

Capstone 1

European Football Statistics

Julu 2017 - Guillermo Guerra



What is the relation between the worth of a European football club's squad and its performance during the season?

Top European football clubs compete each season to reach top spots to qualify to the European Champions League tournament.

5 Leagues

98 Clubs

The report will analyze:








2016/2017 Season

1. Squad Values versus performance
2. Arsenal Football Club

13.5 billion+ Squad value Mill. €

Data Sources

Market values are collected from TransferMarkt.com and club statistics extracted from football.org API

Source	Table	Fields
	League Market Values	Club(s), Squad, Age, Foreign players, Total market value, ø Market value
	Arsenal	#, Player(s), Position, born/age, Nat., Current club, Height, Foot, In the team since, before, Contract until, Market value
	Arsenal History	Season, Total market value, Matches, Wins, Draws, Losses, Points
	Leagues	league_id, league_name, league, number_of_teams
	Clubs	crestUrl, id, name, shortName, league_id
	Standings	Away, Draws, Away Goals, Away Goals Against, Away Losses, Away Wins, Home Draws, Home Goals, Home Goals Against, Home Losses, Home Wins, crestURI, draws, goalDifference, goals, goalsAgainst, league_id, losses, playedGames, points, position, teamName, wins
	Players	contractUntil, dateOfBirth, id, jerseyNumber, marketValue, name, nationality, position, team_id

Data Preparation

Raw figures are cleaned and grouped into a summary table.

Final Datasets:

Summary	
Column Name	Sample Data
Position	1
Team Name	FC Bayern München
Wins	25
Draws	7
Losses	2
Goals	89
Goals Against	22
Goal Difference	67
Points	82
Team Value Mill. €	542.65
League Name	1. Bundesliga
Champions League	Yes

Standings	
Column Name	Sample Data
Position	1
Team Name	Chelsea FC
Wins	27
Draws	3
Losses	5
Goals	76
Goals Against	32
Goal Difference	44
Points	84
Home Wins	15
Home Losses	2
Home Draws	0
Home Goals	47
Home Goals Against	16
Away Wins	12
Away Draws	3
Away Losses	3
Away Goals	29
Away Goals Against	16
Crest	http://upload.wikimedia.org/wikipedia/de/5/5c/..

Top Leagues	
Column Name	Sample Data
Team ID	1
Team Name	1. FC Köln
Team Value Mill. €	112.85
League ID	430
League Name	1. Bundesliga
Country	Germany

Arsenal History	
Column Name	Sample Data
Season	2009/2010
Total market value	281
Matches	38
Wins	23
Draws	6
Losses	9
Points	76

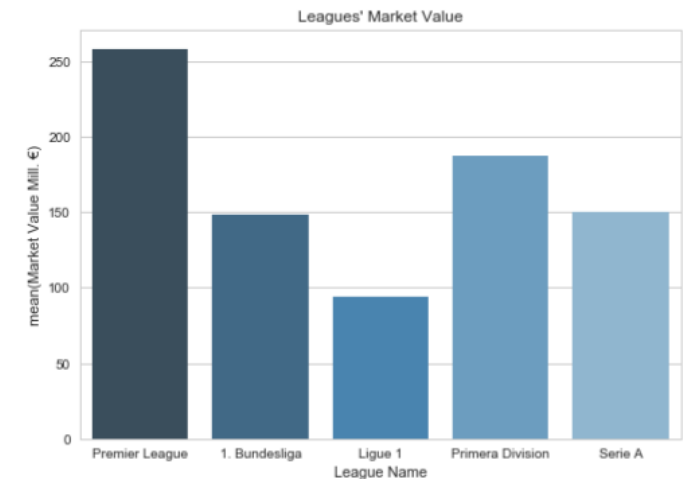
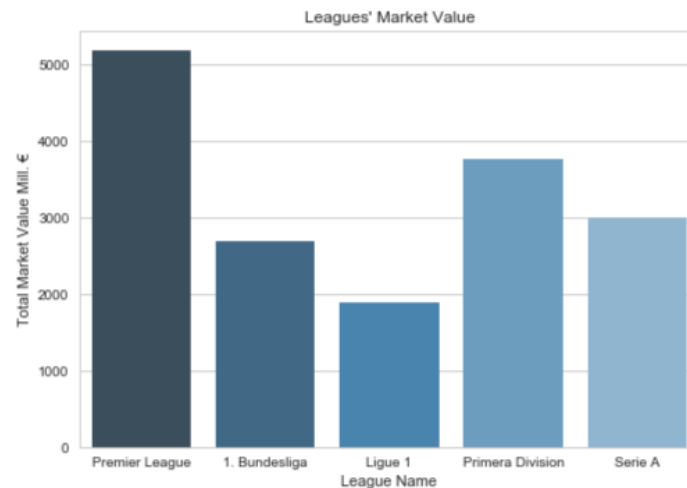
Exploratory Analysis

Football leagues are valued differently, reflected by awarded Champions League spots.

The Premiere League has by far the most valuable players with a mean team value of 258 million euros.

Serie A clubs are on average more valuable than Bundesliga clubs, however the Italian league are awarded less spots on the Champions League.

League	Clubs	Mean Team Value Mill. €	Champions League Spots
Premiere League	20	258.71	4
Primera Division	20	187.91	4
1. Bundesliga	18	148.81	4
Serie A	20	150.09	3
Ligue 1	20	94.65	3



Squad Value Mean Differences

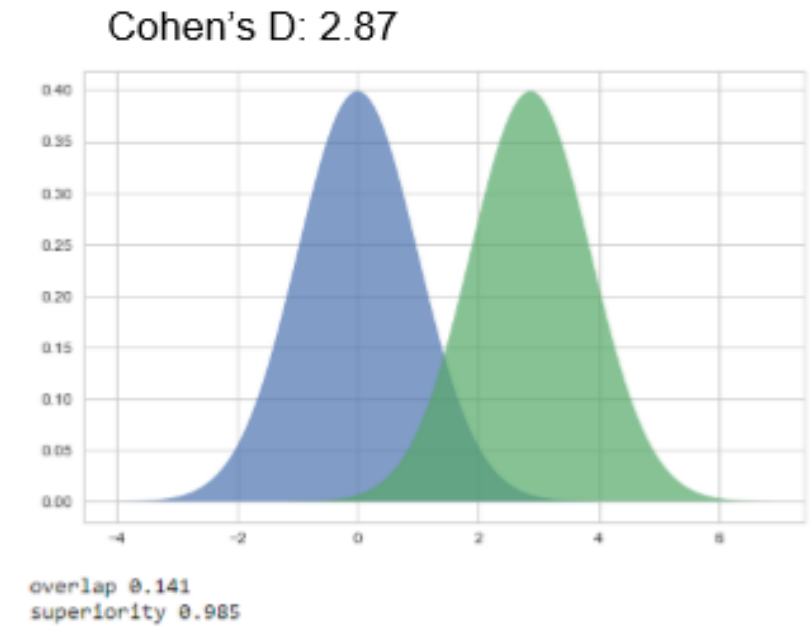
There is a statistical difference between clubs that reach the Champions League and those that do not make it.

CL clubs mean: 420.36€ million

Rest clubs mean: 107.83€ million

Difference: 312.53€ million

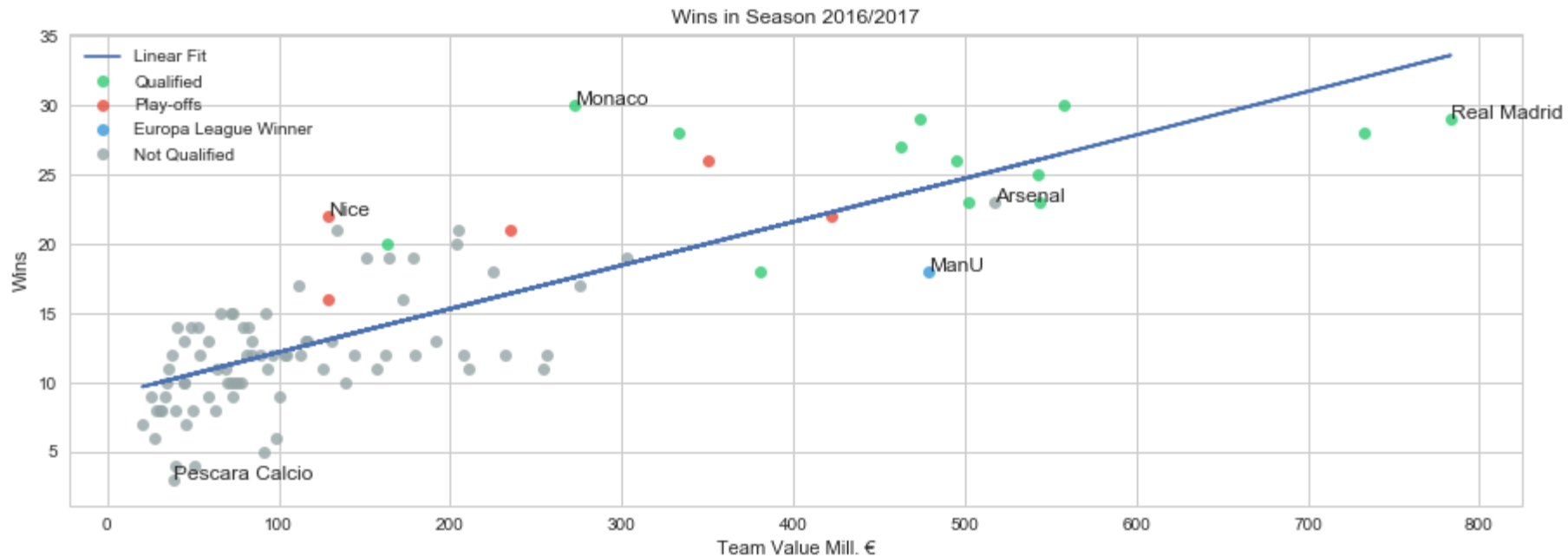
Testing a null hypothesis that the squad value means of clubs that qualify to CL and those that do not are equal, we get a t-statistic of 11.313 and a p-value ≈ 0 . Therefore, it can be concluded that squad values are different for clubs that make it to the Champions League.



14.2% of teams would be misclassified if you tried to use squad value to guess if a team qualifies to CL.

Correlations

There is a high correlation between squad value and performance.

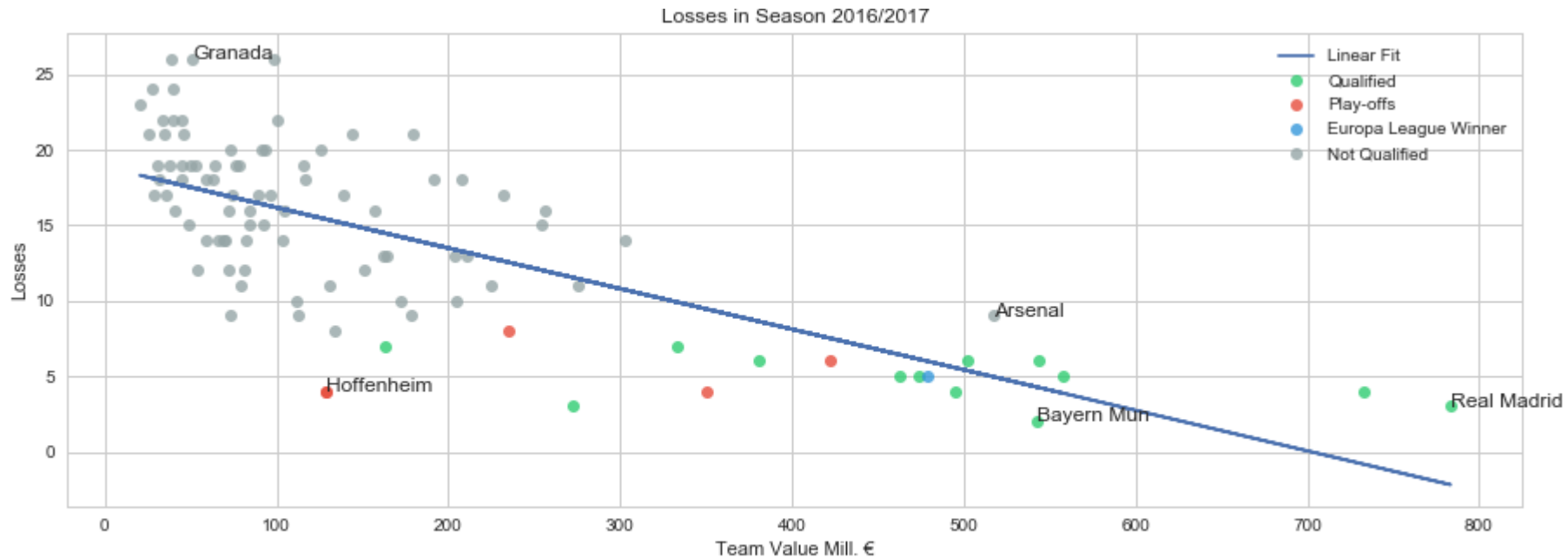


correlation coefficient: 0.81

Arsenal is the only team over 330 million not qualify to the Champions League.

Correlations

There is a high correlation between squad value and performance.



correlation coefficient: -0.72

Arsenal lost the most games (9) for teams worth over 350€ million. OGC Nice and TSG 1899 Hoffenheim only lost 4 games with teams worth less than 140 million.

Arsenal F.C

Arsenal vastly underperformed in the 2016/2017 season

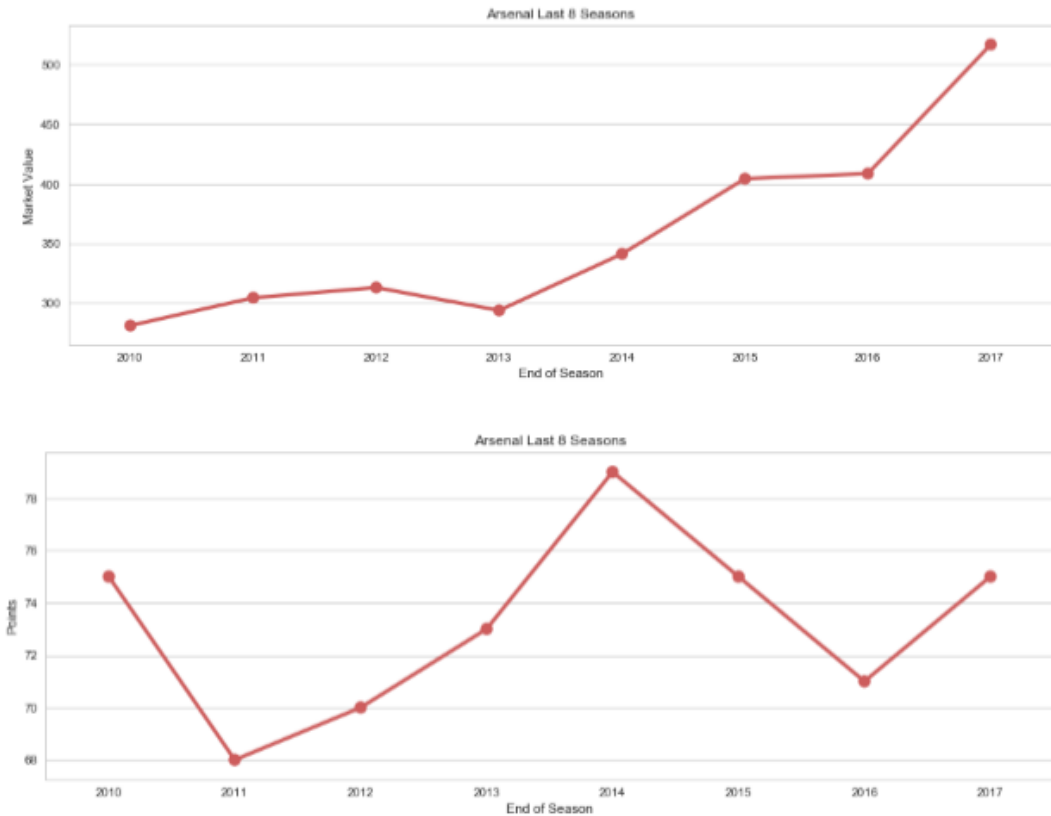
Arsenal is a clear outlier with respect to other clubs of similar value. Given its squad value, the club should have qualified to the Champions League, but instead underperformed in all parameters.

	Arsenal FC	Club > 350 Mill. €
Position	5	2.46
Wins	23	24.92
Draws	6	7.77
Losses	9	4.69
Goals	77	83.85
Goals Against	44	33.00
Goal Difference	33	50.85
Points	75	82.54
Team Value Mill. €	517	517.37
Champions League	No	Yes

Arsène Wenger

Arsenal's manager to blame for poor performance.

At Arsenal, club manager Arsène Wenger, has a lot of say in player transfers. He's been manager since 1996, and the Daily Mail reported last May, "Arsenal manager Arsene Wenger will be given the final say on transfers even if the Gunners appoint a new director of football next season. Wenger's number may not be declining, but the fact that the club did not make it to the Champions League, suggests the Premier League is increasingly becoming more competitive.



Recommendations

Arsenal's should terminate Wenger's.

Arsenal should terminate Arsène Wenger, given his track record over the last years with an increasingly valuable team. The club should also look at the following clubs and their managers for possible substitutions:

AS Monaco, OGC Nice, Red Bull Leipzig, TSG 1899 Hoffenheim, and AS Roma.

Sources

"European Leagues and Cup Competitions." Transfermarkt. N.p., n.d. Web. 12 July 2017.

Football-data.org - Ur Src for Machine Readable Football Data. N.p., n.d. Web. 12 July 2017.

MailOnline, Sami Mokbel for. "Arsenal Manager Arsene Wenger Will Be given the Final Say on Transfers Even If the Gunners Appoint a New Director of Football next Season." Daily Mail Online. Associated Newspapers, 11 May 2017. Web. 12 July 2017.