Research on the Prediction of the likely Winners of the Euro 2008 Football Tournament

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2008

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Abstract

The objective of this research is to provide a statistical measurement to predict the likely winners of international football tournaments with particular reference to the Euro 2008 football tournament. This research argues that there exists a positive relationship between the competitive balance and success in international football tournaments. The level of the competitive balance in a domestic football league is measured by the seasonal coefficients of variation (CV) of the end-of-season points. The CV values are employed as ranking indicators between the contesting countries in international football tournaments to predict the likely winners.

The seasonal CV values are computed from the top divison football leagues of participating countries of Euro 1996, Euro 2000, Euro 2004, and Euro 2008, in order to rank and to predict the likely winner of these tournaments. The results indicate that the higher the level of domestic competition the better chance of winning an international football tournament. The CV ranking is also compared to UEFA ranking and to the odds of some well known bookmakers in predicting the likely winners of the Euro 2008 football tournament. On the basis of the overall results, this research predicts that the likely winners of the Euro 2008 football tournament would be France, Spain or Germany.

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1. Introduction

Football has, over the past two decade, become a multi billion dollar global industry and it has been generating huge revenues for private individuals and clubs, as well as national and international organisations. These revenues are generated through broadcasting rights, sponsorship agreements, merchandise and ticket sales. Resources are allocated on the basis of performance at domestic and international levels.

Football economics has been researched as a sub-discipline of professional team sports as argued in Szymanski (2001). The pioneering study of Sloane (1971) provided the first detailed insight of football teams as competitive firms. The existing literature in sports economics is largely based on the issues related to the demand for sports, transfers market, market structure, broadcasting revenues, etc. For comprehensive discussions of these issues and different aspects of the ever growing literature of the professional team sports, see for example, Zimbalist (2001), Borland and Macdonald (2003), Sandy *et al.* (2004), Groot (2005), Halicioglu (2006), and Goossens (2006). It seems that there have been significant differences in empirical research of sports studies, especially between the USA and European economists, which are related to differences in the structure and organization of the sporting leagues in these continents.

Football is organised in seasonal league championship competitions and the uncertainty of the outcome over who is going to win the championship is the main concern of fans and spectators. If the championship and relegation battles are decided early in a season, the remaining fixtures have less significance for spectators and fans. Therefore, a certain degree of competitive balance in football leagues is required to keep alive the interest in the league.

This paper aims at contributing to the existing quantitative sports literature by providing further statistical evidence on the relationship between seasonal competitive balance and the likely winners of an international football tournament, such as in the case of Euro 2008. This study suggests that the level of seasonal competitive balance obtained from the seasonal coefficients of variation (CVs) of the end-of-season points can be used as a relatively good ranking indicator between the contesting countries in international football tournaments to predict the likely winners. The predicted power of adopted estimation method is also compared to the UEFA (Union of European Football Association) ranking and odds of some bookmakers. This study is a further extension of Halicioglu (1998), Halicioglu (2005a) and Halicioglu (2005b).

Section 2 of this paper presents a brief review of the competitive balance concept. Section 3 provides some statistical measurements of the competitive balance. Section 4 highlights the estimation methodology for the competitive balance. Section 5 discusses the results, which is followed by the concluding remarks, section 6.

2. A Brief Review of the Competitive Balance Concept in Football

The concept of competitive balance is a central issue in professional team sports. Nevertheless, it is a very elusive phenomenon since it has several dimensions and interpretations. It is also closely related to the concept of outcome of uncertainty in matches and demand for the sporting contests. Basically, competitive balance refers to a league structure in which league members have relatively equal playing strength. Uncertainty of outcome is related to a situation within a league structure where competition does not have a

predetermined winner at the outset of the competition. Competitive balance is important, because, other things being equal, uncertainty of outcome generates interest from supporters and increases demand for the matches both at the stadiums and on television.

In a perfectly balanced league, each team would have an equal chance of winning each match and each team would have an equal chance of winning the league title. It would also be impossible to predict with any certainty which team would be more likely than others to win the league title. If there is uncertainty of outcome over individual matches, then there is uncertainty of outcome over the league title.

Sloane (1971) emphasised that the quality of the game, as well as the uncertainty of outcome, creates interest. Sloane (1971) also identified implicitly the concept of the short and long run uncertainties in football leagues. The former concept refers to "competitive balance" between the teams within a season that increases attendances; the latter concept refers to the extent of domination over time of the number of league championship competitors by one or a few clubs, which reduces spectators' interest substantially; see also Cairns (1988).

On the other hand, Jenneth (1984) argued that the uncertainty of outcome is a significant determinant of attendances in certain matches but less important as a determinant of aggregate attendances. Similarly, Peel and Thomas (1988) discussed that any attempt to produce closer competition to increase match uncertainty of outcome with the intention of increasing gate attendances may be undesirable from the perspective of individual clubs, as supporters, apparently, like to watch high-placed teams particularly when their team is likely to win.

Vrooman (1996) puts forward three different interpretations of competitive balance: closeness of league competition within seasons; the absence of dominance of a large market club; and continuity of performance from season to season. Similarly, Szymanski (2003) identifies three kinds of uncertainty: match uncertainty, season uncertainty, and championship uncertainty.

Koning (2000) points out that the quality of the play in absolute games and uncertainty of the outcomes are the two main reasons for interest in a particular football contest. The outcome and quality of the game are the goods that is sold to the public. The public is worse off when the outcome of a game is easily predicted than if the game is tight. Therefore, the governing bodies of the football industry, such as football associations, make sure that the high level of competitive balance is maintained in order to ensure long-term interest in the league. Moreover, to implement efficient policy decisions, football associations set out the optimal level of competitive balance so that appropriate policies may be introduced. Nevertheless, the determination of optimal level of competitive balance is very complex. Instead, a reasonable level of the competitive balance might be sufficient and beneficial for the football industry.

Sanderson (2002) highlights several dimensions of competitive balance, such as technology, demography, artificial enhancement, playing rules that are related to revenue allocation, in addition to many additional dimensions of competitive balance that do not involve (or reallocate) directly complementary components.

The need for competitive balance has been used on all purpose justification for competitive restraints in antitrust cases in the USA and Europe. As reported in Syzmanski (2001), reports of the Advocate General of the European Court of Justice, in the case of the Bosman ruling, recommends that a professional league can flourish only if there is not too glaring an imbalance between the clubs taking part. It is of fundemental importance to share income between the clubs in a reasonable manner.

To a certain extent, the division, in terms of how to relate the concept outcome of certainty to demand for sport, lies in the fact that the structure and organization of professional sporting leagues are rather different, especially between the USA and Europe. Hoehn and Szymaniski (2000) outline the two main differences. Firstly, the USA leagues are generally closed. It

implies that new teams are seldom admitted to a league, and there is no annual promotion and relegations between the separate divisions. The teams in the USA leagues are also closed to foreign competitions and therefore they do not compete simultaneously in different international competitions. In contrast, the European leagues are open to seasonal promotion and relegation. The clubs in Europe also compete at different international games, in addition to the different domestic competitions. Therefore, the US sporting league structure appears to be relatively less competitive. Secondly, US authorities have attempted to maintain a competitive balance between the teams via intervention in the labour market or redistribution of income of club teams. The main channel of the income distribution tool in the USA sporting organization is the national broadcast revenue, which was put in effect in 1962, and typically, the clubs equally share these revenues. In comparison, most European clubs started to accrue broadcasting revenues in the early 1990s, and these revenues are generally distributed on the base of a performance-related and a fixed share. See also different aspects and evaluations of sporting leagues in the USA and Europe in Fort (2000), and Forrest and Simmons (2002).

In general it is reasonable to emphasize that greater outcome uncertainty represents a higher degree of competitive balance. However, the extreme of perfect or maximum competitive balance is not considered as the optimum. The optimal competitive balance need not to be a perfectly balanced competition.

3. Measurement of Competitive Balance in Football

There is no clear-cut approach or technique to measure the competitive balance in a football league due to its ambiguity. There is an analogy that there are as many ways to measure competitive balance as there are to quantify the money supply as discussed in Zimbalist (2002). This study presents briefly some of the well known statistical competitive balance measurements without going into details of formulas. For a detailed survey and empirical results, see Cairns *et al.* (1986), Humphreys (2002), and Goossens (2006).

Standard deviation of winning percentage approach

Winning percentage in one season measures the distance of the win percentages from the average. The large standard deviation indicates the less competitive balance. In the case of the 2-1-0 point system, the average is always 0.5. With the 3-1-0 point system the averages differ. For comparisons amongst the seasons, one may use the coffficient of variation but this approach may suffer from outliers. This formula is expressed as follows:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(w_i - \overline{w})^2}{n}}$$

where σ is standard deviation, w is win percentage of team i in a season. $\overline{w}$ is average win percentage in a season, and n is number of teams.

Standard deviation ratio approach

This approach employs the ratio of the actual standard deviation to an idealized standard deviation. These standard deviations are computed from the winning percentages. The range of these ratios are 0 and 1. The former represents the perfect competition and the latter indicates the worst competition. Quirk and Fort (1997) assumed that $0.5\sqrt{N}$ is the idealized standard deviation with N, the number of games played in a season. This approach provides better results in the point systems in which the winnner gets two points and one for draws. Buzzacchi et al (2003) employed this approach recently.

Lorenz curvez and Gini coefficient approach

It measures the inequality of the distribution of win percentages. Utt and Fort (2002) proves that this approach understates the level of seasonal competitive balance.

Competitive balance ratio approach

This ratio is based on two standard deviations. The first one is computed within-team-standard deviation and the latter is calculated within season-standard-deviation. The ratio lies between 0 and 1. However, this measurement is not easily applicable in the case of the European football due to promotion and relegation battles, see Eckard (2003) for details. This measurement is defined as follows:

Within-team-standard deviation:

$$\sigma_{wt,i} = \sqrt{\frac{\sum_{s=1}^{S}(w_{i,s} - \overline{w}_i)^2}{S}}$$

Within-season-standard deviation:

$$\sigma_{ws,i} = \sqrt{\frac{\sum_{s=1}^{n}(w_{i,s} - \overline{w}_s)^2}{n}}$$

Competitive Balance Ratio (CBR):

$$CBR = \frac{\frac{\sum_{i=1}^{n}\sigma_{wt,i}}{S}}{\sum_{s=1}^{S}\sigma_{ws,s}}$$

where i is team, s is season, n is total number of teams, S is total number of seasons, $w_{i,s}$ is win percentage of team i in seasons, $\overline{w}_i$ is average win percenatge of team i over total number of seasons, and $\overline{w}_s$ is average win percentage of seasons s for all n teams together.

Herfindahl-Hirschman Index (HHI)

This index uses point shares of football teams over a number of seasons. These shares are squared then summated overall the league members. This index value range between 0 and 10000. The former indicates the perfect competition and the latter suggests the perfect monopoly. This approach is more appropriate for measuring the long-run dominance rather than the seasonal competitive balance.

This index is formed as follows:

$$HHI = \sum_{i=1}^{n} MS_i^2$$

where i is teams, N is total number of teams, and MS_i is point shares of team i, going from 0 to 100.

Top k approach

Buzzachi *et al*. (2003) suggested this approach. According to this approach, the number of different teams that entered the top k is counted. The more teams in the top k over a certain period of time, the less is competition by a few teams. The seasonal comparison of the competitive balance in across the European leagues is not possible due to different league sizes.

National measure of seasonal imbalance (NAMSI) approach

Goossens (2006) proposed this measurement of competitive balance and it is based on the ratio of two standard deviations. The first standard deviation is computed from the winning percentage with uncertainty and the second standard deviation is computed when the winning percentage is known with certainty. The ratio ranges between 0 and 1.

This measurement is computed as follows:

$$\text{NAMSI} = \frac{\sigma_s}{\sigma_c} = \frac{\sqrt{\dfrac{\sum_{i=1}^{n}(wp_i - 0.5)^2}{n}}}{\sqrt{\dfrac{\sum_{i=1}^{n}(cp_i - 0.5)^2}{n}}}$$

where σ_s is season standard deviation, σ_c is standard deviation with complete certainty, n is number of teams, wp_i is winning percentage of team i, and cp_i is winning percenatge of team i when there exists complete certainty.

3. Estimation Method

This study adopts the seasonal coefficient of variation (CV) approach, in order to measure the degree of competitive balance across the European football leagues and rank them

accordingly, so that this approach provides a reasonable predictive power for the likely winner of the UEFA football tournaments. For a similar analysis, see Halicioglu (2005a) and Halicioglu (2005b). The coefficient of variation is computed as follows: $CV = \sigma / \overline{X}$, where σ is the standard deviation of the end-of-season points, and $\overline{X}$ is the average of the end-of-season points, see Sloane (1971) for an initial application of this approach.

The usefulness of the CV values for the competitive balance in a football league is based on the simple idea that dispersion of the final standing points is a direct result of the competitiveness that takes place between the football teams in seasons. This approach assumes that each football team has statistically got an equal chance of winning the championship at the beginning of a season. Therefore, the dispersion of total points at any time will follow a normal distribution. The CV values provide better plausible comparisons of the seasonal competitive balance levels than the absolute standard deviations of the end-of-season points in the case of possible changes in league structures over seasons, such as the number of teams in a contest or the points awarded for a win or draw. It is clear that this approach does not consider any other factor that may have an impact on the level of competitive balance for the sake of simplicity. The CV value for a season lies between 0 and 1. These values reflect the extreme competition points. If the CV value is 0, it implies perfectly balanced competition in a league.

Considering the competition implications of the seasonal CV values, this paper argues that there is a strong positive correlation between the degree of domestic football competition and success at international football tournaments. The main reason for this proposition is that the national squads are mainly derived from the domestic football teams, especially from the top division teams. Of course, some members of the national squads or all of them could be playing abroad at the time or before they are selected for the national squad. It is assumed that those national football players who are selected for the national squad have already experienced some degree of domestic football competition. Thus, a national squad whose players have experience of a high degree of football competition at domestic level will have an advantage over those nations which have a relatively less competitive league. This point implies that the countries with a high degree of domestic football competition, i.e., with the lowest CV value, will have the highest possibility of winning international football tournaments, providing that the other factors which influence the performance of success are constant for all the teams.

5. Results

European nations' football tournament is a major sporting event of UEFA which is based on four year intervals and has been held since 1960. The tournament was renamed in 1996 as Euro 1996 and the subsequent tournaments were called with similar names. To this extent, one can identify four tournaments, namely: Euro 1996, Euro 2000, Euro 2004 and Euro 2008. The structure and progression stages of the tournament have been the same since 1996. It consists of four groups with four teams.

This section will utilize the results of CV ranking in a comparative manner. Firstly, the results will be evaluated based on the short, mid and long-run computed CV values. Then the short-run CV ranking results will be compared to the UEFA ranking and to the odds of the Bookmakers.

CV Ranking and Prediction

The estimation process and methodology of this study is summarized as follows; the annual CV values of end-of season points for the finalists of the Euro 2008 were computed from the respective countries' top division football leagues between the seasons of 1996/1997 and 2007/2008. The finalist countries were ranked according to descending seasonal CV values, which indicate the relative strength. On the basis of seasonal CV values, three scenarios were formed. The first scenario is labelled as the long-term, which is based on a twelve-year average of the seasonal CV values between the seasons prior to the tournaments. It was assumed that if there were an underlying trend in the level of domestic football competition, the long-term seasonal CV values would be more reliable for prediction. Similarly, a six-year average of the seasonal CV values was calculated to see the fluctuations in the degree of football competition as a mid-term option. Finally, the last football season of CV values was computed, with the intention of comparing finalists' countries in a very short period. These scenarios aim at capturing the impact of the underlying trend and competitiveness in domestic football leagues over the estimation period, which is deemed to be useful for prediction purposes. There is no statistical evidence that either scenario was preferred to any other one. However, it is possible to point out, tentatively, that, considering the ever-changing nature of football teams, short-term to mid-term scenarios should provide relatively more reliable predictions. The results are displayed in Table 1.

Table 1 Ranking of the Euro2008 Finalists for Different Time Periods of CV values

	Countries	Long-term CV	Countries	Mid-term CV	Countries	Short-term CV
1	France	0.239	France	0.238	France	0.250
2	Spain	0.251	Spain	0.265	Spain	0.272
3	Germany	0.272	Germany	0.279	Germany	0.280
4	Sweden	0.283	Sweden	0.297	Russia	0.282
5	Czech R.	0.304	Russia	0.298	Czech R.	0.298
6	Romania	0.306	Czech R.	0.300	Switzerland	0.302
7	Russia	0.312	Romania	0.305	Italy	0.304
8	Italy	0.314	Turkey	0.317	Netherlands	0.305
9	Turkey	0.322	Austria	0.323	Romania	0.313
10	Portugal	0.324	Italy	0.324	Sweden	0.330
11	Austria	0.327	Portugal	0.327	Turkey	0.350
12	Poland	0.328	Switzerland	0.338	Croatia	0.355
13	Netherlands	0.342	Netherlands	0.341	Portugal	0.361
14	Switzerland	0.348	Poland	0.358	Greece	0.368
15	Croatia	0.374	Croatia	0.396	Austria	0.381
16	Greece	0.397	Greece	0.396	Poland	0.399

Notes: i. Long-term CV represents the mean value of twelve seasons, mid-term represents the mean value of last six years from 2007-2008 season, and short-term CV indicates the season of 2007-2008.
ii.The end-of-season points which generate the CV value were obtained from http://www.rsssf.com/histdom.html

As seen from Table 1, it is clear that the French domestic football league is the most competitive in terms of scenarios outlined above for the Euro 2008. Hence, it should be plausible to state that France would be the most likely country to win the Euro 2008. Table 1 also indicates that the other most likely countries to win Euro 2008 would be initially Spain, followed by Germany, Sweden and Russia. It is a possible situation that some of these favourite countries might be in the same elimination groups and due to the team restrictions

could not go through to the quarter or semi-finals. Nevertheless, it would be still expected that one of those statistically favourite countries that made the quarter and semi-finals could achieve the championship eventually. On average, the Euro 2000 winner, France, seems to have a very competitive domestic football competition. The same underlying trend is also true for the German and Spanish leagues. In fact, along with Italy and England, these are called the 'big five of Europe'. In order to provide more statistical evidence and to support the notion that domestic competitive balance may be a good predictor of the winner of international football tournaments, the short-run computed CV values in the case of Euro 1996, Euro 2000, Euro 2004 along with the Euro 2008 are presented in Table 2.

Table 2. CV and UEFA Ranking of Euro Finalists											
	Euro 1996	CV Ranking 1996	UEFA Ranking 1996	Euro 2000	CV Ranking 2000	UEFA Ranking 2000	Euro 2004	CV Ranking 2004	UEFA Ranking 2004	Euro 2008	CV Ranking 2008	UEFA Ranking 2008
1	England	0.236	13	France	0.173	2	Spain	0.240	2	France	0.250	5
2	Germany	0.257	1	Spain	0.189	3	France	0.263	1	Spain	0.272	2
3	Denmark	0.264	9	Denmark	0.197	9	England	0.294	7	Germany	0.280	3
4	Italy	0.262	11	Sweden	0.276	13	Czech R.	0.297	6	Russia	0.282	17
5	France	0.269	4	Germany	0.284	4	Germany	0.303	4	Czech R.	0.298	4
6	Spain	0.271	5	Belgium	0.297	23	Russia	0.334	16	Switzerland	0.302	27
7	Netherlands	0.315	8	Portugal	0.302	12	Netherlands	0.337	3	Italy	0.304	1
8	Portugal	0.328	12	England	0.306	10	Switzerland	0.340	24	Netherlands	0.305	8
9	Czech R.	0.331	7	Norway	0.307	5	Portugal	0.350	12	Romania	0.313	10
10	Scotland	0.337	16	Romania	0.317	6	Sweden	0.352	13	Sweden	0.330	16
11	Russia	0.347	2	Italy	0.326	11	Denmark	0.373	9	Turkey	0.350	15
12	Croatia	0.349	17	Turkey	0.330	21	Italy	0.375	8	Croatia	0.355	11
13	Romania	0.366	11	Czech R.	0.334	1	Croatia	0.383	14	Portugal	0.361	7
14	Switzerland	0.369	15	Netherlands	0.368	14	Latvia	0.392	26	Greece	0.368	6
15	Bulgaria	0.378	14	Slovenia	0.393	27	Bulgaria	0.431	20	Austria	0.381	43
16	Turkey	0.401	18	Croatia	0.443	7	Greece	0.460	18	Poland	0.399	18

Notes: i. The UEFA rankings are of April 1996, April 2000, April 2004, and April 2008 respectfully which are retrieved from http://www.fifa.com/worldfootball/ranking. Accessed on 22 May 2008.
ii. The end-of-season points which generate the CV value were obtained from http://www.rsssf.com/histdom.html. Accessed on 10 May 2008.

The short-run CV values in Table 2 could be used as plausible indicators to predict the Euro football tournaments. For example, the semi-finalists of the Euro 1996 were Germany, Czech Republic, France and Italy. The title was won by Germany after the final with Czech Republic. England and Germany appeared in the top four in regards to the CV ranking, which supports the notion that high level competition at domestic leagues may also lead to international success. The Euro 2000 tournament produces similar results. The semi finalists of the Euro 2000 were France, Italy, Portugal and Netherlands. The final game was played by France and Italy and France claimed the victory. The CV ranking includes France in the top four countries. As for the Euro 2004, the semi-finalists were Greece, Portugal, Czech Republic and Netherlands. The tournament ended with the championship going to Greece, which was a revelation for everyone. Greece initially had a one to one hundred chance to win the tournament in comparison to the three favourites, France, Spain and Germany; see for example, the betting company William Hill at www. willhill.co.uk. According to the seasonal CV values presented in Table 2, Greece had hardly any chance to win the Euro 2004 competition since it had the relatively highest seasonal CV values. To this end, the method of the CV ranking for prediction seems to be not fully reliable; given the nature of sports football, it is not possible to model these events with complete certainty. However, Czech Republic appeared in the top four of the CV ranking. Therefore, it is reasonable to state that the domestic competitive balance can be used as a relatively good indicator to predict the

likely winner of international football tournaments. At least, one could name some of the semi-finalists on the basis of the CV ranking.

CV ranking versus FIFA ranking

The seasonal CV ranking method in this study was also compared to the FIFA/Coca-Cola World Ranking, which is possibly the most sophisticated ranking procedure in international competitive football, as displayed in Table 2 along with the respective short-run seasonal CV ranking. Since August 1993, FIFA has been ranking more than two hundred member countries according to all international "A" level matches. The FIFA world ranking reflects the current comparative status of its member nations. FIFA primarily evaluates matches played in the twelve months prior to the date on which the rankings are issued. Performances in previous years are also taken into account. The score obtained from the most recent twelve-month period is added to those of the preceding five years, with each previous year ranking being continuously devalued. The procedure awards points on the basis of the games' results, goals scored, strength of the opponents, and importance of the matches (home or away). FIFA and its five regional confederation ranking are produced on a monthly frequency. This study uses the UEFA region of the FIFA ranking. For a detailed calculation methodology and history of this ranking, see the official web site of FIFA's world ranking at www.fifa.com. Stefani (1997) pointed out that, considering football prides itself on the simplicity of the game, it is so complex and needs to reconsider its multiplying factors since a friendly game (often regarded as a means to select the final squad for major international tournaments) counts two-thirds as much as world cup matches.

According to Table 2, one can draw some similarities between the CV and UEFA rankings even though their methodologies are completely different. The top four countries in the CV ranking also appear to be the most successful countries in the UEFA ranking. For instance, Germany was the Euro 1996 winner. In the same year; it ranked as first in the UEFA ranking and was ranked as second in the CV ranking of 1996. France won the Euro 2000 and at the same time, it appeared at the top of the UEFA and CV rankings. As for the Euro 2004, Czech Republic was amongst the semi-finalists which were predicted by CV ranking but the UFEA ranking did not rank it that way. The UEFA ranking put Greece into 18th place. Nevertheless, the UEFA ranking still confirms the proposition of this study to a certain extent, which states that the higher the domestic level of competition, the higher the level of success in international football matches. Some aspects of UEFA ranking are discussed in Sarkar (2008). This analysis also suggests that the CV ranking could be used as a supplemanarty variable to the FIFA ranking to predict the likely winners of the international football tournaments.

CV ranking versus Odds

According to the bookmakers and football pundits, the initial favourites of the Euro 2008 are Germany, Spain, Italy, Portugal and France. The bookmakers, by and large, use simple quantitative techniques for predictions, which are based on the number of international wins, losses, goals, etc, whereas the football experts prefer to use more judgemental methods such as the forms of individual players, the management, motivation, the match strategy, experience, crowd and pitch conditions, and so on. Table 3 provides some of odds offered by the bookmakers for the winning title of the Euro 2008. Four of five favourite countries deemed to be within 'big five of Europe'. The top 5 of the UEFA ranking includes favourite four countries, Germany, Spain, Italy, and France. Similarly, the CV ranking indicates three out of five countries, Germany, Spain and France. This analysis also suggests that the CV

ranking is a good proxy to forecast the likely winners of the international football tournaments.

Table 3   Odds of some bookmakers for the winner of the Euro 2008

	888sport	Bet365	Coral	Ladbrokes	William Hill
Germany	4	7/2	4	7/2	4
Spain	6	6	6	6	11/2
Italy	7	7	7	6	7
Portugal	7	15/2	15/2	15/2	7
France	8	8	17/2	8	15/2
Netherlands	12	12	12	12	12
Croatia	12	11	12	12	12
Czech R.	14	12	14	14	12
Greece	25	22	25	16	22
Russia	28	28	25	33	28
Switzerland	20	22	25	25	22
Sweden	25	33	33	28	28
Romania	40	40	40	33	40
Turkey	50	33	50	33	40
Poland	40	40	40	50	40
Austria	100	100	100	80	100

Source: http://euro2008betting.bestbetting.com/football/euro-2008/winner
accessed on 27 May 2008

6. Concluding Remarks

This study tries to form a meaningful link between the domestic league competition and success in international football tournaments. This research asserts that the competitive balance is a reasonably good proxy to predict the outcome of international football tournaments but it is not totally reliable. The competitive balance measured is defined in terms of the coefficient of variation. Those countries with the high degree of domestic football competition are more likely to achieve international success.

The CV values are computed from the final standing points of football leagues. This approach of prediction is applied to the countries which participated in the Euro 1996, the Euro 2000, the Euro 2004, and the Euro 2008 tournaments. The absolute power of the CV ranking is compared to the FIFA ranking and to odds of well known bookmakers. The results demonstrate that neither ranking method is completely reliable in predicting the outcome of international performances but there exists empirical evidence that the tight competition in domestic football would improve international success considerably. The results suggest that the CV ranking may be used either on its own or as a complimentary decision variable to predict the likely winners of international football tournaments.

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