VU University Amsterdam

Master of Science Business Analytics

Research Paper

Leverage position on the FIFA Ranking

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Abstract

The FIFA Ranking is the official ranking method for national football teams. Its main purpose is to clarify the relative strength of the FIFA member nations. However, recent research has shown that other ranking methods outperform the FIFA Ranking in match prediction. In other words, the FIFA Ranking is less reliable in presenting the relative strength of a national team. This study aims to use these inefficiencies to leverage the position of a national football team on the ranking. A case study of Switzerland shows that the FIFA Ranking may have a significant impact on the performance on the FIFA World Cup. Based on the FIFA Ranking procedure is argued selecting the right opponent for friendly matches can influence the ranking. An extensive data analysis indeed shows exhibition games may have a large impact on a team?s position on the FIFA Ranking. An opponent selection model is created combining the FIFA Ranking procedure and the Elo Rating system. Several scenarios for England have shown that choosing the right opponent in exhibition games can give a more favourable position on the FIFA Ranking. Hence, simulation has demonstrated the model works successfully and therefore could be used in practice by national football associations.

Preface

The research paper is compulsory in the Master's program Business Analytics at the VU University Amsterdam. The paper is used as preparation for the Master Project and should be conducted on a business-related subject with a strong link to mathematics and computer science.

In this paper a model is created for national football associations to leverage their position on the FIFA Ranking. The model can be used so select the optimal opponents for exhibition games to increase the rating points of national football teams.

I would like to thank my supervisor, Sandjai Bhulai, for his support and guidance during my research. He has been of great help in this process.

Thijs Bootsma
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1 Introduction

The FIFA / Coca-Cola World Ranking (FIFA Ranking) is the official ranking method for national football teams. It was established by the Federation Internationale de Football Assocation (FIFA) in August 1993. Its purpose is to clarify the relative strength of FIFA member nations based on team skill and performance levels. In practice, the FIFA Ranking is used for setting participation quotas of the confederations for the FIFA World Cup. Furthermore, it is also used as input for the draft of both the FIFA World Cup and the FIFA World Cup qualification. Considering that the World Cup has economical and sportive benefits for participating nations, the FIFA Ranking is of great importance to each FIFA member nation [Suzuki and Ohmori, 2008].

The FIFA Ranking can have a crucial impact on a nation's performance on the FIFA World Cup. As the FIFA World Cup is preceded by a draw, the nations are seeded according to the rankings. To prevent the strongest teams (those ranked highest) from meeting in an early stage of the competition, higher and lower ranked teams are paired as opponents [Lasek et al., 2013]. Hence, high ranked teams have an advantage in the early stage of the tournament, like Colombia during the FIFA 2014 World Cup in Brazil. Based on their fifth place on the FIFA Ranking, Colombia was seeded among the highest ranked teams. They had a favourable draw and were able to advance to the quarterfinals for the first time in football history. Thus, by obtaining a higher position on the FIFA Ranking, a nation will increase their chance of performing well on the FIFA World Cup.

As the FIFA Ranking is the official ranking method in football, it is a popular topic in match prediction research. McHale and Davies [2007] were the first to use the method for prediction. They test whether the FIFA Ranking reflects the team's relative strength accurately. Lasek et al. [2013] provide a comparison of different methods for ranking national football teams, using the FIFA Ranking as a benchmark. Their study shows that the FIFA Ranking is outperformed by several other methods. This makes the FIFA Ranking less reliable in clarifying the relative strength of the FIFA member nations. Lasek suggests using this fact and developing a model to leverage the position of a team on the FIFA Ranking.

This study will introduce a model for national football teams to advance on the FIFA Ranking. The paper will be structured to show three main aspects of the research. First of all, a case study is performed to show the reason for obtaining a higher position on the FIFA Ranking. Thereafter, an analysis will be given of the impact of friendly matches on the FIFA Ranking. This analysis will be based on data of all matches played in the period between August 2010 and July 2014. It will show the influence a nation can have on its ranking in exhibition games. Finally, a model is presented for national teams to choose the right opponent in friendly matches. This model is linked to the Elo rating system, which is already used in several other sports like chess. The relevance of the model will be shown, using the FIFA 2018 World Cup qualification draw in July 2015 as an example.

2 Literature

The literature written on football and statistics mainly focusses on match prediction. For a period of time scientists and businesses have been looking for the best model to predict the outcome of football matches and football tournaments. This is not surprising, as we all have tried this by competing in a local football pool. Furthermore, the popularity is reflected by the sport betting industry, which has grown into a huge industry worth €550 million to €750 million on an annual basis [Keogh and Rose, 2013]. In the first part a historical overview is given of the research in statistics and match prediction in football. In next part the FIFA Ranking will be evaluated as a prediction method. In the last part of this section the goals off this paper will be introduced: advance on the FIFA Ranking.

The first statistical analysis on football data already has been conducted in the 1950's. Moroney [1956] used the poisson distribution and negative binomial distribution to analyse football match results. Both distributions provided to be a good fit to these results. After 20 years Hill [1974] had another valuable breakthrough. He showed that that there exists a significant positive correlation between forecasts and league end tables. Hence, he argued that football results are not pure chance, although there definitely is a considerable element of chance. Maher [1982] was the first to create and publish a model to predict match outcomes. His poisson model gave reasonably accurate description of match outcomes, based on parameters as the team's attacking and defensive strengths. Dyte et al. [2000] also used a poisson model to predict to simulate the matches of the World Cup 1998 tournament. Knorr-Held [2000] build a framework to rate sport teams based on their match results such as win, draw and loss in football. Using recursive Bayesian estimation they showed the time-dependencies of a team's strength. Recent results were shown to be a better predictor of a team's strength than older results.

Two main approaches exist to model match outcome prediction. The first approach models the goals scored and conceded by a team. The second methodology directly aims to directly model the win-draw-lose result. Goddard [2005] showed that the difference between the two approaches appear to be relatively small. This indicates that both goals-based and results-based models can be used in match prediction. The prediction based on ranking systems will focus on the prediction of match results. Furthermore the impact of several parameters on match outcomes have been researched, like the home advantage of teams [Pollard, 2008].

Most of the research mentioned above is conducted based on club teams play in national leagues. As national teams only play a limited number of games each year, it is much harder to rank these teams [Albert and Koning, 2008]. The FIFA Ranking is the official ranking method for national football teams and is a popular topic in research. McHale and Davies [2007] were the first to use the FIFA Ranking for prediction. They test whether the FIFA Ranking reflects the team's relative strength accurately. Although it is statistically significant in predicting match outcomes, the results of this study are not satisfying. The FIFA Ranking does not use past results efficiently and is not able to react quickly enough to recent changes. McHale and Davis suggest developing a ranking system whose predictive power is improved.

Multiple studies focussed on the predictive power of the FIFA Ranking of major football tournaments. Suzuki and Ohmori [2008] compared the results of previous FIFA World Cup finals to the FIFA Ranking. This resulted in a moderate correlation between the results and the FIFA Ranking. Suzuki and Ohmori therefore argued the FIFA Ranking was effective as a prediction method, although the accuracy could be improved. Luckner et al. [2008] compared

predictions based on the FIFA Ranking to forecasts made by the prediction markets for the FIFA World Cup 2006. Leitner et al. [2010] compared methods based on the the FIFA Ranking and Elo Rating to the bookmakers' prediction for the European football championship 2008. Both studies showed the bookmakers' prediction outperformed the FIFA Ranking, as it was more flexible in using recent information.

Another popular method for predicting match results is the Elo Rating system. The first Elo Rating system was developed in the 1950s by Arpad Elo to calculate the relative skill levels of chess players. In 1970 the International Chess Federation (FIDE) adapted the rating system. Glickman [1995] provides a comprehensive overview of the Elo rating system. Several articles are written on the predictive ability of the Elo system in football. Hvattum and Arntzen [2010] tested two models based on the Elo system, which outperformed four out of the six other models. Only two models, which were based on bookmaker odds, performed better than the Elo models.

Lasek et al. [2013] provides an overview and comparison of the predictive power of different models for ranking national football teams. The official FIFA Ranking is used as a benchmark. Instead of using the rank of the FIFA Ranking as in other studies, the score of the nations is used as input. The Elo rating system is the best performing algorithm, but several other models also outperform the FIFA Ranking. Therefore Lasek suggests researching these inefficiencies in the FIFA Ranking to leverage the position of national football teams in the ranking.

3 FIFA Ranking

The FIFA Ranking has proven to be a popular topic in research. This section will further explain the calculation procedure of the FIFA Ranking and its application in the draw for the FIFA World Cup.

3.1 FIFA Ranking Procedure

In this section the FIFA Ranking procedure will be explained extensively. The procedure is provided in the fact sheet provided by the FIFA and is build up in three stages. These stages are the match score, the annual score and the ranking score and will be explained below.

Match Score

The FIFA Ranking is based on all matches a country played in the past four years. The overall score is a weighted average of the points assigned to each match. The points awarded for a match are based on the following formula:

$$P = M \cdot I \cdot T \cdot \ C$$

The number of points per match P depends on a number of variables:

- What was the result of the Match? M
- How Important was the match? I
- How strong was the opposing Team? T
- How strong was the Confederation to which the opposing team belongs? C

For each factor there are specific formulas that determine the number of points per match. In following parts these will be explained.

M: Point for match result

As said before, M is the number of points assigned to a nation for the match result. The numbers 0, 1, and 3 are assigned to a match result, just as in normal table fixtures. Only in case of a penalty shout-out, the rules are different. A victory after such a shout-out gives 2 points and the losing team receives 1 point. The full summary is presented below:

Victory	$M = 3$
Victory after a penalty shout-out	$M = 2$
Draw or loss after a penalty shout-out	$M = 1$
Loss	$M = 0$

I: Importance of match

The importance of a match is denoted by a number between 1 and 4. The importance is depended on the competition the match is played in. Note that this number is equal for both teams in a match.

Friendly match (including small competitions)	$I = 1.0$
FIFA World Cup qualifier or confederation-level qualifier	$I = 2.5$
Confederation-level final competition or FIFA Confederations Cup	$I = 3.0$
FIFA World Cup final competition	$I = 4.0$

T: Strength of opposing team

The strength of the opposing team is based on its position in the FIFA Ranking and can be calculated by subtracting the rank from the number 200. However, there are 2 exceptions. The highest ranked team, which has rank 1, will get a score of 200 instead of 199. Secondly, the teams below rank 150 will all get a score of 50. Denote the rank of a team by R and this results in the following formula:

$$T = \begin{cases} 200 & \text{if } R = 1 \\ max(200 - R, 50) & \text{otherwise} \end{cases}$$

C: Strength of confederation

The last variable of the equation is based on the strength of the confederations of both teams. As a value for C, the mean value of the confederations to which the competing teams belong is used. Hence, the number is also equal for both teams in a match. The strength of confederations is based on the number of victories by that confederation in the last three FIFA World Cup competitions. Their values can also be calculated using the FIFA FACT Sheet [FIFA]. The current values of each confederation is shown below.

	Before WC 2014	After WC 2014
CONMEBOL	C = 1.00	C = 1.00
UEFAL	C = 1.00	C = 0.99
CONCACAF	C = 0.88	C = 0.85
AFC	C = 0.86	C = 0.85
CAF	C = 0.88	C = 0.85
OFC	C = 0.85	C = 0.85

Annual Score

Based on the match scores, the annual score for a nation is calculated. This annual score, denoted by P_{tot} is computed with the average number of points the team earned per match in the past twelve months. So note the scores are not specifically calculated for a calendar year! Also, this score is based on the number of games the team has played in those months. Namely, a team gets a discount of their point average when they played less than five matches. Let N denote the number of matches played in the past twelve months and $P_{average}$ the average number of points per match. Then the formula to calculate the number of points is the following:

$$P_{tot} = \begin{cases} P_{average} \cdot \frac{N}{5} & \text{if } N < 5 \\ P_{average} & \text{otherwise} \end{cases}$$

Ranking Score

To calculate the ranking score, a weighted average is calculated over the past four years. These four years cover exactly one World Cup cycle. Matches older than twelve months within this four-year period depreciate block-wise on a yearly basis. The matches older than 4 years will be not be taken into account in the ranking score at all. Let P_{rank} denote the ranking score and P_{Yi} the average score in year i for $i = 1, 2, 3, 4$.

$$P_{rank} = P_{Y1} + 0.5P_{Y2} + 0.3 \cdot P_{Y3} + 0.2 \cdot P_{Y4}$$

3.2 FIFA World Cup and Qualification

An important question one might ask is: 'Why should a nation want to advance on the FIFA Ranking?' The main reason is to obtain a favourable draw for the qualification competition of the FIFA World Cup and the FIFA World Cup. The main use of the FIFA Ranking in these draws is to prevent strong nations to encounter in an early stage of the (qualification) tournament. Therefore the FIFA Ranking is used to pair higher and lower ranked opponents. Hence, as higher ranked nation has a larger probability of a weaker opponent than a lower ranked nation.

FIFA World Cup Qualification

The qualification for the FIFA World Cup differs for each confederation. However, most of the confederations use the FIFA Rankings in three different stages. At first, the round of entrance is determined for each specific nation, which is based on the FIFA Ranking in all the confederations. Only CONMEBOL and UEFA make use of only one specific round that consists of league tables. In one of these qualification rounds, the specific round differs per confederation, there is a knock-out stage. The pairs of nations are based on the FIFA Rankings, where the higher ranked teams will have one of the lower ranked as opponent. The third stage where the FIFA Ranking can be applied, is in creating pots for a group stage. The pots group the nations together based on their rank. The highest ranked teams form pot 1 and the other pots are formed in a similar, descending manner. From every pot 1 team is selected and placed in a group. Hence, teams from a pot will not be grouped together during the group stage of the qualification. In the table 1 below an overview is given of the use of the FIFA Ranking in different stages per confederation.

Confederation	Round of entrance	Knock-out opponent	Pot seeded
AFC	Yes	Yes	Yes
CAF	Yes	Yes	Yes
CONCACAF	Yes	Yes	Yes
CONMEBOL	-	-	No
OFC	Yes	No	Yes
UEFA	-	-	Yes

Table 1: Stages in qualification based on FIFA Ranking

FIFA World Cup

Besides the qualification competition, the FIFA Ranking is also used in the draw for the FIFA World Cup itself. The draw for the tournament is based on 4 pots and from each of these pots

one team is selected and placed in a group. Hence, teams from the same pot do not compete during the group stage on the FIFA World Cup. Pot 1 contains the so-called seeded teams, which include the hosting nation of the FIFA World Cup, Brazil in 2014, and the top 7 nations based on the FIFA Ranking. Thus, based on the FIFA Ranking these should be the strongest nations. Pot 2, Pot 3 and Pot 4 are formed using the confederations of the nations. A nation should therefore try to be placed in Pot 1 to not have to compete with the strongest nations in an early stage of the FIFA World Cup.

In December 2013 the FIFA hosted the draw for the FIFA World Cup 2014 in Brazil. The draw determines groups of the first stage of the FIFA World Cup and the place in the schedule of that group. In other words, it determines the possible teams a nation will encounter during the tournament. The pots were are presented in table 1. Normally, all four pots would contain eight teams. However, due to geographical conditions Pot 4 contains 9, as they are all European countries. The FIFA solved this by selecting one country from Pot 4 by a random draw and placing it in Pot 2, which in this case was Italy. By the FIFA procedures, a nation within a pot cannot end up with a nation of that same pot in a group on the FIFA World Cup. For example, Spain will not be in a group with either Brazil or Germany. Hence, a nation in pot 1 will avoid the strongest nations in the group phase of the FIFA World Cup. Therefore, a higher ranked nation will have an advantage on the FIFA World Cup and a higher probability of performing well in the tournament.

Pot 1	Pot 2	Pot 3	Pot 4
Brazil	Algeria	Australia	Bosnia-Herzegovina
Argentina	Cameroon	Iran	Croatia
Colombia	Côte d'Ivoire	Japan	England
Uruguay	Ghana	Korea Republic	France
Belgium	Nigeria	Costa Rica	Greece
Germany	Chile	Honduras	Italy
Spain	Ecuador	Mexico	Netherlands
Switzerland		USA	Portugal
			Russia

Table 2: Pots for the FIFA World Cup 2014 draw

4 Case: Switzerland

In October 2013 Switzerland gave a new meaning to the phrase "in the right place at the right time". Just in time before the draw for the FIFA World Cup 2014, Switzerland jumped 7 ranks and obtained the 7th place at the FIFA Ranking. Therefore Switzerland belonged to the top 7 ranked nations of the FIFA and together with host Brazil formed Pot 1 at the draw. Due to the place in Pot 1, Switzerland would become head of a group and avoided playing against the top ranked nations. But how is it possible Switzerland reached this position?

To answer the above question, we will start out with an overview of the situation of October 2013. Table 3 shows the rank and score of Switzerland and her competitors of that specific month. It is clear to see that Switzerland reached the 7th place only with a very small difference in points compared to the other countries. The mean rank and mean score of the past four years furthermore show that Switzerland has not been the best performing nation in that time period. For example, the Netherlands had an average rank of 5 compared to an average rank of 17 of Switzerland. In the next sections we will compare the progress of Switzerland to that of Italy and England and comment on the results at the FIFA World Cup 2014.

	Rank 10/2013	Score 20/2013	Mean Rank	Mean Score
Switzerland	7	1138	17	951
Netherlands	8	1136	5	1320
Italy	8	1136	9	1085
England	10	1080	8	1131

Table 3: The place on the FIFA Ranking of Switzerland compared to her competitors

4.1 Italy vs Switzerland

In September 2013, no problems were present for Italy. They were ranked at the fourth place with 1199 points. This was 141 points ahead of the Netherlands, which were ranked at the crucial ninth place, and even 207 points ahead of the Swiss. In the same month Italy qualified for the 2014 FIFA World Cup by defeating both Bulgaria and the Czech Republic. Italy looked ready to reclaim their 2006 victory in Brazil! However, October 2013 had something different in store for Italy.

Italy still had to play two qualifying matches against Denmark and Armenia. As they were already qualified for the 2014 FIFA World Cup, they were able to try out different tactics and different players in these matches Eurosport [2013]. The strong Danish team was able to control the new Italian squad and keep them at a 2-2 draw in Copenhagen. This was no problem for Italy, as they still were ahead of the opponents on the ranking. However, four days later even Armenia was able to play 2-2 against Italy in Naples and therefore decreasing their points average below the crucial level. Italy dropped four places on the FIFA Ranking to the eighth place, whereas Switzerland climbed seven places and claimed the seeded status.

From figure 1 it is clear to see that Italy has outperformed the Swiss for years. Italy was the 2006 World Champion and was runner-up at the 2012 UEFA European Championship, whereas Switzerland never has been able to advance to the semi-finals at an important tournament.

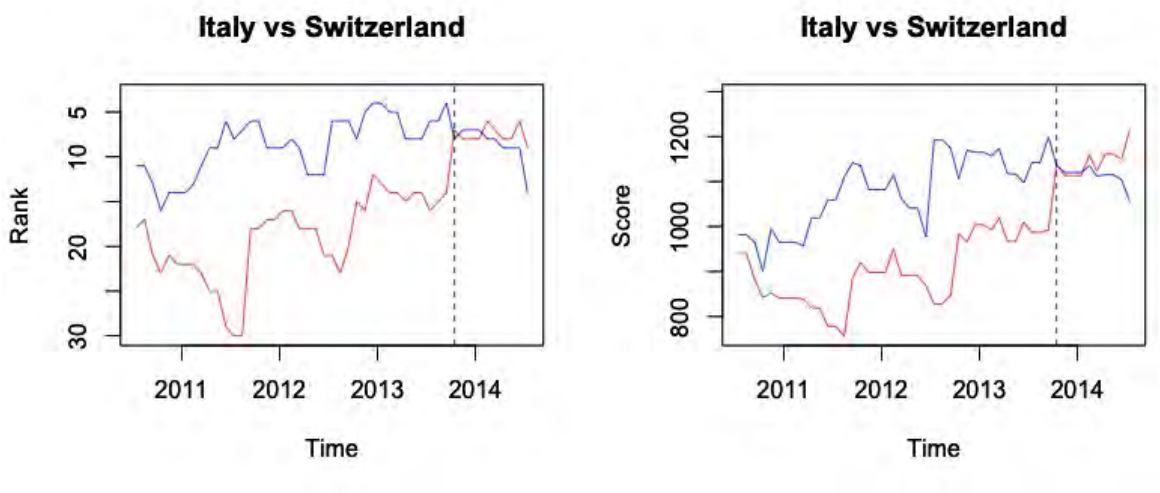

Figure 1: The Rank and Score of Italy (Blue) and Switzerland (Red) of the past four years

It is a popular opinion to say that Italy lost their seeded place against Armenia in October 2013. If Italy would have beaten Armenia, they would indeed been grouped in Pot 1. However, considering their results of the last twelve months, their competitive matches are not the main reason for falling on the FIFA Ranking.

Over the past twelve months Italy performed well in competitive matches with an average of 838 points (table 5). Italy even participated in the 2013 Confederations Cup, increasing the number of competitive matches that year to 12. Switzerland only played 6 competitive matches and had a point average of 806. Based solely on these matches, Switzerland would have never been able to catch up with Italy on the ranking. So what was the effect of the friendly matches on their FIFA Ranking?

The same table 5 shows the poor results Italy obtained in their friendly matches. They only scored a points average of 105 points, which was much lower than the average of 397 of Switzerland. Italy had chosen to play against opponents with a great status, such as Argentina, France, the Netherlands and Brazil. Not surprisingly, they did not manage to get a single win against these teams. Furthermore the draw of the charity match against Haiti and the win against the low ranked nation of San Marino, also had a negative effect on their rank. It shows choosing the right opponent for the friendly matches is of great importance.

	Competitive				Friendly			
	Win	Draw	Loss	Points	Win	Draw	Loss	Points
Switzerland	4	2	0	806	2	1	0	397
Italy	6	5	1	838	1	3	2	105
England	4	3	0	641	2	2	1	268

Table 4: Matches played in the year preceding the 2014 FIFA World Cup draw

In the past twelve months, Switzerland only played three friendly matches, which is half of the number of friendly matches Italy played. In fact, the total number of matches Italy

played was double the amount that Switzerland played. What was the reason Italy played all those extra friendly matches? If Italy would have played a single friendly match less during those 12 months, they would have ranked above Switzerland. Hence, the friendly matches for a nation should be scheduled with more thought to improve their position on the FIFA Ranking.

4.2 England vs Switzerland

The rank of England compared to Switzerland caused a lot of surprise in England as well. Examples can be found in the article of McKnight [2013] and Burnton [2013]. Looking at the results of the past four years, this is indeed a striking fact. Switzerland was not able to survive the group stage in the 2010 FIFA World Cup and did not even qualify for the 2012 UEFA European Championship. Whereas England participated in both tournaments and made it to the knock-out stage both times. So how did Switzerland manage to catch up with England on the FIFA Ranking?

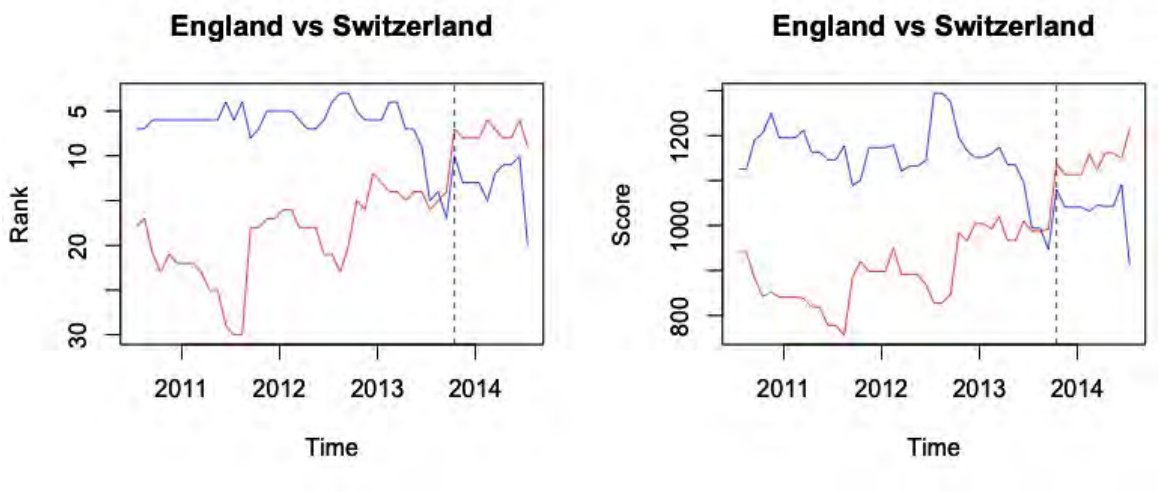

Figure 2: The Rank and Score of England (Blue) and Switzerland (Red) of the past four years

The moment Switzerland passed England on the Ranking was halfway 2013. The big loss in points of England was caused by the match results of the 2012 UEFA European Championship. Until June 2013, these match match points had a weight of 100% in the average of England's points. From June 2013 onwards, these points only had a weight of 50% as the results were older than 12 months. As the matches on the 2012 European Championship were awarded with a I of 3.0 (Importance of match), the average of England declined steeply. But why did Switzerland stay ahead of England?

This answer can be found in table 5. In the year preceding the draw Switzerland obtained a higher average points per match, respectively 670 for Switzerland versus 485 for England. There are two main reasons for this fact. At a first glance, the results for competitive matches of England and Switzerland are very alike. Both nations have had four wins over the past year. However, the average number of points awarded to these matches differs enormously. Switzerland obtain a 165 points higher average on competitive matches. Hence, the draws England faced against Poland, Montenegro and Ukraine may have caused them to miss Pot 1.

However, the main reason can be found in the friendly matches as well. Table 5 shows England has played two more friendly matches than Switzerland and these two extra friendly matches resulted in the fact England has an extra draw and an extra loss compared to Switzerland. These matches decreased the average points and became fatal for England. If England would have not played one of these unsuccessful friendlies, they would have been ranked higher than Switzerland. Hence, by playing less friendly matches, Switzerland was able to obtain a higher rank than England at the right moment.

4.3 Result

The result of the FIFA rank of the above nations can be found at the 2014 FIFA World Cup. Their place in Pot 1 made sure Switzerland ended up in a group with France, Honduras and Ecuador. By defeating both Honduras and Ecuador, Switzerland gained a well-earned second place in the group. In the next round they faced Argentina, which was only able to beat them after extra time. It was Switzerland's third time they survived the group stage since 1954.

England and Italy both ended up in the same group at the 2014 FIFA World Cup. In their first match, Italy claimed victory by defeating England by 2-1. In their later matches, the high-ranked team of Uruguay (indeed from Pot 1) defeated both nations. As also Costa Rica was able to surprise them, England and Italy returned home after the group stage. Based on the strength of their teams and historic results, they should have been able to advance to the next round. Would this have been any different if they would have been ranked higher?

5 Exhibition Games Impact

Official matches form the basis for the entire international schedule. They include the matches on tournaments such as the FIFA World Cup and confederation championships, and also the qualification matches. Hence, for these matches the opponents can not be chosen by the individual associations as they are drawn officially by the FIFA or the confederation. We consider these matches as the given basis for a nation's schedule and the opponents for friendly matches are to be chosen by the associations. Choosing the right opponent and the right number of games, may have a positive effect on the FIFA Ranking. Therefore, friendly matches are the control associations have to influence their ranking position. The importance of friendly matches can also be found in the example of Switzerland. The example shows that the number of friendly matches a team plays each year and the opponents chosen for these friendly matches may have an enormous effect on a team's chance to perform well on the FIFA World Cup.

Different scores are awarded to competitive matches and friendly matches, which is caused by the 'Importance of match' factor of the FIFA Ranking formula. Competitive matches will have a value for I of 2.5, 3.0 or 4.0, whereas a friendly only gets awarded by 1.0. Therefore the score of a competitive win or draw will in general be a factor between 2.5-4.0 higher than that of a friendly. Hence, scheduling friendly matches may have a negative effect on the rating score. In this section we will give an analysis of the points awarded to exhibition games. These will be compared to those of competitive matches and their effect on the FIFA Ranking. The numbers are based on the four year period between the 2010 FIFA World Cup and the 2014 FIFA World Cup.

5.1 Official Matches

Competitive matches will be awarded points in the range of 0 to 2400. Clearly, a team gets 0 points when it loses its match and the maximum points of 2400 is only given when the team defeats the number one ranked team on the FIFA Ranking at the FIFA World Cup. For example, for the 5-1 win of the Netherlands over Spain during the 2014 FIFA World Cup, they were awarded the 2400 points. Table 5 gives an overview of all the statistics for competitive matches.

	Value
Average points per match	301.55
Average number of matches per year	4.24
Maximum per match	2400
Average points per year	271.83
Maximum per year	1622
Minimum per year	0
Average Score (w)	462.67
Average Score (wo)	537.33

Table 5: Statistics on competitive matches over the four year period

The average points per competitive match is equal to 301.55. This is including the losses, which are awarded with 0 points. The average number of matches per year is equal to 4.24. From annual score of the FIFA Ranking formula we know a nation has to play at least five

matches to maintain its point average. Otherwise, their point average will be devalued based on the number of matches played. Therefore, an important reason for an association to play friendly matches is to be able to play at least five matches a year to get the full points.

The average points per year for all countries is equal to 271.83. The number is based on the average points of each of the four years of the time period. The maximum average for a year a nation reached is 1622. This was done by Brazil by winning the 2013 Confederations Cup. As they were host to the 2014 FIFA World Cup, they did not play any other competitive matches. Hence their win of that tournament boosted their point average. The minimum average per year is equal to zero, which means some nations were not able to win a single competitive match during twelve months. The average score of all countries combined is equal to 462.67. It is computed by combining the scores of four years based on the Ranking Score formula. This average is including the annual score penalty of decreasing the average when a nation has played less than five games. Without this penalty the average would be even higher and thus equal to 537.33.

Solely based on competitive matches, the top 3 of the FIFA Ranking would remain the same. Table 6 shows that Germany is still on top of the ranking, followed by Argentina and the Netherlands. However, striking is the difference in rating points compared to the actual points. By playing friendly matches, Germany has decreased their average by 903 points. Due to their good performance on the 2014 FIFA World Cup, this has no effect on their rank. This is in contrast with Brazil. Their friendly matches caused them to rank 3 places lower at the seventh place.

Nation	Points	Actual Points	Actual Rank
Germany	2627	1724	1
Argentina	2160	1606	2
Netherlands	2160	1496	3
Brazil	1998	1241	7
Colombia	1994	1492	4

Table 6: Top 5 nations based on competitive matches

Friendly

As said before, it is expected that friendly matches give lower points on average than competitive matches. This can clearly be seen from the data, which is summarized in table 7. A friendly match can only give points in a range from 0 to 600. Therefore, its point average per match is lower than that of the competitive matches. Over the past four years it is equal to 121.63 and thus the average is over 2.5 times smaller than that of competitive matches.

The maximum annual average for friendly matches of a nation is equal to 478. This was done by Bosnia and Herzegovina in the penultimate year before the 2014 FIFA World Cup. They have played 4 matches and managed to win them all. This series includes an impressive win over Brazil. As well as with the competitive matches, the minimum annual average is equal to 0. The average points per year over the four year period is equal to 110.89. Again, this average is more than 2.5 time smaller than the average for competitive matches. Also the average score

	Value
Average number of matches per year	4.68
Average points per match	121.63
Maximum per match	600
Average points per year	110.89
Maximum per year	478
Minimum per year	0
Average Score	217.99

Table 7: Statistics on friendlies over the four year period

for friendlies is much lower with an average of 217.99.

In contrast to the top 5 of competitive matches, the top 5 of friendly matches (table 8) is not at all similar to the top 5 of the normal FIFA Ranking. The only nation that is present in all three is Argentina. Ukraine, which is only ranked 22nd on the normal FIFA Ranking, performed so well in their friendlies that they reached a third place. This mainly due to a good score in the last year, where they only played and won 3 matches. However, compared to their competitive score of 944 it still decreased their average score.

Nation	Points	Actual Points	Actual Rank
Argentina	745	1606	2
Brazil	739	1241	7
Ukraine	725	898	22
Spain	681	1229	8
Uruguay	667	1330	6

Table 8: Top 5 nations based on friendly matches

Surprisingly Brazil is present in both the top 5 of competitive matches and the top 5 of competitive matches, but is only ranked seventh in the normal FIFA Ranking. This is due to the fact that Brazil played 36 friendly matches and only 16 competitive matches over the past four years. A friendly match and a competitive match both count as one match when calculating the rating points. Therefore the score of the friendly matches received a higher weight in the total average as the number of matches was far greater. Hence the average score of friendly matches lowered their combined average and causes Brazil to be only ranked seventh.

Impact

In the previous sections we have seen that friendlies have a negative impact on the rating points of the countries. This can of course be expected as the points awarded to friendly matches are lower in general than the points of competitive matches. However, to capture the true effect of friendly matches we should look on the effect on the ranking instead of the rating points. In the end, the rank is the parameter we are interested in. We will look at countries suffering from friendly matches, but also countries that benefit from playing friendlies.

The average effect of friendly matches results 0.25 lower rank for nations in general. Considering al the countries, 55% would have ranked higher if they did not play any friendlies. On the other hand, this means that almost half of all countries benefitted from playing friendlies. The gain and the loss a team may encounter can be seen in table 9 and table 10. Table 9 shows that Belarus was able to rank 43 places higher by playing friendly matches. This difference is computed by comparing their rank from competitive matches with the rank of playing both friendly and competitive matches. In contrast to Belarus, Moldova suffered greatly from playing their friendlies. They dropped 33 ranks compared to their rank of competitive matches. Both tables show that the results of friendly matches have a significant impact on a nation's ranking.

	Combined		Friendly		Competitive		
Nation	Points	Rank	Points	Rank	Points	Rank	Gain
Belarus	376	80	378	41	243	123	43
Guinea	555	50	464	26	383	90	40
Poland	477	62	443	33	360	95	33
St. Lucia	221	126	160	117	98	158	32
Tajikistan	199	135	204	95	82	164	29

Table 9: Top 5 nations that benefitted from friendly matches

	Combined		Friendly		Competitive		
Nation	Points	Rank	Points	Rank	Points	Rank	Loss
Moldova	318	101	144	122	486	68	-33
Philippines	219	128	124	129	358	96	-32
Guatemala	204	133	71	154	330	102	-31
Northern Ireland	356	86	69	155	571	56	-30
Ethiopia	279	109	124	129	423	82	-27

Table 10: Top 5 nations that suffered from friendly matches

In addition to the impact of friendlies on the ranking, we can also look at the rating points. When playing only competitive matches, nations would increase their rating points with 76 on average. Obviously, for higher ranked teams this could be much higher. However, as the difference in rating points is quite small between the ranks, an increase of 76 points could result in an increase of multiple ranks. That this difference can be crucial, can be clearly seen from the Switzerland example. Overall, 64% of the teams will have higher rating points when they would not have played friendly matches.

Friendlies are in general only beneficial for countries with a lower rank. The top 25% ranked nations have rating points above 600, which is the maximum obtainable points from a friendly. Hence, for all those teams a friendly match will always have a negative effect on their rating points. Furthermore, for only 21% their friendly average is higher than the competitive rating points. Of this 21%, the average rank is 154 and the highest rank is 49. This is including the rule that decreases the points when a team played less than 5 games. Without this rule, hence purely looking at average points, only 14% of the countries have an higher average of rating points obtained by friendly matches.

6 Opponent Selection Model

In the methods section a prediction model for opponent selection will be introduced. In the next part, this model will be used to create the optimal scheme of exhibition games. The optimal scheme is a combination of multiple matches that provide the highest expected points per match. The prediction model will be a combination of the FIFA Ranking procedure and the prediction formula from the Elo Rating System. Both methods have been explained in previous sections and for more information we will refer to the literature mentioned there.

6.1 Eloratings.net

Eloratings.net is the host website of The World Football Elo Rating System[eloratings.net]. This is a ratings system based on a version of the Elo method. It was first introduced in 1997 to international football by enriching the original chess rating system with several variables. These include the weighting for the match type, an adjustment for home team advantage and an adjustment for goal difference. The ratings include all official international matches for which results could be found. Hence, also results of the very beginning of football are being used. The ratings of a nation tend to converge to its true strength relative to its competitors after 30 matches. Thus the ratings system takes into all information possible to increase its accuracy.

$$R_n = R_o + K \cdot G \cdot (W - W_e)$$

The formula above is being used to calculate the rating points for the Elo Rating system. The formula calculates the new ratings points R_n for a specific team, which are updated after every match. The new rating is mainly based on their old ratings points R_o. These old ratings are updated by the result of that match based on the difference actual match result and the predicted result. This difference will be factorized based on the match type and the goal difference. The values given to the these variables will also be explained below.

R_n : new or updated rating
R_o : old or pre-match rating
K : weight for the match type
G : adjustment for goal difference
W : actual match result
W_e : expected match result

The actual match result W is of course determined by the outcome of the match. We will define the first team of the match team A and the second team B. A win for team A will result in $W = 1$, a draw gives $W = 0.5$ and a loss for team A makes $W = 0$. The prediction variable W_e in the Elo Rating system is a logistic regression model. It is based on the difference in rank between the two teams $d_r = r_A - r_B$, where r_A is the rank of team A and r_B of team B. When team A plays at home, the d_r will be increased by another 100 points. In this way the home advantage is incorporated in the model. The prediction formula for W_e is as follows:

$$We = \frac{1}{(10^{-\frac{d_r}{400}} + 1)}$$

The weight constant for the tournament played K is similar to the FIFA Ranking, although the numbers are different. Important matches, such as the FIFA World Cup, get awarded with higher points than friendly matches. The value for K corresponding to the type of match is as follows:

FIFA World Cup final competition	$K = 60$
Confederation-level final competition or FIFA Confederations Cup	$K = 50$
FIFA World Cup qualifier or confederation-level qualifier	$K = 40$
All other tournaments	$K = 30$
Friendly match	$K = 20$

The difference in match result is furthermore adjusted for the goal difference N of the match. The higher the goal difference of the match, the higher G will be. This can be found in the overview below. The adjustment for goal difference is not included in the FIFA Ranking calculation. However, one might argue this gives better results. Following the FIFA Ranking, the 7-1 win of Germany of Brazil would be awarded with just as many points as a close 1-0 win. Based on the goal difference, Germany has earned more points for its performance. This is incorporated in the Elo Rating System.

$$G = \begin{cases} 1 & \text{if } N \leq 1 \\ 1.5 & \text{if } N = 2 \\ 1.75 & \text{if } N = 3 \\ 1.75 + \frac{N-3}{8} & \text{if } N \geq 4 \end{cases}$$

6.2 Match Result Prediction

Several articles have been written on the predictive ability of the Elo system in predicting match results. Hvattum and Arntzen [2010] tested two models based on the Elo system against six other models. The Elo models outperformed four of these predictive models. Lasek et al. [2013] showed that models based on the Elo Rating system proved to have a good predictive power. In particular, the model based on the eloratings.net gave good results. Hence, in this paper we will also make used of the Elo system to make a predictive model.

An advantage of the Elo system is the presence of a match prediction formula. The formula of W_e can be used to compute the win expectation of both teams. However, this formula cannot be implemented for football match prediction directly. As the Elo Rating system was originally used in chess, the binary match prediction has to be converted to a model with three-way outcomes. Whereas the prediction formula only gives values between 0 and 1, we need the prediction formula to predict the probability of a win, a draw and a loss.

In their paper, Wang and Vandebroek [2013] also introduced a three-way prediction model. They defined the following three different probabilities as parameters of the model:

$$\begin{aligned}
\mathbb{P}(W_A|r_A, r_B) = \mathbb{P}(L_B|r_A, r_B) &: \text{ win of team A and loss of team B} \\
\mathbb{P}(D_A|r_A, r_B) = \mathbb{P}(D_B|r_A, r_B) &: \text{ draw of team A and draw of team B} \\
\mathbb{P}(L_A|r_A, r_B) = \mathbb{P}(W_B|r_A, r_B) &: \text{ loss of team A and win of team B}
\end{aligned}$$

From now on we use the shorter notation of W_A for the probability of a win for team A instead of $\mathbb{P}(W_A|r_A, r_B)$ and the some holds for the other variables. Using the Elo Rating system, the probability of a win for team A can be defined as the win expectation W_e. Following this reasoning, we know the probability of a win for team B is equal to $1 - W_e$. Hence we have:

$$W_A = L_B = \frac{1}{(10^{-\frac{d_r}{400}} + 1)}$$

and

$$L_A = W_B = \frac{10^{-\frac{d_r}{400}}}{(10^{-\frac{d_r}{400}} + 1)}$$

However, the probability for a draw still has to be defined. This will be based on the reasoning provided by Glickman [1999]. Under assumption of independence between two different matches, we define the probability of a win of team A over team B followed by a loss against the same team as the product of the probability of both events. Of course, this may also be applied the other way around. This is equal to:

$$\frac{1}{(10^{-\frac{d_r}{400}} + 1)} \cdot \frac{10^{-\frac{d_r}{400}}}{(10^{-\frac{d_r}{400}} + 1)}$$

To define the probability of a single draw, we take the square root of the above event

$$D_A = D_B = \frac{(10^{-\frac{d_r}{400}})^{0.5}}{(10^{-\frac{d_r}{400}} + 1)}$$

Note that using these definitions, the probabilities of a match outcome $W_A + D_A + L_A \geq 1$. Hence, we have to normalize the above definitions to obtain the proper probabilities:

$$W_A = L_B = \frac{1}{1 + 10^{-0.5\frac{d_r}{400}} + 10^{-\frac{d_r}{400}}}$$

$$D_A = D_B = \frac{10^{-0.5\frac{d_r}{400}}}{1 + 10^{-0.5\frac{d_r}{400}} + 10^{-\frac{d_r}{400}}}$$

$$L_A = W_B = \frac{10^{-\frac{d_r}{400}}}{1 + 10^{-0.5\frac{d_r}{400}} + 10^{-\frac{d_r}{400}}}$$

6.3 Expected Match Result

With the above three-way prediction, the formula of M can be computed. From the FIFA Ranking procedure, it is know that M can have either the value of 3 for a win, 1 for a draw and 0 for a loss. Let M_A be the match result for team A and M_B for team B. Based on the above equalities and simple algebra the formulas for the expected match results will be as follows:

$$M_A = 3 \cdot W_A + D_A$$
$$M_B = 3 \cdot L_A + D_A$$

6.4 Prediction Model

As M is known for both teams, all variables for P have been defined and the prediction model can be finalised. From the FIFA Ranking precoedure it is known that the value of I and the value of C will be equal for both teams. Hence, only T will different between the opponents. Thus the rating points formule for both teams will be:

$$P_A = (3 \cdot W_A + D_A) \cdot I \cdot T_A \cdot C$$
$$P_B = (3 \cdot L_A + D_A) \cdot I \cdot T_B \cdot C$$

Based on the above formules the expected rating points per team can be calculated. The optimal scheme will consist of the opponents with the highest rating points. The relevance of such an optimal scheme will be clarified in the next section.

7 Results

The goal of this paper is to create a scheme for a nation to advance on the FIFA Ranking. As we have explained before, the FIFA Ranking is used at two different moments. Namely, at the draw for the qualification of the FIFA World Cup and at the draw for the actual FIFA World Cup. The next draw-event of the FIFA takes place at July 25 2015 in St. Petersburg for the qualification of the 2018 FIFA World Cup [FIFA, 2014]. Hence, for all countries it is extremely important to rank as high as possible to benefit during the draw.

In this section of the paper we will solely focus on the European countries that have joined the UEFA. Due to the transparent European qualification stage the effect of the FIFA Ranking can be easily made visible. The rating points of the FIFA Ranking in July 2015 are based for 50% on the ratings points earned over past 36 months until July 2014 and for 50% based on the points that will be earned in the coming year. Thus for all countries in the UEFA we will predict the number of rating points they will gain next year in competitive matches. These rating points will be added to the other rating points they obtained in the last 3 years. Based on the crucial levels in the European rank a scheme of friendly matches will be proposed to three countries.

7.1 Match Prediction: UEFA Euro 2016 Qualification

All the countries in the UEFA will play competitive matches during the qualification of UEFA Euro 2016 in France. In total there are 156 matches that will be played until July 2015, of which most countries play 6. Only the countries placed in group I, will play either 4 or 5. These matches will be predicted using the formula of the previous chapter. Note, as all these matches are for the qualification of EUFA Euro 2016, their factor $C = 0.99$ and $I = 2.5$. This results in the following general rating point formulas:

$$P_A = (3 \cdot W_A + D_A) \cdot T_A \cdot 2.5 \cdot 0.99$$
$$P_B = (3 \cdot L_A + D_A) \cdot T_B \cdot 2.5 \cdot 0.99$$

As can be seen from the previous chapter, the values of W_A, D_A, L_A depend on the rating points of the Elo Rating System. We have chosen to use the rating points of August 13 2014 for all the matches during the year. Computationally the calculations will become easier, as we do not have to update the ranking after every single match day. Furthermore, the strengths of the nations will be more accurate as they are based on real results and not on predicted results. Following a similar reasoning, we also use the August 2014 FIFA Ranking data to calculate the value for T_A and T_B. In the appendix an alphabetical overview (table 19) can be found of the data for each nation.

Based on the above assumptions, we have made predictions for all qualification matches until July 2015. Using the predicted match results, we have calculated the expected points per match for each of the nations. We have averaged these expected points to obtain the rating points for the twelve month period between July 2014 and July 2015. We have added this average to the points all nations already obtained in the three year period from July 2011 to July 2014. This combined points total will be the rating points for the July 2015 FIFA Ranking.

This result can be found in the appendix in table 20.

In the July 2015 draw each pot contains of nine countries. Therefore we have divided the predicted ranking in groups of nine countries as well. For example, from table 20 can be seen that Ukraine is ranked ninth and therefore belongs to Pot 1. In contrast, England is ranked tenth and thus is the first country of Pot 2. Countries near these borders shown in table 20 have the highest interest in creating a favourable friendly scheme, as they have the highest probability of getting into a higher pot. Hence, we will develop a friendly strategy to increase their FIFA Ranking.

7.2 Scenarios for England

In this section we will determine the best friendly strategy for England. We will focus on England as they are ranked tenth in the predicted FIFA Ranking for the UEFA countries. As explained before, England can benefit the most from an optimal friendly schedule. The goal is to find the optimal schedule such that England will be ranked among the top nine European nations in July 2015. We consider the following friendly scenarios for the team:

1. Official matches
2. Normal opponents
3. Average opponents
4. Optimal opponents
5. No friendlies

For each of the five scenarios we will calculate the expected rating points obtained from the exhibition games and compute the overall rating score for England. The rating score of England will be compared to the score of five other nations, namely Greece, Ukraine, Croatia, Denmark and Russia. We have chosen to simulate the matches of only these nations as their rating score is close to that of England. Hence, a change in strategy of England will be likely to influence their ranking as well.

Official Matches

The scenario Official Matches is the scenario without any exhibition games in the twelve months between July 2014 and July 2015. The official matches are all matches that have to be played for the UEFA EURO 2016 qualification tournament. In this period England plays six matches for the qualification tournament with an average of 604 points per match. Together with the results England obtained in the years before July 2015, this adds up to a total rating score of 1055 and gives them a tenth place on the FIFA Ranking with only UEFA nations. Hence, this result is not sufficient for England to be seeded among the highest ranked teams.

Normal Opponents

England has scheduled four exhibition games in the period between July 2014 and July 2015. They will play against Norway, Scotland, Italy and the Republic of Ireland. Based on the prediction model this will give them an average score of 311 for the friendly matches. However, the other nations have a more favourable friendly schedule. This is mainly due to the fact

Rank	Nation	Rating
8.	Greece	1101
9.	Ukraine	1068
10.	**England**	**1055**
11.	Croatia	1053
12.	Denmark	1021
13.	Russia	1019

Table 11: FIFA Ranking for scenario Official Matches

the other countries play less exhibition games during that period. Only Denmark has also scheduled four matches, whereas Greece has only and the other countries scheduled two. As a result, England drops to the twelfth place on the ranking of UEFA nations.

Rank	Nation	Rating
8.	Greece	1065
9.	Ukraine	979
10.	Russia	958
11.	Croatia	949
12.	**England**	**938**
13.	Denmark	858

Table 12: FIFA Ranking for scenario Normal Opponents

Average Opponents

The next scenarios considers the situation that England chooses the opponents at random from all FIFA member nations. The average number of points per match for England is equal to 217 points per match and therefore is even lower than average points for their scheduled opponents. Hence, choosing four opponents at random will not increase their place at the ranking.

Rank	Nation	Rating
8.	Greece	1065
9.	Ukraine	979
10.	Russia	958
11.	Croatia	949
12.	**England**	**900**
13.	Denmark	858

Table 13: FIFA Ranking for scenario Average Opponents

Optimal Opponents

The opponent selection model should be able to improve the position on the ranking for England. Note that England scheduled to play four matches. Hence, the model proposed the top four

opponents for England to play against, based on the expected score per match. The opponents can be found in table 14.

Opponent	Expected Points
Armenia	379.17
Iceland	367.65
Wales	363.36
Sierra Leone	361.48

Table 14: Top opponents for England in exhibition games

The selection of optimal opponents will increase their rating score compared to the previous two scenarios. The average point per match for the exhibition games will be equal to 367 and therefore their total rating score will be equal to 960. Unfortunately, this score is still not sufficient to be ranked among the best UEFA nations. Therefore, England should consider to play less friendlies in this period to decrease the effect of exhibition games on their friendly matches. When England just plays two matches, as some of the other countries do, they will improve their position on the ranking and be ranked at the ninth place.

Rank	Nation	Rating
8.	Greece	1065
9.	**England**	**996**
10.	Ukraine	979
11.	Russia	958
12.	Croatia	949
13.	Denmark	858

Table 15: FIFA Ranking for scenario Optimal Opponents

No friendlies

Besides the opponent for friendly matches, also the number of friendly matches plays an significant role in choosing the right opponent. Note that the average score for the official matches for England was equal to 604. As the maximum score for a friendly match is equal to 600, it is not possible for England to increase her rating score with friendly match. Therefore the optimal strategy would be to play no friendly matches at all, as can be seen from table 16.

Rank	Nation	Rating
8.	Greece	1065
9.	**England**	**1055**
10.	Ukraine	979
11.	Russia	958
12.	Croatia	949
13.	Denmark	858

Table 16: FIFA Ranking for scenario No Friendlies

Conclusion

Based on the scenarios simulated for England, we can conclude that the selection of opponents for friendly matches has a large impact on the position on the FIFA Ranking. For England to be seeded among the highest ranked teams, the optimal opponents and optimal number of matches should be carefully chosen. From a mathematical point-of-view, scheduling no exhibition games at all would be the optimal scenario. However, the opponent selection model can assist any association successfully in choosing the right opponent for their desired number of friendly matches.

8 Discussion

The purpose of this study was to introduce a model for national football teams to advance on the FIFA Ranking. A model has been created based on the FIFA Ranking procedure and the Elo Rating system. Our analysis shows that the model could be used to obtain a more favorable position on the FIFA Ranking. Several scenarios for England showed the relevance of choosing the right opponent for friendly matches. Using the model, it is possible for England to be seeded among the highest ranked European teams in the next FIFA World Cup draw.

The model is based on the assumption that exhibition games are able to influence the ranking of FIFA member nations. An analysis of data of all football matches in the previous four years showed that friendlies indeed impact a nation?s ranking. Exhibition games may have a significant negative impact (-33 ranks) and a significant positive impact on a teams ranking (+43 ranks). Therefore, the selection of the right opponents for friendly matches is of great importance.

The FIFA Ranking could have decisive impact on a team?s performance. The case study of Switzerland showed that even a minor difference in rank or rating points may impact the results on the FIFA World Cup. In December 2013, the Swiss ranked above England and Italy for the first time in four years. As Switzerland had a good draw resulting from their high ranking, they were able to advance beyond the group stage. In contrast to the Swiss, England and Italy suffered from their position on the FIFA Ranking and were grouped together. They both failed to succeed and were not able to show their true quality at the FIFA 2014 World Cup in Brazil.

The strengths of this study are its practical approach, extensive data analysis on match types and the mathematical foundation of the model. Whereas previous studies focus on the validation of match prediction models based on past match results, the opponent selection model can be put into practice and could help nations improve their performance. Therefore a national football association can directly benefit from this approach. Besides these strengths, there are also several limitations of the model. It is not possible to validate the model, as its purpose is to predict future match results and the effects on the FIFA Ranking. Secondly, the current model is solely based on the FIFA Ranking and the Elo Rating system. Other parameters, such as a team?s strategy or defensive abilities, are not taken into account. More data on the teams could lead to extra parameters and improve the model. Furthermore, the model will not function properly when used by a large number of teams. Every team would pick their opponents from the same, small group of optimal opponents, but most of these matches could never be scheduled.

The prediction model can be used by nations to find their optimal opponent for friendly matches. The model will increase their expected rating points per match and hence leverage their position in the FIFA Ranking. Currently, national football associations choose their opponents for various reasons. These reasons may be emotional, sportive and even economical. As the approach in this paper has been purely mathematical, further research should focus on other aspects in the decision making process to extend the model for choosing the right opponent.

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10 Appendix

10.1 FIFA Ranking July 2014

Rank	Nation	Rating
1	Germany	1724
2	Argentina	1606
3	Netherlands	1496
4	Colombia	1492
5	Belgium	1401
6	Uruguay	1330
7	Brazil	1241
8	Spain	1229
9	Switzerland	1216
10	France	1202
11	Portugal	1148
12	Chile	1098
13	Greece	1091
14	Italy	1056
15	USA	989
16	Costa Rica	986
17	Croatia	955
18	Mexico	930
19	Bosnia and Herzegovina	917
20	England	911
21	Ecuador	901
22	Ukraine	898
23	Russia	897
24	Algeria	872
25	Cote d'Ivoire	850
26	Denmark	807
27	Scotland	734
28	Romania	733
29	Sweden	724
30	Venezuela	720
31	Serbia	717
32	Turkey	714
33	Panama	684
34	Nigeria	664
35	Czech Republic	646
36	Egypt	645
37	Slovenia	644
38	Hungary	642
39	Ghana	642
40	Honduras	637
41	Armenia	635
42	Tunisia	621
43	Austria	614

Continued on next page

Table 17 – continued last page

Rank	Nation	Rating
44	Wales	606
45	Japan	604
46	Slovakia	588
47	Iceland	570
48	Paraguay	566
49	Iran	563
50	Montenegro	559
51	Guinea	555
52	Uzbekistan	523
53	Norway	520
54	Cameroon	520
55	Finland	508
56	Korea Republic	501
57	Jordan	500
58	Burkina Faso	495
59	Peru	487
60	Mali	483
61	Poland	478
62	Senegal	476
63	Libya	471
64	Sierra Leone	469
65	United Arab Emirates	466
66	South Africa	450
67	Albania	444
68	Israel	444
69	Oman	443
70	Republic of Ireland	440
71	Bolivia	429
72	Bulgaria	425
73	Azerbaijan	410
74	FYR Macedonia	406
75	Cape Verde Islands	401
76	Australia	397
77	Zambia	396
78	Saudi Arabia	384
79	Morocco	377
80	Angola	377
81	Belarus	376
82	Congo	375
83	Jamaica	373
84	Trinidad and Tobago	369
85	Palestine	362
86	Qatar	361
87	Uganda	358
88	Togo	357
89	Northern Ireland	356

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Table 17 – continued last page

Rank	Nation	Rating
90	Iraq	356
91	Benin	354
92	Estonia	345
93	Gabon	344
94	China PR	342
95	Kenya	339
96	Congo DR	338
97	Georgia	338
98	Zimbabwe	334
99	Botswana	332
100	Niger	332
101	New Zealand	330
102	Moldova	325
103	Latvia	314
104	Lithuania	312
105	Bahrain	288
106	Tanzania	287
107	Kuwait	281
108	Luxembourg	278
109	Rwanda	276
110	Ethiopia	273
111	Equatorial Guinea	270
112	Namibia	264
113	Haiti	262
114	Mozambique	257
115	Sudan	256
116	Liberia	256
117	Central African Republic	253
118	Canada	250
119	Lebanon	249
120	Cuba	245
121	Malawi	234
122	El Salvador	234
123	Aruba	233
124	Tajikistan	232
125	Dominican Republic	230
126	Burundi	222
127	Kazakhstan	220
128	Philippines	218
129	Afghanistan	217
130	Vietnam	217
131	Lesotho	213
132	Suriname	213
133	Mauritania	208
134	Guatemala	204
135	St. Vincent and the Grenadines	203

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Table 17 – continued last page

Rank	Nation	Rating
136	New Caledonia	199
137	Guinea-Bissau	199
138	St. Lucia	195
139	Cyprus	193
140	Turkmenistan	183
141	Chad	183
142	Grenada	182
143	Madagascar	179
144	Kyrgyzstan	176
145	Maldives	171
146	Syria	169
147	Korea DPR	163
148	Gambia	161
149	Antigua and Barbuda	152
150	Malta	146
151	Malaysia	144
152	India	144
153	Indonesia	141
154	Singapore	140
155	Guyana	136
156	Puerto Rico	134
157	Thailand	128
158	St. Kitts and Nevis	124
159	Swaziland	123
160	Myanmar	122
161	Belize	117
162	Hong Kong	114
163	Bangladesh	103
164	Nepal	102
165	Pakistan	100
166	Montserrat	99
167	Liechtenstein	93
168	Dominica	93
169	Barbados	92
170	Laos	87
171	Tahiti	85
172	Comoros	84
173	Bermuda	83
174	Guam	79
175	Nicaragua	78
176	Solomon Islands	78
177	Sao Tome e Principe	72
178	Sri Lanka	71
179	Chinese Taipei	71
180	Yemen	70
181	Turks and Caicos Islands	66

Continued on next page

Table 17 – continued last page

Rank	Nation	Rating
182	Seychelles	64
183	Curacao	63
184	Faroe Islands	61
185	Mauritius	56
186	South Sudan	43
187	Vanuatu	38
188	Fiji	31
189	Mongolia	29
190	US Virgin Islands	28
191	Samoa	28
192	Bahamas	26
193	Brunei Darussalam	26
194	Timor-Leste	26
195	Tonga	26
196	Cayman Islands	21
197	American Samoa	18
198	Andorra	16
199	Papua New Guinea	14
200	Cambodia	13
201	British Virgin Islands	13
202	Eritrea	11
203	Somalia	8
204	Macau	7
205	Djibouti	6
206	Cook Islands	5
207	Anguilla	1
208	Bhutan	0
209	San Marino	0

Table 17: FIFA Ranking July 2014

10.2 Match Type Impact

Nation	Normal Score	Normal Rank	Friendly Score	Friendly Rank	Competitive Score	Competitive Rank
Afghanistan	217	129	128	127	212	129
Albania	444	67	285	61	428	80
Algeria	871	24	552	14	1025	25
American Samoa	18	197	0	194	25	186
Andorra	16	199	39	173	0	199
Angola	318	101	242	78	247	122
Anguilla	1	207	4	193	0	199
Antigua and Barbuda	147	149	27	181	205	130
Argentina	1603	2	745	1	2160	2
Armenia	636	40	157	118	947	28
Aruba	241	121	177	107	167	139
Australia	397	76	252	73	480	70
Austria	614	42	432	36	664	50
Azerbaijan	410	73	214	93	493	67
Bahamas	26	192	0	194	26	184
Bahrain	289	106	192	100	390	87
Bangladesh	103	163	50	165	69	170
Barbados	92	169	56	160	88	161
Belarus	376	80	378	41	243	123
Belgium	1400	5	521	16	1987	6
Belize	122	160	64	158	119	152
Benin	374	81	36	177	387	88
Bermuda	83	174	0	194	83	163
Bhutan	0	208	0	194	0	199
Bolivia	423	72	175	109	485	69
Bosnia and Herzegovina	901	21	483	23	1213	19
Botswana	309	105	233	84	343	101
Brazil	1198	10	739	2	1998	4
British Virgin Islands	18	197	92	143	0	199
Brunei Darussalam	26	192	26	182	0	199
Bulgaria	425	71	334	49	446	75
Burkina Faso	497	56	228	87	734	44
Burundi	217	129	196	98	140	149
Cambodia	13	201	9	191	13	192
Cameroon	489	59	267	66	729	45
Canada	244	119	132	125	258	121
Cape Verde Islands	351	90	157	118	355	98
Cayman Islands	21	196	0	194	21	190
Central African Republic	265	114	0	194	298	112
Chad	198	137	43	170	192	134
Chile	1149	12	523	15	1814	7
China PR	342	94	299	57	321	104
Chinese Taipei	71	178	111	136	25	186
Colombia	1481	3	639	6	1994	5

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Table 18 – continued last page						
	Normal		Friendly		Competitive	
Nation	Score	Rank	Score	Rank	Score	Rank
Comoros	84	173	138	123	53	176
Congo	406	74	151	120	407	85
Congo DR	338	95	246	75	273	117
Cook Islands	5	206	0	194	6	197
Costa Rica	919	19	236	81	1224	18
Cote d'Ivoire	852	25	449	31	1087	24
Croatia	943	16	513	17	1153	20
Cuba	343	93	161	115	323	103
Curacao	67	180	91	145	56	174
Cyprus	187	141	129	126	195	133
Czech Republic	665	34	400	39	838	37
Denmark	811	26	430	37	1120	22
Djibouti	6	205	10	190	0	199
Dominica	93	167	67	156	65	172
Dominican Republic	230	124	236	81	226	127
Ecuador	900	22	471	25	1232	17
Egypt	647	36	371	43	759	42
El Salvador	240	122	103	139	310	107
England	942	17	587	10	1258	16
Equatorial Guinea	270	113	50	165	284	115
Eritrea	11	202	0	194	11	195
Estonia	346	92	254	72	458	73
Ethiopia	279	109	124	129	423	82
Faroe Islands	61	183	0	194	72	169
Fiji	38	187	51	164	13	192
Finland	511	53	445	32	473	71
France	1195	11	597	9	1620	9
FYR Macedonia	406	74	322	53	435	78
Gabon	352	89	266	67	349	100
Gambia	161	148	54	163	147	146
Georgia	338	95	294	60	303	111
Germany	1768	1	574	11	2627	1
Ghana	642	37	358	45	921	32
Greece	1144	13	558	13	1476	14
Grenada	193	140	179	105	127	150
Guam	79	175	80	151	32	183
Guatemala	204	133	71	154	330	102
Guinea	555	50	464	26	383	90
Guinea-Bissau	201	134	24	184	197	132
Guyana	138	155	39	173	178	136
Haiti	271	112	41	172	318	105
Honduras	638	39	251	74	785	40
Hong Kong	114	162	189	101	77	166
Hungary	642	37	374	42	756	43
Iceland	570	46	179	105	838	37
Continued on next page						

Table 18 – continued last page						
	Normal		Friendly		Competitive	
Nation	Score	Rank	Score	Rank	Score	Rank
India	144	152	119	131	76	167
Indonesia	142	153	167	110	63	173
Iran	562	48	258	69	790	39
Iraq	360	85	229	86	460	72
Israel	436	70	256	70	510	63
Italy	1047	14	244	76	1618	10
Jamaica	373	82	299	57	515	62
Japan	604	44	505	18	577	55
Jordan	499	55	330	50	705	47
Kazakhstan	228	125	284	62	171	138
Kenya	326	99	217	92	358	96
Korea DPR	163	147	112	135	99	156
Korea Republic	501	54	324	51	562	57
Kuwait	284	108	236	81	298	112
Kyrgyzstan	175	144	75	153	161	141
Laos	89	170	47	167	100	155
Latvia	317	103	181	104	386	89
Lebanon	244	119	115	133	355	98
Lesotho	195	139	65	157	265	118
Liberia	259	118	114	134	281	116
Libya	471	64	340	47	377	92
Liechtenstein	93	167	45	169	116	153
Lithuania	312	104	162	113	378	91
Luxembourg	278	110	231	85	261	120
Macau	7	204	11	189	0	199
Madagascar	182	143	26	182	180	135
Malawi	232	123	146	121	310	107
Malaysia	146	150	87	147	153	143
Maldives	173	145	125	128	176	137
Mali	482	61	311	55	423	82
Malta	146	150	226	88	90	160
Mauritania	206	132	161	115	241	124
Mauritius	56	185	78	152	0	199
Mexico	929	18	460	27	1153	20
Moldova	318	101	144	122	486	68
Mongolia	29	189	13	187	24	189
Montenegro	559	49	503	20	499	65
Montserrat	99	166	0	194	99	156
Morocco	380	79	261	68	391	86
Mozambique	260	117	166	111	316	106
Myanmar	122	160	30	180	153	143
Namibia	262	115	162	113	308	109
Nepal	102	164	83	149	51	177
Netherlands	1477	4	456	30	2160	2
New Caledonia	199	135	43	170	215	128
Continued on next page						

Table 18 – continued last page						
	Normal		Friendly		Competitive	
Nation	Score	Rank	Score	Rank	Score	Rank
New Zealand	329	98	197	97	286	114
Nicaragua	78	176	46	168	74	168
Niger	320	100	220	89	237	125
Nigeria	659	35	413	38	1020	26
Northern Ireland	356	86	69	155	571	56
Norway	517	52	323	52	673	49
Oman	439	69	318	54	590	54
Pakistan	100	165	96	142	37	179
Palestine	364	84	63	159	429	79
Panama	684	33	255	71	860	35
Papua New Guinea	14	200	17	185	6	197
Paraguay	568	47	460	27	594	53
Peru	495	58	280	63	632	51
Philippines	219	128	124	129	358	96
Poland	477	62	443	33	360	95
Portugal	1211	9	566	12	1606	12
Puerto Rico	128	156	14	186	146	147
Qatar	348	91	240	79	449	74
Republic of Ireland	441	68	346	46	497	66
Romania	732	30	441	34	932	30
Russia	904	20	629	7	1105	23
Rwanda	276	111	164	112	363	94
Samoa	28	190	0	194	37	179
San Marino	0	208	0	194	0	199
Sao Tome e Principe	88	171	0	194	88	161
Saudi Arabia	381	78	86	148	531	59
Scotland	734	29	505	18	761	41
Senegal	477	62	305	56	502	64
Serbia	744	28	433	35	932	30
Seychelles	65	182	106	138	0	199
Sierra Leone	483	60	55	162	542	58
Singapore	140	154	138	123	92	159
Slovakia	588	45	458	29	611	52
Slovenia	632	41	240	79	902	33
Solomon Islands	78	176	39	173	81	165
Somalia	8	203	0	194	8	196
South Africa	449	66	296	59	520	61
South Sudan	47	186	12	188	37	179
Spain	1248	7	681	4	1744	8
Sri Lanka	71	178	56	160	37	179
St. Kitts and Nevis	124	158	116	132	123	151
St. Lucia	221	126	160	117	98	158
St. Vincent and the Grenadines	216	131	183	103	166	140
Sudan	261	116	213	94	234	126
Suriname	196	138	176	108	198	131
Continued on next page						

Table 18 – continued last page						
	Normal		Friendly		Competitive	
Nation	Score	Rank	Score	Rank	Score	Rank
Swaziland	123	159	110	137	55	175
Sweden	749	27	483	23	993	27
Switzerland	1216	8	616	8	1567	13
Syria	169	146	97	141	157	142
Tahiti	88	171	39	173	114	154
Tajikistan	199	135	204	95	82	164
Tanzania	288	107	195	99	372	93
Thailand	128	156	184	102	48	178
Timor-Leste	26	192	32	179	0	199
Togo	368	83	88	146	420	84
Tonga	25	195	0	194	25	186
Trinidad and Tobago	354	88	219	91	307	110
Tunisia	496	57	338	48	526	60
Turkey	714	32	491	22	862	34
Turkmenistan	183	142	92	143	149	145
Turks and Caicos Islands	66	181	0	194	66	171
Uganda	355	87	279	64	437	77
Ukraine	900	22	725	3	944	29
United Arab Emirates	464	65	386	40	441	76
Uruguay	1327	6	667	5	1615	11
US Virgin Islands	28	190	9	191	26	184
USA	1004	15	497	21	1352	15
Uzbekistan	522	51	103	139	711	46
Vanuatu	38	187	36	177	19	191
Venezuela	728	31	201	96	859	36
Vietnam	221	126	243	77	141	148
Wales	606	43	359	44	687	48
Yemen	60	184	82	150	12	194
Zambia	394	77	220	89	425	81
Zimbabwe	338	95	272	65	264	119

Table 18: Overview of all countries of rating points and ranks of friendly, competitive and combined matches

10.3 Rank Data UEFA August 2014

Nation	FIFA General	August Points	2014 UEFA	Elo General	August Points	2014 UEFA
Albania	70	437	35	84	1484	37
Andorra	199	16	52	190	963	53
Armenia	36	648	23	70	1551	35
Austria	40	624	25	42	1652	23
Azerbaijan	73	413	37	104	1421	44
Belarus	88	363	39	63	1565	33
Belgium	5	1407	3	10	1886	6
Bosnia and Herzegovina	19	925	11	24	1759	15
Bulgaria	72	429	36	49	1615	27
Croatia	16	964	10	21	1773	12
Cyprus	140	184	48	121	1357	46
Czech Republic	35	650	22	31	1713	19
Denmark	26	818	15	27	1735	17
England	20	915	12	13	1835	7
Estonia	93	344	40	100	1432	42
Faroe Islands	183	61	51	164	1172	50
Finland	55	502	31	45	1645	24
France	10	1212	6	8	1932	4
FYR Macedonia	76	407	38	87	1480	38
Georgia	95	341	41	88	1478	39
Germany	1	1736	1	1	2200	1
Gibraltar	208	0	53	176	1113	52
Greece	13	1092	8	20	1794	11
Hungary	34	656	21	46	1644	25
Iceland	46	573	28	77	1509	36
Israel	68	439	34	51	1610	29
Italy	14	1069	9	14	1831	8
Kazakhstan	131	213	47	125	1336	47
Latvia	100	324	44	99	1435	41
Liechtenstein	167	94	50	167	1144	51
Lithuania	103	306	45	98	1439	40
Luxembourg	109	288	46	159	1196	49
Malta	150	143	49	155	1210	48
Moldova	99	325	43	101	1430	43
Montenegro	49	553	29	61	1571	32
Netherlands	3	1507	2	2	2132	2
Northern Ireland	95	341	41	112	1383	45
Norway	53	512	30	56	1593	31
Poland	61	482	32	48	1628	26
Portugal	11	1152	7	9	1895	5
Republic of Ireland	66	448	33	41	1662	22
Romania	27	740	16	37	1679	21
Russia	23	899	14	21	1773	12
San Marino	208	0	53	205	854	54

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Table 19 – continued						
Nation	FIFA Rank	August Points	2014 UEFA Rank	Elo Rank	August Points	2014 UEFA Rank
Scotland	28	738	17	36	1684	20
Serbia	31	723	19	26	1741	16
Slovakia	45	584	27	52	1608	30
Slovenia	39	643	24	49	1615	27
Spain	7	1241	4	5	1971	3
Sweden	29	724	18	23	1768	14
Switzerland	9	1218	5	16	1819	9
Turkey	32	711	20	28	1726	18
Ukraine	22	901	13	18	1815	10
Wales	41	623	26	63	1565	33

Table 19: FIFA and Elo rank and points of UEFA countries at August 2014

10.4 Rank Prediction UEFA July 2015

Nation	PredRanking	PredRating	PredPoints	X2015Rating	X2015Uefa
Germany	1	1587	718	869	1
Netherlands	2	1519	796	723	2
Portugal	3	1405	829	576	7
Spain	4	1367	739	628	5
Belgium	5	1335	621	714	3
Switzerland	6	1212	582	630	4
Italy	7	1143	611	532	9
Greece	8	1101	551	550	8
Ukraine	9	1068	600	468	12
England	10	1055	604	451	14
Croatia	11	1053	576	477	10
Denmark	12	1021	620	401	15
Russia	13	1019	560	459	13
Bosnia and Herzegovina	14	990	520	470	11
Sweden	15	934	587	347	19
Serbia	16	932	578	354	18
Romania	17	868	488	380	17
Czech Republic	18	856	516	340	21
Hungary	19	801	470	331	23
Turkey	20	799	457	342	20
Austria	21	795	478	317	24
Finland	22	782	515	267	29
Scotland	23	778	394	384	16
Slovenia	24	705	392	313	26
Slovakia	25	700	422	278	28
Norway	26	680	441	239	32
Wales	27	670	333	337	22
Armenia	28	643	329	314	25
Republic of Ireland	29	638	424	214	35
Poland	30	635	390	245	30
Bulgaria	31	629	418	211	36
Israel	32	626	426	200	38
Montenegro	33	624	383	241	31
Iceland	34	609	304	305	27
France	35	594	0	594	6
Albania	36	558	335	223	33
Belarus	37	546	382	164	42
FYR Macedonia	38	544	328	216	34
Estonia	39	468	294	174	39
Azerbaijan	40	467	263	204	37
Lithuania	41	446	301	145	44
Moldova	42	431	278	153	43
Georgia	43	415	273	142	46
Latvia	44	413	247	166	40

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Table 20 – continued					
Nation	PredRanking	PredRating	PredPoints	X2015Rating	X2015Uefa
Northern Ireland	45	412	247	165	41
Kazakhstan	46	348	245	103	47
Cyprus	47	318	225	93	48
Luxembourg	48	264	121	143	45
Malta	49	238	154	84	49
Liechtenstein	50	173	139	34	50
Faroe Islands	51	151	137	14	51
Andorra	52	85	76	9	52
Gibraltar	52	85	85	0	53
San Marino	54	54	54	0	53

Table 20: Predicted ranking of UEFA countries at the FIFA World Cup 2018 Qualification draw

10.5 Possible Opponents

Nation	FIFA Rank	FIFA Rating	Elo Rank	Elo Rating
Afghanistan	129	217	174	1119
Albania	70	437	84	1484
Algeria	24	880	40	1665
American Samoa	198	18	232	535
Andorra	199	16	190	963
Angola	75	408	92	1467
Anguilla	207	1	226	640
Antigua and Barbuda	149	156	144	1259
Argentina	2	1604	3	2040
Armenia	36	648	70	1551
Aruba	124	233	195	923
Australia	79	391	44	1647
Austria	40	624	42	1652
Azerbaijan	73	413	104	1421
Bahamas	193	26	194	926
Bahrain	107	289	97	1444
Bangladesh	170	87	189	969
Barbados	169	92	173	1122
Belarus	88	363	63	1565
Belgium	5	1407	10	1886
Belize	162	117	172	1127
Benin	77	405	109	1394
Bermuda	173	83	158	1198
Bhutan	208	0	231	546
Bolivia	71	434	55	1597
Bosnia and Herzegovina	19	925	24	1759
Botswana	86	371	123	1351
Brazil	7	1241	6	1958
British Virgin Islands	201	13	222	673
Brunei Darussalam	193	26	221	695
Bulgaria	72	429	49	1615
Burkina Faso	58	493	72	1539
Burundi	129	217	131	1305
Cambodia	201	13	220	696
Cameroon	54	507	66	1561
Canada	122	250	91	1468
Cape Verde Islands	74	411	80	1502
Cayman Islands	197	21	193	945
Central African Republic	120	252	138	1272
Chad	140	184	141	1265
Chile	12	1100	7	1957
China PR	97	334	74	1532
Chinese Taipei	179	70	204	861
Colombia	4	1495	4	1999
Comoros	175	78	197	907
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Table 21 – continued				
Nation	FIFA Rank	FIFA Rating	Elo Rank	Elo Rating
Congo	78	395	116	1373
Congo DR	93	344	96	1448
Cook Islands	206	5	209	819
Costa Rica	15	1023	15	1825
Cote d'Ivore	25	840	25	1758
Croatia	16	964	21	1773
Cuba	124	233	107	1408
Curacao	182	63	188	984
Cyprus	140	184	121	1357
Czech Republic	35	650	31	1713
Denmark	26	818	27	1735
Djibouti	205	6	212	788
Dominica	168	93	191	958
Dominican Republic	126	230	139	1268
Ecuador	21	910	18	1815
Egypt	38	645	32	1705
El Salvador	127	223	79	1504
England	20	915	13	1835
Equatorial Guinea	113	270	130	1313
Eritrea	203	11	178	1097
Estonia	93	344	100	1432
Ethiopia	112	275	110	1392
Faroe Islands	183	61	164	1172
Fiji	189	31	128	1330
Finland	55	502	45	1645
France	10	1212	8	1932
FYR Macedonia	76	407	87	1480
Gabon	102	311	94	1456
Gambia	148	157	126	1334
Georgia	95	341	88	1478
Germany	1	1736	1	2200
Ghana	36	648	34	1694
Gibraltar	208	0	176	1113
Greece	13	1092	20	1794
Grenada	142	182	162	1179
Guam	163	102	212	788
Guatemala	134	203	93	1460
Guinea	64	471	71	1545
Guinea-Bissau	123	242	151	1231
Guyana	153	136	132	1299
Haiti	117	262	103	1423
Honduras	43	596	60	1583
Hong Kong	161	118	165	1162
Hungary	34	656	46	1644
Iceland	46	573	77	1509
India	150	143	179	1095
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Table 21 – continued				
Nation	FIFA Rank	FIFA Rating	Elo Rank	Elo Rating
Indonesia	153	136	150	1233
Iran	48	563	42	1652
Iraq	91	357	67	1559
Israel	68	439	51	1610
Italy	14	1069	14	1831
Jamaica	85	373	78	1506
Japan	44	593	29	1718
Jordan	56	500	62	1570
Kazakhstan	131	213	125	1336
Kenya	104	305	111	1391
Korea DPR	146	167	67	1559
Korea Republic	57	499	53	1605
Kuwait	111	280	73	1533
Kyrgyzstan	144	176	177	1100
Laos	172	84	201	866
Latvia	100	324	99	1435
Lebanon	115	263	105	1419
Lesotho	105	302	139	1268
Liberia	119	260	133	1294
Libya	62	475	81	1491
Liechtenstein	167	94	167	1144
Lithuania	103	306	98	1439
Luxembourg	109	288	159	1196
Macau	186	41	225	648
Madagascar	143	179	161	1180
Malawi	106	295	129	1318
Malaysia	155	134	162	1179
Maldives	145	174	182	1076
Mali	60	488	65	1563
Malta	150	143	155	1210
Mauritania	133	204	156	1207
Mauritius	188	37	185	1028
Mexico	17	942	11	1868
Moldova	99	325	101	1430
Mongolia	190	29	215	747
Montenegro	49	553	61	1571
Montserrat	165	99	219	703
Morocco	81	381	76	1514
Mozambique	107	289	115	1376
Myanmar	160	121	186	1013
Namibia	114	269	136	1285
Nepal	166	95	196	908
Netherlands	3	1507	2	2132
New Caledonia	136	199	108	1396
New Zealand	98	330	69	1553
Nicaragua	175	78	175	1118
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Table 21 – continued				
Nation	FIFA Rank	FIFA Rating	Elo Rank	Elo Rating
Niger	118	261	134	1293
Nigeria	33	673	30	1715
Northern Ireland	95	341	112	1383
Norway	53	512	56	1593
Oman	67	447	58	1589
Pakistan	164	100	192	956
Palestine	88	363	126	1334
Panama	63	474	39	1670
Papua New Guinea	200	14	171	1130
Paraguay	47	564	35	1689
Peru	52	522	33	1698
Philippines	128	221	148	1243
Poland	61	482	48	1628
Portugal	11	1152	9	1895
Puerto Rico	155	134	181	1087
Qatar	92	348	89	1477
Republic of Ireland	66	448	41	1662
Romania	27	740	37	1679
Russia	23	899	21	1773
Rwanda	101	318	114	1380
Samoa	191	28	208	823
San Marino	208	0	205	854
Sao Tome e Principe	177	72	184	1050
Saudi Arabia	83	377	86	1481
Scotland	28	738	36	1684
Senegal	59	491	59	1586
Serbia	31	723	26	1741
Seychelles	180	68	187	999
Sierra Leone	50	533	119	1367
Singapore	152	140	149	1240
Slovakia	45	584	52	1608
Slovenia	39	643	49	1615
Solomon Islands	173	83	154	1217
Somalia	204	8	203	863
South Africa	69	438	57	1590
South Sudan	185	43	160	1195
Spain	7	1241	5	1971
Sri Lanka	178	71	206	848
St. Kitts and Nevis	159	124	168	1142
St. Lucia	138	195	180	1094
St. Vincent and the Grenadines	134	203	169	1137
Sudan	115	263	113	1382
Suriname	131	213	152	1224
Swaziland	158	125	170	1132
Sweden	29	724	23	1768
Switzerland	9	1218	16	1819
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Table 21 – continued				
Nation	FIFA Rank	FIFA Rating	Elo Rank	Elo Rating
Syria	147	161	95	1450
Tahiti	171	85	144	1259
Tajikistan	120	252	141	1265
Tanzania	110	285	124	1342
Thailand	157	126	135	1290
Timor-Leste	193	26	224	663
Togo	87	365	90	1473
Tonga	193	26	207	836
Trinidad and Tobago	80	384	81	1491
Tunisia	42	617	75	1527
Turkey	32	711	28	1726
Turkmenistan	137	197	143	1264
Turks and Caicos Islands	181	66	217	729
Uganda	81	381	81	1491
Ukraine	22	901	18	1815
United Arab Emirates	65	464	47	1640
Uruguay	6	1316	12	1859
US Virgin Islands	191	28	218	717
USA	18	937	17	1817
Uzbekistan	51	528	53	1605
Vanuatu	186	41	153	1222
Venezuela	29	724	38	1677
Vietnam	139	192	146	1248
Wales	41	623	63	1565
Yemen	184	59	166	1148
Zambia	84	375	85	1482
Zimbabwe	90	358	120	1366

Table 21: Possible opponents to influence the FIFA Ranking