Soccer features a variety of models for rating teams and predicting match outcomes. Here, we look at a network-based rating model called the Offense-Defense Model (ODM) by Govan, Langville and Meyer (2009). We derive an improved rating model from ODM. We apply the improved ratings to predict game outcomes in national team soccer tournaments. The goal is to outperform betting markets and other models.

Model 1 (ODM)

ODM posits that teams have positive attack and defense ratings porportional to points scored and points conceded. It assumes that margin of victory and strength of schedule are important in ranking teams. A brief mathematical description follows. Define P_{ij} as the points scored by team j against team i. Attack and defense ratings of team j are:

$$a_j = \sum_{i=1}^{n} P_{ij} \frac{1}{d_i} \qquad \text{(Attack)}$$

$$d_j = \sum_{j=1}^{n} P_{ji} \frac{1}{a_i} \qquad \text{(Defense)}$$

Ratings for teams 1, 2, 3, ..., n in compact form are:

$$a = \begin{bmatrix} a_1 & a_2 & a_3 & ... & a_n \end{bmatrix}^T = P^T \frac{1}{d} \qquad \text{(Attack)}$$

$$d = \begin{bmatrix} d_1 & d_2 & d_3 & ... & d_n \end{bmatrix}^T = P \frac{1}{a} \qquad \text{(Defense)}$$

Since a and d are mutually dependent, they're computed iteratively in the algorithm below:

Algorithm 1 (ODM Update)
Given a nonnegative matrix P :
$d^{(0)} \leftarrow$ column vector of ones
$a^{(0)} \leftarrow P^T \frac{1}{d^{(0)}}$
for $k = 1, 2, 3, ...,$ until convergence of $a^{(k)}$, $d^{(k)}$:
$d^{(k+1)} \leftarrow P \frac{1}{a^{(k)}}$
$a^{(k+1)} \leftarrow P^T \frac{1}{d^{(k)}}$
end for

To guarantee convergence, P is replaced with $P + cee^T$ where c is positive and e is a column vector of ones.

Model 2 (ODM-S)

While ODM distinguishes attack and defense strengths, it is impractical for three reasons:

> (1) ODM only assigns teams a default rating of 1. In national team soccer, teams are organized into confederations that rarely play each other. Thus, default ratings other than 1 may be necessary to account for differences in confederation strengths.
>
> (2) ODM ratings require teams to play similar numbers of games. When disparities between number of games played is great, teams that play few games have few goals scored and conceded, which leads to weaker attack and stronger defense ratings.
>
> (3) ODM ratings are unstable. For instance, if Germany plays Ukraine but Ukraine plays another at later date, then Germany's ratings are affected by Ukraine's recomputed rating.

To solve these challenges, we propose the Sequential Offense-Defense Model (ODM-S). ODM-S starts by assigning all teams default attack and defense ratings. It then applies ODM to rate teams match-by-match.

In each game, a team has two sets of ratings: they are **pre-game ratings**, which infers the strength of the team before the game and **in-game ratings**, which infers how well the team played during the game. Pre-game ratings for a team's current game are defined as a weighted sum of all its previous in-game ratings. These weights follow an exponential decay of the number of days between the previous and current games.

Only pre-game ratings of participants in a match are used to compute their in-game ratings. To compute in-game ratings from pre-game ratings, ODM-S abstracts Algorithm 1 to accept as input an attack or defense rating:

Algorithm 2 (Scale Rating)
Given a nonnegative matrix P and positive vector x:
$x^{(0)} \leftarrow x$
$y^{(0)} \leftarrow P^T \dfrac{1}{x^{(0)}}$
for $k = 1, 2, 3, ...,$ until convergence of $x^{(k)}$, $y^{(k)}$:
$\quad x^{(k+1)} \leftarrow P \dfrac{1}{y^{(k)}}$
$\quad y^{(k+1)} \leftarrow P^T \dfrac{1}{x^{(k)}}$
end for

Similar to Algorithm 1, P is replaced by $\hat{P}$ to guarantee convergence. To adjust for home advantage, each goal scored by a home team is multiplied by the ratio of average away vs. home goals in the corresponding contest, which are computed with robust regression.

ODM-S employs Algorithm 2 to rate teams in the following manner. Define teams 1 and 2 with pre-game attack and defense ratings a_1, d_1 and a_2, d_2. The scoring matrix P is defined as it is in Algorithm 2:

Algorithm 3 (ODM-S Update)
Given a nonnegative 2-by-2 matrix P and positive a_1, a_2, d_1, d_2 :
$a^{(0)} \leftarrow \begin{bmatrix} a_1 & a_2 \end{bmatrix}^T$
$d^{(0)} \leftarrow \begin{bmatrix} d_1 & d_2 \end{bmatrix}^T$
for $k = 1, 2, 3, ...,$ until convergence of $a^{(k)}$, $y^{(k)}$:
Define $a_A^{(k)}$, $d_A^{(k)}$ as x_k, y_k from Algorithm 2 with inputs P and $a^{(k)}$.

Define $d_D^{(k)}$, $a_D^{(k)}$ as x_k, y_k from Algorithm 2 with inputs P and $d^{(k)}$.

$$a_{k+1} \leftarrow \frac{a_A^{(k)} + a_D^{(k)}}{2}$$

$$d_{k+1} \leftarrow \frac{d_A^{(k)} + d_D^{(k)}}{2}$$

end for

Algorithm 3 provides ODM-S three advantages over its ODM counterpart: it accepts pre-game ratings, is resistant to bias towards teams with few games and is stable. A sample of ratings are in the verification section.

Model 3 (ODM-S/BP)

We convert ODM-S ratings to probablistic forecasts of game outcomes with a bivariate Poisson distribution. The resulting model is called ODM-S/BP.

The bivariate Poisson distribution models bivariate count data over a fixed time interval, which in this case are the goals scored by opposing teams. It is chosen for three reasons: it easily translates probabilities to expected goals scored, models correlation and is resistant to bias against ties.

The parameters of the bivariate Poisson distribution are λ_1, λ_2 and λ_3. Parameter λ_1 is porportional to the expected goals scored by team j against team i. It is defined as it is in Karlis and Ntzoufras (2003) by

$$\log \lambda_1 = \log \mu + \beta_a \log a_j + \beta_d \log d_i$$

where μ is the average goals scored, a_j, d_i are attack and defense ratings of teams j, i and β_a, $\beta_d > 0$ are weights to attack and defense ratings. Parameter λ_2 is similar to λ_1. Parameter $\lambda_3 \geq 0$ is the correlation between λ_1 and λ_2.

Verification

The following pages compare ratings and game predictions between models in all 51 games of Euro 2016.

Page 5 compares pre-game ratings for ODM and ODM-S/BP. For both models, higher attack and lower defense ratings point to stronger teams.

Page 6 aggregates pre-game attack and defense ratings to evaluate a model's predictive power. In particular, a model's aggregate ratings for a game is correct if the higher aggregate rating belongs to the winning team. Pre-game Elo Ratings are also listed as a benchmark.

Page 7 compares game prediction probabilities of ODM-S/BP and the OddsPortal betting markets aggregate. The sum squared error and correctness of each prediction are included.

Regarding correctness, ODM-S/BP outperforms ODM as ODM-S/BP aggregate ratings are correct for 23 games while ODM's aggregate ratings are correct for 20 games. Meanwhile, Elo Ratings are correct for 21 games. Total squared prediction errors of ODM-S/BP and Odds Portal are 32.4 and 31.4 respectively. Yet, Odds Portal only calls 21 games correctly. Lower squared errors for Odds Portal are due to highly aggressive bets in favour of strongly rated teams. In particular, OddsPortal average squared errors for its correct and incorrect calls are 0.28 and 0.85 respectively while ODM-S/BP average squared errors for its correct and incorrect calls are 0.46 and 0.78 respectively.

We briefly discuss how aggregate ratings are computed and how home advantage is accounted for. For ODM, its authors define a team's aggregate rating as the quotient of attack and defense ratings. Since they do not adjust for home advantage, we make our own adjustments for home teams by multiplying their aggregate rating by the ratio of average home vs. away goals. For ODM-S/BP, we define a team's aggregate ratings as

$$r = \beta_a \log a - \beta_d \log d$$

where a, d are attack and defense ratings and β_a, β_d are weights as introduced in the previous section. Home advantage is accounted for by increasing a home team's aggregate rating by the difference of log average home goals and log average away goals. Meanwhile, the originators of Elo Ratings factor in home advantage by adding 100 to a home team's rating.

Euro 2016 Attack-Defense Ratings

	Team1	Team2	Date	Goals	OdmAtk1	OdmDef1	OdmAtk2	OdmDef2	OdmsAtk1	OdmsDef1	OdmsAtk2	OdmsDef2
51	France	Portugal	07/10/16	0:1	2.9391	4.8215	3.0154	6.7859	1.3296	-0.8468	1.1657	-0.7433
50	France	Germany	07/07/16	2:0	2.6586	4.8208	4.101	5.7532	1.279	-0.767	1.2996	-0.9693
49	Portugal	Wales	07/06/16	2:0	2.6869	6.8082	2.7317	5.6033	1.1213	-0.685	1.0359	-0.5895
48	France	Iceland	07/03/16	5:2	2.1171	4.1494	2.5989	6.3721	1.1635	-0.8443	1.1113	-0.6
47	Germany	Italy	07/02/16	1:1	3.967	5.4287	2.9228	6.0919	1.3029	-0.9976	1.0837	-0.7694
46	Wales	Belgium	07/01/16	3:1	2.2455	5.2997	3.2976	5.2154	0.9395	-0.5838	1.1438	-0.6662
45	Poland	Portugal	06/30/16	1:1	2.8018	5.7389	2.5614	6.5277	1.1361	-0.7845	1.1131	-0.6843
44	Italy	Spain	06/27/16	2:0	2.606	6.1025	3.2904	4.6078	0.976	-0.6903	1.2503	-0.9555
43	England	Iceland	06/27/16	1:2	3.1355	4.5699	2.2229	6.0929	1.1122	-0.7701	1.0527	-0.5883
42	Hungary	Belgium	06/26/16	0:4	2.8139	7.8674	2.8427	5.3192	1.0363	-0.4212	1.037	-0.595
41	Germany	Slovakia	06/26/16	3:0	3.5918	5.453	2.0021	6.9716	1.2538	-0.9572	0.7436	-0.3306
40	France	Ireland	06/26/16	2:1	1.8745	3.7182	2.1475	6.0307	1.116	-0.8903	0.9779	-0.6166
39	Wales	N. Ireland	06/25/16	1:0	2.1558	5.3365	1.943	6.2796	0.927	-0.5167	0.7629	-0.4596
38	Switzerland	Poland	06/25/16	1:1	2.6523	5.5472	2.6401	5.4368	0.8857	-0.6347	1.141	-0.8156
37	Croatia	Portugal	06/25/16	0:1	2.9232	5.7076	2.4722	6.6176	1.0503	-0.5828	1.1019	-0.6066
36	Sweden	Belgium	06/22/16	0:1	2.3329	6.779	2.7764	5.3287	0.8155	-0.3943	1.0385	-0.5184
35	Italy	Ireland	06/22/16	0:1	2.6644	5.6504	1.999	6.1101	1.0603	-0.7373	0.9406	-0.5364
34	Iceland	Austria	06/22/16	2:1	1.8972	5.6313	2.1069	4.7298	0.9979	-0.5963	0.893	-0.585
33	Hungary	Portugal	06/22/16	3:3	2.4454	6.7168	2.114	5.5895	0.9402	-0.4804	1.0034	-0.7521
32	Ukraine	Poland	06/21/16	0:1	1.9339	5.3716	2.4603	5.4602	0.6722	-0.4351	1.1513	-0.755
31	N. Ireland	Germany	06/21/16	0:1	2.005	6.1062	3.5418	5.5465	0.8172	-0.4456	1.2659	-0.9065
30	Czechia	Turkey	06/21/16	0:2	2.2384	7.6172	1.5834	5.6185	0.8711	-0.2459	0.7439	-0.4478
29	Croatia	Spain	06/21/16	2:1	2.5216	5.3714	3.2111	3.8887	0.9331	-0.5506	1.2637	-1.0964
28	Slovakia	England	06/20/16	0:0	2.0388	7.0084	3.1921	4.5677	0.7893	-0.2306	1.2041	-0.7297
27	Russia	Wales	06/20/16	0:3	2.2953	5.7396	1.7359	5.3061	0.917	-0.4577	0.7957	-0.4246
26	Romania	Albania	06/19/16	0:1	1.8764	4.7947	1.1213	5.853	0.8418	-0.571	0.4647	-0.3482
25	France	Switzerland	06/19/16	0:0	1.9617	3.6946	2.7218	5.5501	1.2259	-0.8225	0.9298	-0.5565
24	Portugal	Austria	06/18/16	0:0	2.1251	5.608	2.157	4.8371	1.1057	-0.6761	0.9671	-0.4869
23	Iceland	Hungary	06/18/16	1:1	1.8241	5.3754	2.2952	6.1276	0.9987	-0.6201	0.9273	-0.4729
22	Belgium	Ireland	06/18/16	3:0	2.2731	5.3866	2.0174	5.0282	0.8782	-0.3976	1.0401	-0.6941
21	Spain	Turkey	06/17/16	3:0	2.6974	3.8831	1.6102	4.7679	1.1482	-1.0423	0.817	-0.5495
20	Italy	Sweden	06/17/16	1:0	2.5391	5.6395	2.4434	6.4472	1.056	-0.6548	0.8949	-0.3906
19	Czechia	Croatia	06/17/16	2:2	1.9185	6.9729	2.3177	4.4756	0.7835	-0.2675	0.872	-0.6807
18	Ukraine	N. Ireland	06/16/16	0:2	1.9558	4.3969	1.6465	6.0752	0.7571	-0.5553	0.6919	-0.3303
17	Germany	Poland	06/16/16	0:0	3.7254	5.4643	2.564	5.4004	1.3594	-0.8335	1.2338	-0.6512
16	England	Wales	06/16/16	2:1	2.8812	4.0645	1.5189	4.6742	1.1812	-0.7762	0.7294	-0.4664
15	Russia	Slovakia	06/15/16	1:2	2.2184	4.8002	1.7914	6.97	0.9418	-0.5771	0.6828	-0.192
14	Romania	Switzerland	06/15/16	1:1	1.697	4.3792	2.5316	5.0434	0.8051	-0.5941	0.9206	-0.5767
13	France	Albania	06/15/16	2:0	1.7305	3.7434	1.142	4.9793	1.2319	-0.6993	0.5097	-0.39
12	Portugal	Iceland	06/14/16	1:1	1.9999	5.0723	1.6999	4.9065	1.1124	-0.7058	0.9613	-0.6241
11	Austria	Hungary	06/14/16	0:2	2.249	3.9452	1.8758	6.2359	1.137	-0.65	0.79	-0.341
10	Spain	Czechia	06/13/16	1:0	2.6133	3.9275	1.9513	6.5893	1.1535	-0.995	0.8947	-0.2011
9	Ireland	Sweden	06/13/16	1:1	1.9028	4.5742	2.3204	5.8651	1.0516	-0.75	0.8633	-0.3573
8	Belgium	Italy	06/13/16	0:2	2.3388	4.6213	2.2192	5.6407	1.0148	-0.4908	0.9491	-0.523
7	Turkey	Croatia	06/12/16	0:1	1.6624	4.4107	2.1299	4.4783	0.9522	-0.6163	0.7969	-0.5622
6	Poland	N. Ireland	06/12/16	1:0	2.4346	5.3928	1.6534	5.7563	1.2894	-0.5184	0.7959	-0.3038
5	Germany	Ukraine	06/12/16	2:0	3.3641	5.4876	1.9571	3.8592	1.3194	-0.7106	0.8266	-0.6324
4	Wales	Slovakia	06/11/16	2:1	1.278	4.1471	1.6012	5.5702	0.597	-0.538	0.6645	-0.2677
3	England	Russia	06/11/16	1:1	2.7519	3.6539	1.9987	4.3977	1.206	-0.8346	0.8759	-0.56
2	Albania	Switzerland	06/11/16	0:1	1.169	4.5448	2.3978	5.1876	0.6098	-0.4378	0.9095	-0.461
1	France	Romania	06/10/16	2:1	1.3771	3.1287	1.448	3.5372	1.2033	-0.7846	0.6914	-0.6724

Euro 2016 Aggregate Ratings

	Team1	Team2	Date	Goals	OdmAgg1	OdmAgg2	OdmsAgg1	OdmsAgg2	EloRating1	EloRating2	OdmCor	OdmsCor	EloCor
51	France	Portugal	07/10/16	0:1	0.6096	0.4444	1.1612	1.0187	1999	1899	0	0	0
50	France	Germany	07/07/16	2:0	0.5515	0.7128	1.0839	1.2336	1966	2026	0	1	1
49	Portugal	Wales	07/06/16	2:0	0.3947	0.4875	0.9589	0.8557	1870	1786	0	1	1
48	France	Iceland	07/03/16	5:2	0.5102	0.4079	1.088	0.8955	1954	1733	1	1	1
47	Germany	Italy	07/02/16	1:1	0.7307	0.4798	1.2547	1.0016	2034	1921	0	0	0
46	Wales	Belgium	07/01/16	3:1	0.4237	0.6323	0.8104	0.9555	1729	1926	0	0	0
45	Poland	Portugal	06/30/16	1:1	0.4882	0.3924	1.0346	0.9549	1794	1876	0	0	0
44	Italy	Spain	06/27/16	2:0	0.427	0.7141	0.9002	1.2028	1874	1968	0	0	0
43	England	Iceland	06/27/16	1:2	0.6861	0.3648	1.0144	0.8621	1931	1691	0	0	0
42	Hungary	Belgium	06/26/16	0:4	0.3577	0.5344	0.7387	0.8601	1723	1901	1	1	1
41	Germany	Slovakia	06/26/16	3:0	0.6587	0.2872	1.2055	0.5498	2019	1751	1	1	1
40	France	Ireland	06/26/16	2:1	0.5041	0.3561	1.0997	0.8497	1946	1745	1	1	1
39	Wales	N. Ireland	06/25/16	1:0	0.404	0.3094	0.7583	0.6479	1709	1637	1	1	1
38	Switzerland	Poland	06/25/16	1:1	0.4781	0.4856	0.8227	1.0584	1779	1795	0	0	0
37	Croatia	Portugal	06/25/16	0:1	0.5121	0.3736	0.8573	0.896	1853	1851	0	1	0
36	Sweden	Belgium	06/22/16	0:1	0.3441	0.521	0.625	0.8073	1727	1887	1	1	1
35	Italy	Ireland	06/22/16	0:1	0.4715	0.3272	0.9692	0.7777	1912	1707	0	0	0
34	Iceland	Austria	06/22/16	2:1	0.3369	0.4455	0.8441	0.7912	1662	1719	0	1	0
33	Hungary	Portugal	06/22/16	3:3	0.3641	0.3782	0.7386	0.955	1861	1713	0	0	0
32	Ukraine	Poland	06/21/16	0:1	0.36	0.4506	0.5919	1.0206	1738	1773	1	1	1
31	N. Ireland	Germany	06/21/16	0:1	0.3284	0.6386	0.6615	1.1754	2014	1642	1	1	1
30	Czechia	Turkey	06/21/16	0:2	0.2939	0.2818	0.5455	0.6315	1727	1759	0	1	1
29	Croatia	Spain	06/21/16	2:1	0.4694	0.8258	0.7845	1.3067	1816	2005	0	0	0
28	Slovakia	England	06/20/16	0:0	0.2909	0.6988	0.4997	1.0257	1944	1764	0	0	0
27	Russia	Wales	06/20/16	0:3	0.3999	0.3271	0.7128	0.6376	1724	1659	0	0	0
26	Romania	Albania	06/19/16	0:1	0.3914	0.1916	0.7594	0.4422	1661	1575	0	0	0
25	France	Switzerland	06/19/16	0:0	0.531	0.4904	1.0997	0.7871	1964	1761	0	0	0
24	Portugal	Austria	06/18/16	0:0	0.3789	0.4459	0.946	0.7547	1872	1707	0	0	0
23	Iceland	Hungary	06/18/16	1:1	0.3393	0.3746	0.861	0.7278	1658	1709	0	0	0
22	Belgium	Ireland	06/18/16	3:0	0.422	0.4012	0.6543	0.9304	1858	1726	1	0	1
21	Spain	Turkey	06/17/16	3:0	0.6947	0.3377	1.2194	0.7338	1984	1780	1	1	1
20	Italy	Sweden	06/17/16	1:0	0.4502	0.379	0.9099	0.6566	1897	1742	1	1	1
19	Czechia	Croatia	06/17/16	2:2	0.2751	0.5179	0.523	0.8489	1734	1823	0	0	0
18	Ukraine	N. Ireland	06/16/16	0:2	0.4448	0.271	0.7121	0.5273	1795	1584	0	0	0
17	Germany	Poland	06/16/16	0:0	0.6818	0.4748	1.1647	0.9837	2030	1761	0	0	0
16	England	Wales	06/16/16	2:1	0.7089	0.3249	1.0482	0.6383	1935	1666	1	1	1
15	Russia	Slovakia	06/15/16	1:2	0.4622	0.257	0.8067	0.4271	1752	1708	0	0	0
14	Romania	Switzerland	06/15/16	1:1	0.3875	0.502	0.7598	0.7972	1731	1763	0	0	0
13	France	Albania	06/15/16	2:0	0.4623	0.2294	1.0164	0.4907	1960	1579	1	1	1
12	Portugal	Iceland	06/14/16	1:1	0.3943	0.3464	0.9696	0.8477	1887	1643	0	0	0
11	Austria	Hungary	06/14/16	0:2	0.5701	0.3008	0.9413	0.5769	1754	1671	0	0	0
10	Spain	Czechia	06/13/16	1:0	0.6654	0.2961	1.1888	0.5244	1974	1730	1	1	1
9	Ireland	Sweden	06/13/16	1:1	0.416	0.3956	0.9743	0.6198	1736	1742	0	0	0
8	Belgium	Italy	06/13/16	0:2	0.5061	0.3934	0.7779	0.7721	1900	1855	0	0	0
7	Turkey	Croatia	06/12/16	0:1	0.3769	0.4756	0.8384	0.734	1803	1797	1	0	0
6	Poland	N. Ireland	06/12/16	1:0	0.4514	0.2872	0.9151	0.5535	1742	1599	1	1	1
5	Germany	Ukraine	06/12/16	2:0	0.613	0.5071	1.0619	0.7957	2012	1813	1	1	1
4	Wales	Slovakia	06/11/16	2:1	0.3082	0.2875	0.6313	0.472	1633	1677	1	1	0
3	England	Russia	06/11/16	1:1	0.7531	0.4545	1.0996	0.7664	1949	1741	0	0	0
2	Albania	Switzerland	06/11/16	0:1	0.2572	0.4622	0.567	0.7119	1594	1748	1	1	1
1	France	Romania	06/10/16	2:1	0.4402	0.4094	1.0636	0.7655	1953	1738	1	1	1

Euro 2016 Game Predictions

	Team1	Team2	Date	Goals	OddsWin1	OddsTie	OddsWin2	OddsSSE	OddsCor	OdmsWin1	OdmsTie	OdmsWin2	OdmsSSE	OdmsCor
51	France	Portugal	07/10/16	0:1	0.4651	0.3279	0.2375	0.9052	0	0.4685	0.2633	0.2682	0.8244	0
50	France	Germany	07/07/16	2:0	0.3584	0.3356	0.3367	0.6376	1	0.3731	0.2786	0.3483	0.5919	1
49	Portugal	Wales	07/06/16	2:0	0.4651	0.3236	0.2439	0.4503	1	0.3883	0.2822	0.3295	0.5624	1
48	France	Iceland	07/03/16	5:2	0.7092	0.2045	0.1176	0.1402	1	0.4753	0.2633	0.2614	0.413	1
47	Germany	Italy	07/02/16	1:1	0.4386	0.33	0.2618	0.7098	0	0.4168	0.3	0.2832	0.7439	0
46	Wales	Belgium	07/01/16	3:1	0.2045	0.2976	0.5291	1.0013	0	0.3175	0.283	0.3996	0.7056	0
45	Poland	Portugal	06/30/16	1:1	0.2717	0.3436	0.4184	0.6797	0	0.3765	0.2911	0.3324	0.7548	0
44	Italy	Spain	06/27/16	2:0	0.2217	0.3436	0.4651	0.9401	0	0.2719	0.2958	0.4323	0.8045	0
43	England	Iceland	06/27/16	1:2	0.6803	0.2392	0.1099	1.3123	0	0.3998	0.2856	0.3145	0.7113	0
42	Hungary	Belgium	06/26/16	0:4	0.1427	0.2801	0.6098	0.2511	1	0.3291	0.2698	0.4011	0.5398	1
41	Germany	Slovakia	06/26/16	3:0	0.7042	0.2353	0.0928	0.1515	1	0.5491	0.2566	0.1943	0.3069	1
40	France	Ireland	06/26/16	2:1	0.6536	0.266	0.1109	0.203	1	0.4857	0.269	0.2452	0.397	1
39	Wales	N. Ireland	06/25/16	1:0	0.4926	0.339	0.2	0.4124	1	0.3908	0.2812	0.3279	0.5577	1
38	Switzerland	Poland	06/25/16	1:1	0.3333	0.3472	0.3521	0.6612	0	0.2895	0.294	0.4166	0.7558	0
37	Croatia	Portugal	06/25/16	0:1	0.3534	0.3367	0.3425	0.6706	0	0.3498	0.2779	0.3722	0.5937	1
36	Sweden	Belgium	06/22/16	0:1	0.2045	0.2985	0.5263	0.3553	1	0.3115	0.2697	0.4188	0.5076	1
35	Italy	Ireland	06/22/16	0:1	0.4329	0.3226	0.2755	0.8164	0	0.4108	0.2852	0.304	0.7345	0
34	Iceland	Austria	06/22/16	2:1	0.2762	0.3165	0.4405	0.8181	0	0.3717	0.2864	0.3419	0.5937	1
33	Hungary	Portugal	06/22/16	3:3	0.1072	0.2525	0.6711	1.0206	0	0.2975	0.284	0.4184	0.7762	0
32	Ukraine	Poland	06/21/16	0:1	0.2222	0.3135	0.4975	0.4002	1	0.2445	0.2752	0.4802	0.4057	1
31	N. Ireland	Germany	06/21/16	0:1	0.0738	0.2114	0.7462	0.1146	1	0.2249	0.2692	0.5058	0.3673	1
30	Czechia	Turkey	06/21/16	0:2	0.4219	0.2801	0.33	0.7054	0	0.3403	0.2679	0.3918	0.5575	1
29	Croatia	Spain	06/21/16	2:1	0.189	0.33	0.5128	1.0296	0	0.2219	0.2831	0.495	0.9306	0
28	Slovakia	England	06/20/16	0:0	0.1748	0.3145	0.5435	0.7959	0	0.223	0.2479	0.5291	0.8953	0
27	Russia	Wales	06/20/16	0:3	0.3802	0.3268	0.3245	0.7077	0	0.3843	0.2752	0.3405	0.6584	0
26	Romania	Albania	06/19/16	0:1	0.483	0.3268	0.2625	0.884	0	0.4445	0.2847	0.2708	0.8104	0
25	France	Switzerland	06/19/16	0:0	0.5181	0.3436	0.1704	0.7283	0	0.5246	0.2502	0.2252	0.8881	0
24	Portugal	Austria	06/18/16	0:0	0.5714	0.274	0.1883	0.889	0	0.4174	0.2756	0.3071	0.7933	0
23	Iceland	Hungary	06/18/16	1:1	0.3788	0.3333	0.3195	0.6901	0	0.3991	0.2783	0.3225	0.7841	0
22	Belgium	Ireland	06/18/16	3:0	0.5319	0.2976	0.2016	0.3483	1	0.2841	0.2738	0.4421	0.7829	0
21	Spain	Turkey	06/17/16	3:0	0.6711	0.2433	0.1136	0.1803	1	0.4797	0.2912	0.2291	0.408	1
20	Italy	Sweden	06/17/16	1:0	0.4926	0.3279	0.2114	0.4097	1	0.4381	0.2709	0.2911	0.4739	1
19	Czechia	Croatia	06/17/16	2:2	0.2257	0.3205	0.4854	0.7483	0	0.2711	0.2724	0.4565	0.8113	0
18	Ukraine	N. Ireland	06/16/16	0:2	0.5682	0.2959	0.1661	1.1058	0	0.4111	0.2821	0.3068	0.7291	0
17	Germany	Poland	06/16/16	0:0	0.6173	0.2481	0.1626	0.9729	0	0.4142	0.2759	0.3098	0.7919	0
16	England	Wales	06/16/16	2:1	0.5952	0.2681	0.1661	0.2633	1	0.4751	0.2759	0.249	0.4136	1
15	Russia	Slovakia	06/15/16	1:2	0.4132	0.3175	0.2994	0.7624	0	0.481	0.2601	0.2589	0.8482	0
14	Romania	Switzerland	06/15/16	1:1	0.2849	0.3279	0.4184	0.7079	0	0.3439	0.2916	0.3646	0.753	0
13	France	Albania	06/15/16	2:0	0.8	0.1669	0.0635	0.0719	1	0.5883	0.2307	0.181	0.2555	1
12	Portugal	Iceland	06/14/16	1:1	0.6993	0.2212	0.1116	1.108	0	0.3911	0.2861	0.3228	0.7668	0
11	Austria	Hungary	06/14/16	0:2	0.5952	0.2732	0.1629	1.1296	0	0.4753	0.262	0.2627	0.8382	0
10	Spain	Czechia	06/13/16	1:0	0.6944	0.2237	0.1145	0.1565	1	0.5617	0.2461	0.1922	0.2896	1
9	Ireland	Sweden	06/13/16	1:1	0.2688	0.3279	0.4348	0.713	0	0.4661	0.2698	0.2641	0.8202	0
8	Belgium	Italy	06/13/16	0:2	0.3704	0.3344	0.33	0.6979	0	0.3652	0.273	0.3618	0.6152	0
7	Turkey	Croatia	06/12/16	0:1	0.241	0.2985	0.4902	0.4071	1	0.3843	0.2894	0.3263	0.6853	0
6	Poland	N. Ireland	06/12/16	1:0	0.5618	0.2933	0.1767	0.3093	1	0.4873	0.2474	0.2653	0.3945	1
5	Germany	Ukraine	06/12/16	2:0	0.6579	0.2336	0.1393	0.191	1	0.4349	0.2798	0.2853	0.479	1
4	Wales	Slovakia	06/11/16	2:1	0.3247	0.339	0.3676	0.7061	0	0.4029	0.2839	0.3132	0.5352	1
3	England	Russia	06/11/16	1:1	0.565	0.2809	0.1838	0.8701	0	0.4506	0.2821	0.2673	0.7899	0
2	Albania	Switzerland	06/11/16	0:1	0.1976	0.3096	0.5236	0.3619	1	0.3185	0.2804	0.4011	0.5387	1
1	France	Romania	06/10/16	2:1	0.7299	0.2061	0.0914	0.1238	1	0.4982	0.2682	0.2336	0.3783	1