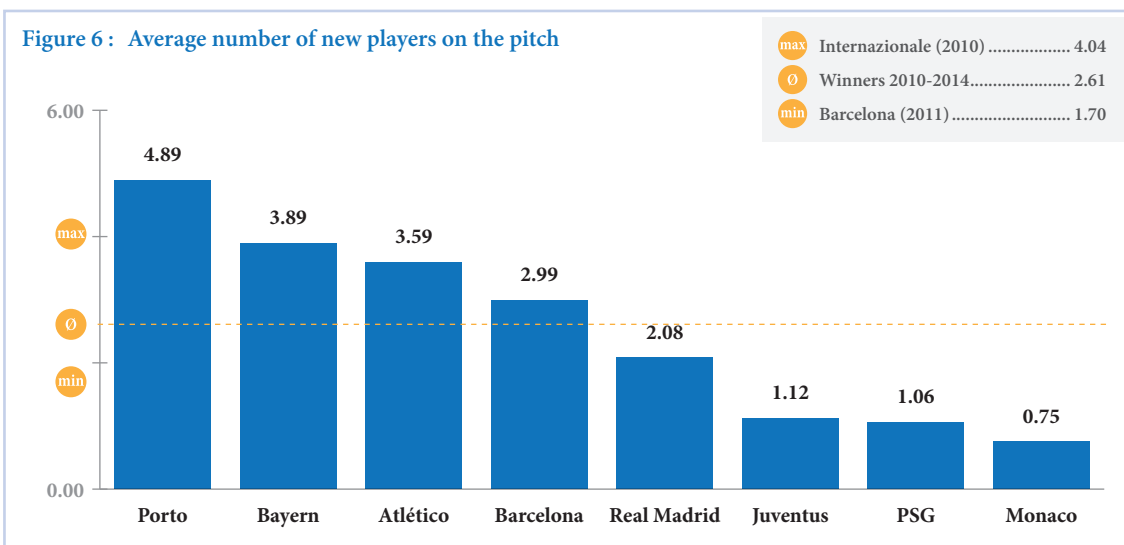
Among the current quarter finalists, the maximum is situated at 4.0 years for Barcelona. Real Madrid also has average levels above those of the five last winners, while Bayern Munich and Juventus follow closely. Once again, the lowest values were recorded for Porto and Monaco.

Figure 5 : **Average stay of players in the first team squad (in years)**

max Bayern (2013) 3.94
Ø Winners 2010-2014 .... 3.50
min Chelsea (2012) 2.95

The analysis of the average number of players signed at the start of, or during the season fielded in the competition up to the present shows that Monaco, Juventus and Paris St-Germain are the teams that integrated the least number of new players. Their qualification at the expense of Arsenal, Borussia Dortmund and Chelsea are no doubt partly due to this greater level of cohesion.

On average, the last five Champions League winners fielded 2.6 new players[2]. The highest level was registered for Inter Milan in 2009/10. While José Mourinho's team lifted the trophy having fielded four new players on average, this is rather the exception that confirms the rule. From this perspective, Porto, Bayern Munich and Atlético Madrid should be handicapped by the high number of new players fielded. For comparison, during the successful 2013/14 edition, Atlético Madrid had on average only 0.9 new players on the pitch.

[2] Including players launched during the season from the youth academy.

Figure 6 : Average number of new players on the pitch

max Internazionale (2010) 4.04	
Ø Winners 2010-2014...................... 2.61	
min Barcelona (2011) 1.70	

Porto 4.89
Bayern 3.89
Atlético 3.59
Barcelona 2.99
Real Madrid 2.08
Juventus 1.12
PSG 1.06
Monaco 0.75

Generally speaking, success in football also comes as a result of proper planning for the future[3]. From this point of view, the length of contract remaining for players in the squad is a good indicator when judging the capacity of teams to elaborate long-term projects.

Among the current quarter finalists, Monaco and Juventus have the lowest recorded values. At the other end of the scale, Real Madrid is the only club with players who have on average more than three years of contract remaining. A comparable level to this was measured during the victorious campaign of 2013/14.

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[3] See the paper presenting the CIES Football Observatory's approach for sustainable success.

Figure 7 : Length of contract remaining (in years)

max	Real Madrid (2014) 3.05
Ø	Winners 2010-2014 .... 2.40
min	Chelsea (2012) 1.96
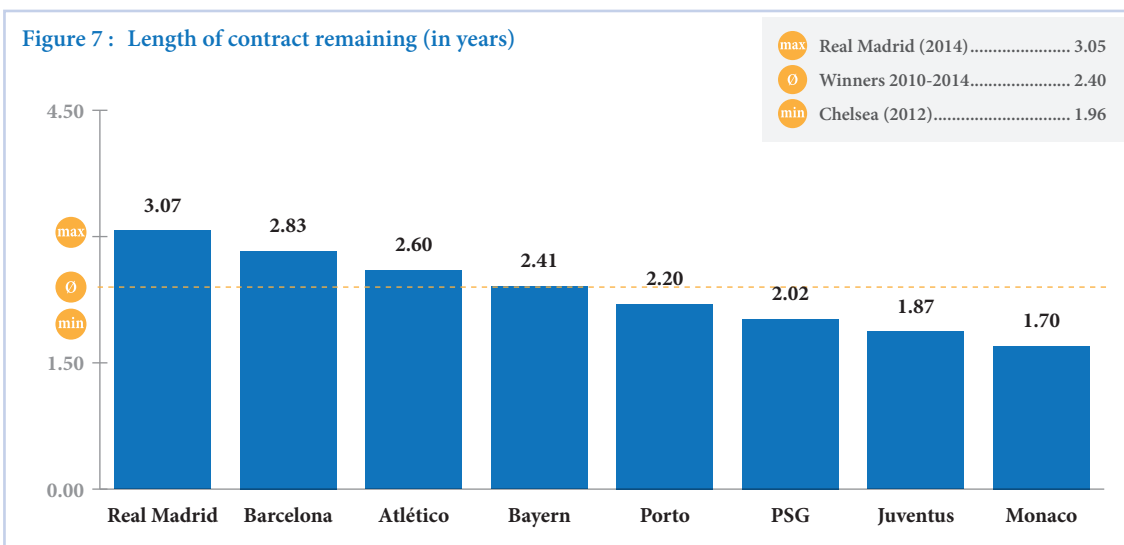
4.   Recruitment

The ability of clubs to assemble experienced and stable squads also depends on financial clout. It is therefore interesting to measure the economic potential of teams by analysing the amounts spent on recruiting squad members. Only three of the teams qualified for the quarter-finals have invested more than the average transfer expenditure of the last five winners. The level measured this season for Real Madrid is historic record.
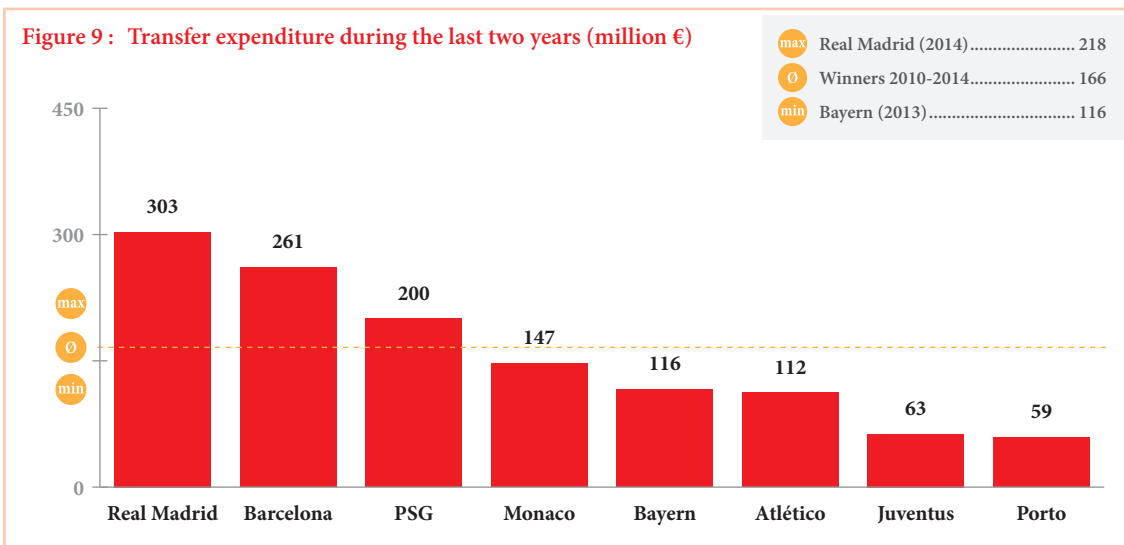
Nevertheless, the value recorded for Borussia Dortmund in 2012/13 (€56 million) suggests that all the competing teams could manage the exploit of reaching the final stage of the competition. However, an ensuing victory is more difficult to imagine. Among the last five winning teams, that which spent the least on squad make up, Barcelona in 2010/11, still invested €173 million.

Figure 8 :   Transfer expenditure in signing squad members (million €)

max Real Madrid (2014) 536
Ø Winners 2010-2014 307
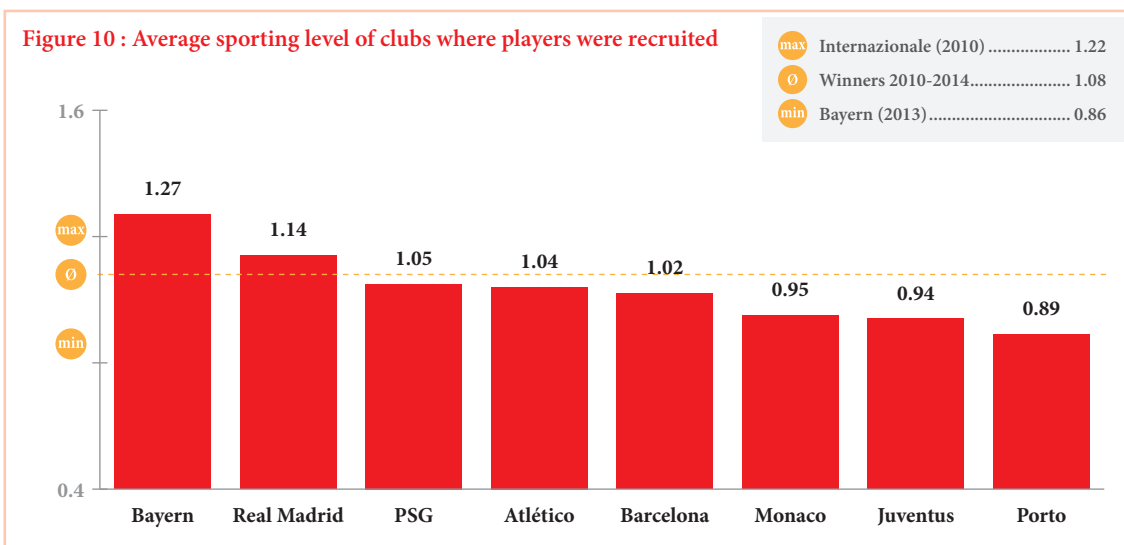min Barcelona (2011) 173

The analysis of expenses over the past two years confirms that Real Madrid tends to invest more in the transfer market than its competitors. Among teams qualified for the quarter-finals, Barcelona and Paris St-Germain also spent more than the average of the last five Champions League winners. From the perspective of rising costs at the top of the football pyramid[4], a win for Porto or Juventus would be a surprising achievement.

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[4] See Monthly Report number 3 of the CIES Football Observatory.

Figure 9 : Transfer expenditure during the last two years (million €)

max	Real Madrid (2014) 218
Ø	Winners 2010-2014 166
min	Bayern (2013) 116

Aside from money spent, an important indicator in judging the ambition of a transfer policy is the level of the club where players present in the squad were recruited[5]. Bayern Munich has the highest values not only among the teams qualified, but also in comparison with recent winners. Will this be sufficient to compensate for the lower amounts invested in the transfer market with respect to Real Madrid, Barcelona and Paris St-Germain?

[5] Not including players integrated in the first team squad from youth academies.

Figure 10 : Average sporting level of clubs where players were recruited

max	Internazionale (2010) 1.22
Ø	Winners 2010-2014 .... 1.08
min	Bayern (2013) 0.86

Bayern 1.27
Real Madrid 1.14
PSG 1.05
Atlético 1.04
Barcelona 1.02
Monaco 0.95
Juventus 0.94
Porto 0.89

5. Conclusion

The beauty of sport, and football, is due in no small measure to its unpredictability. Although growing economic inequalities tend to reduce uncertainties, it is impossible to predict who will win the Champions League. Nevertheless, the objective analysis of the forces at work permits us to identify the likely winners.

The table below combines the indicators selected for each of the three axes of research developed in this article to emphasise the teams whose squads are the most likely to guarantee good results. Real Madrid appears as the CIES Football Observatory's favourite, ahead of Barcelona and Bayern Munich.

[6] Two points if better value than the average of the five last winners, one point if better value than the worst level of the five last winners, zero points in all other cases.

Figure 11 : Summary table[6]

	Experience	Stability	Recruitment	Win probability
Real Madrid CF	■■■■■	■■■■■	■■■■■	27%
FC Barcelona	■■■■■	■■■■	■■■■■	22%
FC Bayern München	■■■	■■■	■■■■	16%
Paris St-Germain FC		■■■	■■■■■	13%
Juventus FC		■■■	■■	8%
AS Monaco		■■	■■	6%
Atlético Madrid		■■	■	5%
FC Porto		■	■	3%