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DEPENDENCE OF THE OVERALL NATIONAL TEAM MARKET VALUE ON ITS SUCCESS AT UEFA EURO 2012

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SUMMARY

The content of this article is to compare overall market values of football national representations which took part in UEFA EURO 2012 in Poland and the Ukraine. The size of team market value is determined by a summarization of all the team players' market value regardless of their participation in matches. The highest market value was achieved by the national team of Spain, the lowest by the national team of Ireland. The overall team market value is related to success (failure) at EURO 2012 which is expressed by a total amount of points gained. There is an evident strong influence of team market value on the result gained at UEFA EURO 2012 based on the results of regression and correlation analysis. The value of correlation coefficient is 0.78.

Another target was determining the effectiveness of national football teams at UEFA EURO 2012 as a proportion of the representation quality and the overall amount of points gained at the tournament. From this point of view the most effective team was the Czech football representation, the least effective was the Dutch representation.

Keywords: football, EURO 2012, market value, effectiveness

INTRODUCTION

A well-worn phrase expressed by both football professionals and amateurs says: "A match starts with the score 0:0." This suggests that the chances of either team winning the match are more or less equal. However, this is only seemingly valid. The chances of winning a match or indeed a whole competition (league or tournament) are influenced by various factors. If we disregard the factor of luck, the most important factor is definitely the quality of the team, i.e., it is determined by the quality of players forming the team. There are eleven players in a football team on the football pitch. However, these players very rarely play for an entire match therefore it is necessary to also consider the quality of the possible substitute players on the bench.

The factor best expressing the quality of players, according to many authors, is mainly their market value (Carmichael, Forrest & Simmons, 1999; Feess & Muehlheusser, 2003; Amir & Livne, 2005; Forker, 2005; Tervio, 2006; Frick, 2007). The value of a player is determined by many indicators. The most important of such are international experience, amount of the latest transfer sum of money and player performance. It is observed via the number of goals shot, the number of accurate or spoilt assistances, the number of kilometers run within a match, the number of manoeuvres, the number of losing or gaining the ball, etc. It then follows that other parameters are valid for goalkeepers, others for defenders, midfielders or strikers. An important indicator is also the age of a footballer, mostly with respect to the length of his assumed career (Hoffmann, Chew Ging & Ramasamy, 2002). Team success can raise the value of a player (for example being promoted into a higher competition or team participation in Champions League). On the other side, market value can be knocked down by serious or repeated injuries (Tunaru, Clark & Viney, 2005).

European league teams can recruit high-quality players from all over the world regardless of their nationality and increase their chances to succeed in national or international competitions. However, national representation teams do not have this possibility as they are allowed only to choose from players of the same nationality. Nevertheless, performance-related differences among European national teams are clear and chances to win a championship title vary. Despite this, we have already experienced many surprise upsets within the history of European championships. Take for instance the triumph of Greece at UEFA EURO 2004 in Portugal or the victory of Denmark at UEFA EURO 1992 in Sweden.

PURPOSE

The aim of this contribution is to determine the dependency of the overall national team market value on its success at UEFA EURO 2012. Another aim is to determine the "effectiveness" of national football teams at UEFA EURO 2012 as the ratio of representation selection quality to the overall result achieved at the tournament. Team quality is given as the total of all players market values regardless of their participation in the match. The team result is given by the overall amount of points gained at the tournament.

METHODS

Subject of the study were national teams participating in the European Championship in Poland and the Ukraine in 2012. First of all, the overall market value of each team was set. It was determined as a total amount of market values of all team players regardless of their participation in all matches. Each team consisted of 23 players – 3 goalkeepers, 7 defenders, 9 midfielders and 4 forwards. A demonstration of a calculation of the overall representation market value is represented on the example of the Czech national team in Table 1.

Table 1. Market values of the Czech representation team players at UEFA EURO 2012

Name	Matches played at EURO	Market value (mil. EUR)
Goalkeepers		
Petr Čech	4	25.00
Jaroslav Drobný	0	1.25
Jan Laštůvka	0	2.50
Defenders		
Theodor Gebre Selassie	4	2.50
Roman Hubník	1	1.70
Michal Kadlec	4	7.00
David Limberský	3	2.00
František Rajtoral	2	2.50
Tomáš Sivok	4	7.80
Marek Suchý	0	3.80
Midfielders		
Vladimír Darida	1	3.00
Tomáš Hübschman	4	3.50
Petr Jiráček	4	6.00
Daniel Kolář	2	1.80
Milan Petržela	1	1.25
Václav Pilař	4	3.50
Jaroslav Plašil	4	6.50
Jan Rezek	3	1.20
Tomáš Rosický	2	3.50
Forwards		
Milan Baroš	4	6.50
David Lafata	1	1.20
Tomáš Necid	0	6.00
Tomáš Pekhart	3	4.00
Overall market value of the Czech team		**104.05**

Source: http://www.transfermarkt.co.uk (adapted by the author)

The market value of each player is set by licensed FIFA agencies and scouting agencies. Parameters such as age, international experience, the latest transfer sums of money and performed sport performances are all taken into consideration.

Overall market value of all players at EURO 2012 was 3845 mil. EUR. This represented an average market value of 10.4 mil. EUR for one player. Therefore it is evident that all players of the Czech national team mentioned in chart 1, except for Petr Čech, had substandard market value.

If we accept the fact that market value is the basic indicator of a player quality, then the overall market value of a national team is the indicator of the whole representation team quality. Market values of national teams participating in EURO 2012 are expressed in Table 2.

Table 2. Teams market values at EURO 2012

Order	Representation	Average player value (mil. EUR)	Overall team market value (mil. EUR)
1.	Spain	27.17	625
2.	Germany	20.65	475
3.	England	18.00	415
4.	Portugal	15.21	350
5.	France	15.00	345
6.	The Netherlands	13.90	320
7.	Italy	13.45	310
8.	Russia	7.15	165
9.	Croatia	6.74	155
10.	Sweden	5.65	130
11.	The Ukraine	4.78	110
12.	The Czech Republic	4.56	105
13.	Poland	4.13	95
14.	Denmark	3.91	90
15.	Greece	3.70	85
16.	Ireland	3.04	70
Overall market value of all teams at EURO 2012			**3,845**

Source: http://www.transfermarkt.co.uk (adapted by the author)

Team quality is the turning factor for success or failure in a competition. The overall market value of representations participating in EURO 2012 therefore indirectly expressed team chances of success in this European Championship.

This means that the biggest chances to win EURO 2012 belonged to Spain because its players had had the highest market value before EURO 2012, specifically it was 625 mil.

EUR (27.17 mil. EUR for a player). The smallest chances to win – with respect to the overall market value – belonged to the Irish team with its market value of 70 mil. EUR (3.04 mil. EUR for a player).

To support this statement one can note a correlation; there is a mutual relationship between the overall national teams' market value and their result at EURO 2012. It will be then set as a total sum of all points gained. The amount of correlation coefficient determines the probability that the above followed quantities are co-dependent, however, it will not be possible to confirm the fact that the total amount of the national team market value is the *cause* and the amount of points gained its *effect*. This cannot be decided by the correlation itself.

The last detail essential for the correlation calculation and the subsequent *effectiveness* as the ratio of representation selection to the overall result achieved at the tournament was the amount of points gained by representations at EURO 2012. The points gained represent the basic indicator of each team success rate at EURO 2012. In the basic group there were 3 points given for a victory, 1 point for a draw and 0 points for a defeat. In elimination matches, for the purposes of our study, teams were given 3 points for ascent and 0 points for elimination, regardless of the match result after the basic playing period of time. Team success rates in points gained are demonstrated in Table 3.

Table 3. Team success rates in points gained at EURO 2012

Representation	Points gained in the basic group	Points gained in play-off	Total amount of points gained
Spain	7	9	16
Germany	9	3	12
Italy	5	6	11
Portugal	6	3	9
England	7	0	7
The Czech Republic	6	0	6
France	4	0	4
Greece	4	0	4
Russia	4		4
Croatia	4		4
Sweden	3		3
The Ukraine	3		3
Denmark	3		3
Poland	2		2
The Netherlands	0		0
Ireland	0		0

Source: http://www.uefa.com/uefaeuro/index.html (adapted by the author)

Besides the overall market value correlation and the amount of points gained there was a calculation of the *national team effectiveness* done as the ratio of the quality of the representation selection to the overall result gained at the tournament. It was calculated as a proportion of the total sum of all players' market values in the national team and the amount of points gained. Simply said, the result expresses how much money one point gained at EURO 2012 "cost".

$$ENT = \frac{\sum PMV}{P}$$

ENT – effectiveness of national team
PMV – player market value
P – number of points

RESULTS

The examined hypothesis about mutual dependence between the size of the national team market value and the result gained in points was put through a two-dimensional linear regression analysis. The results are shown in Figure 1.
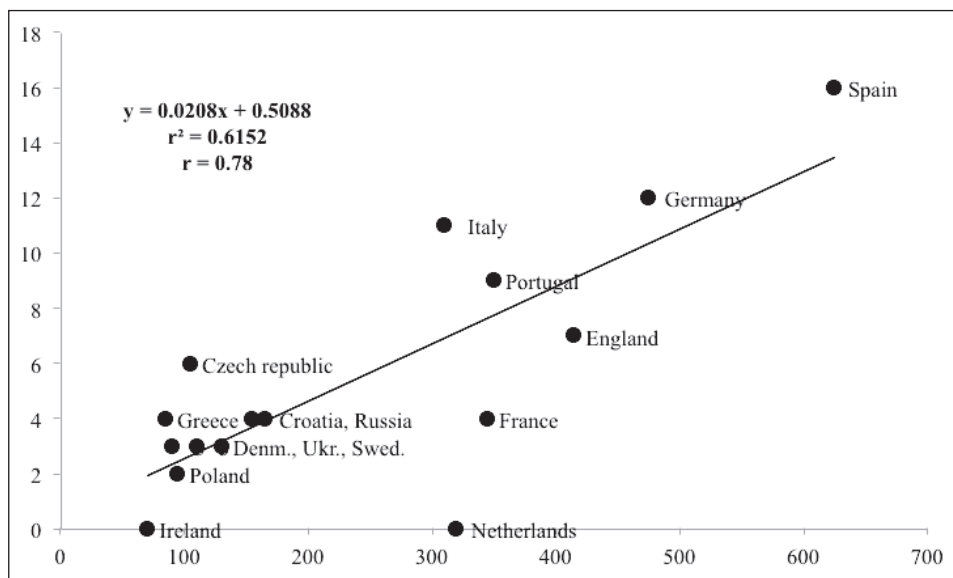

Figure 1. Regression and correlation analysis

Pearson's correlation coefficient gained the value of 0.78 which expresses quite a strong relationship between the national team market value and the amount of money gained. The method of the least squares was used to calculate an equation of a straight

line regression y = 0.208x + 0.5088. It could be interpreted in the way that every other 1 million EUR of the national team market value leads to the achievement of 0.208 points more. In other words approximately 5 million EUR would mean 1 point more in the total sum of points. It is advisable to handle these conclusion carefully because the Pearson's correlation coefficient did not reach the highest possible value 1 and the determination coefficient is 0.6152, so the below mentioned regression straight line explains only 61.52% of range of points gained. Higher amount of money than the regression straight line shows was gained by 10 teams including the Czech Republic. On the contrary, the lowest amount of points was gained by 6 national teams including such football great powers as England, France and the Netherlands. This conclusion is obviously misrepresented by the fact that it is possible to gain only a full amount of points, not points with decimal places. The closest to the predicted amount of points gained is the Russian representation for which the value was y = 3.9408, which is nearly similar to 4 real points gained. On the contrary, the furthest from the regression straight line is the Dutch representation which, in comparison to 7.1648 predicted points, did not get any. It is also necessary to say that this sport failure of the Dutch representation significantly influenced the final correlation coefficient because if the final Dutch result was omitted, the Pearson's correlation coefficient would gain significantly higher value, i.e. 0.88.

The results support the proposition that teams with higher market value have higher chances in gaining success at a tournament. It was obviously not a coincidence that the European title was won by the national team of Spain, i.e. the team with the highest market value. On the contrary the team with the lowest market value ended the last. The last, sixteenth place is not officially declared but the Irish team with three defeats and score 1:9 can be declared the last.

Another aim of this study was to determine the "effectiveness" of national football teams at EURO 2012 as the ratio of total sum of all players market values to their overall result gained at the tournament. The team of the Czech Republic appeared to be the best by this measure. The team market value was substandard in comparison with other teams (105 mil. EUR), however, the Czech representation managed to win twice in group A and ascend to quarter-finals from the first place. One point gained for the Czech Republic *represented* 17.5 million EUR which was the lowest value of all national teams therefore we evaluate it in our measuring as the most effective.

The Dutch team ended in the last place of evaluating effectiveness, mostly because they lost three times in group B and did not get any points. The Dutch team result can undoubtedly be evaluated as a huge failure and even from the above mentioned graph it is clear that this team result represented the biggest distance from the straight line. The national team of Ireland also ended with zero points but with regard to its lowest overall market value, this result, unlike the Netherlands, cannot be evaluated as surprising.

Complete evaluation of national team effectiveness as the ratio of the representation selection quality to the overall result gained at the tournament represented in Table 4.

Table 4. Effectiveness as a ratio of the representation quality selection to the overall result gained at the tournament

Representation	Overall team market value (mil. EUR)	Total amount of points gained	Effectiveness (mil. EUR per 1 point)
The Czech Republic	105	6	17.50
Greece	85	4	21.25
Italy	310	11	28.18
Denmark	90	3	30.00
The Ukraine	110	3	36.67
Croatia	155	4	38.75
Portugal	350	9	38.89
Spain	625	16	39.06
Germany	475	12	39.58
Russia	165	4	41.25
Sweden	130	3	43.33
Poland	95	2	47.50
England	415	7	59.29
France	345	4	86.25
Ireland	70	0	–
The Netherlands	320	0	–

DISCUSSION

As it was stated above, the correlation coefficient expressing the mutual relationship between the overall national teams' market value and the amount of points gained at EURO 2012 was defined by the amount of **0.78**. This expresses a highly positive dependency. This result is not surprising. High dependency of team quality (expressed in money) as the result gained is proved by other researches (Kesenne, 2000; Zimbalist, 2002; Michie & Oughton, 2004; Goossens, 2005; Groot, 2007; Lee, 2010). However, these researches are oriented mainly at national leagues where the luck factor is not so significant. After all, each team plays a high amount of matches during one season, even though some of them are influenced by chance, team quality manifests in the total number of all matches.

A different situation can be observed at top tournaments where success or failure is determined by only several matches. One such example was the championship in Sweden in 1992 where the national Danish team was very fortunate – even off the pitch! It was the time when the start of the Balkan conflict caused the withdrawal of the Yugoslavian team. Its place was taken by the national team of Denmark, whose players were promptly

gathered from their holidays. Then it was an even bigger sensation that this team with a "mere" three wins took the European title.

Besides the dependency of the national team market value and the result at EURO 2012, in our study we were also evaluating the effectiveness of national teams as a ratio of the representation selection quality to the overall result gained at the tournament. In this evaluation *the most effective* team is the Czech national team and *the least effective* is the Dutch national team. In this relation to this it is necessary to say that the luck (or bad luck) factor played a significant role here, directly during the draw for basic groups. The Czech national team was drawn in group A together with the national teams of Poland, Russia and Greece. The overall market value of these four teams was 450 million EUR which is more than twice less than of the remaining groups. Total sums of team market values are expressed in Table 5.

Table 5. Total sum of team market values in basic groups at EURO 2012

Group	Order in group	Team market value (mil. EUR)	Total sum of market values (mil. EUR)
A	**1. The Czech Republic**	105	**450**
	2. Greece	85	
	3. Russia	165	
	4. Poland	95	
B	**1. Germany**	475	**1,235**
	2. Portugal	350	
	3. Denmark	90	
	4. The Netherlands	320	
C	**1. Spain**	625	**1,160**
	2. Italy	310	
	3. Croatia	155	
	4. Ireland	70	
D	**1. England**	415	**1,000**
	2. France	345	
	3. The Ukraine	110	
	4. Sweden	130	

Source: http://www.uefa.com/uefaeuro/index.html (adapted by the author)

From the table it is evident that any team ascending from group A would show a high amount of *effectiveness*. With respect to the draw it had been clear in advance that the ascending team would be the team with the overall market value of max. 105 mil. EUR.

It is therefore not surprising that the first two places in the effectiveness of national representations were taken by the Czech and Greek teams, i.e. ascendants from group A.

On the contrary, three teams were drawn in group B, i.e. "the death group", with their market value of minimum 320 mil. EUR, therefore it was clear that one of these teams was prevented to ascend from the group. Finally, this was the destiny of the Dutch team, which ended in the last place of our effectiveness measurement.

From Table 5 it is also evident that, except for group A, the teams with the highest overall market value in the group always ascended and also that from the nine teams with the lowest market value only the Czech and Greek teams ascended.

CONCLUSION

From the result it is evident that the influence of the market value on the team result at EUR0 2012 was significant. The relationship between team market value and points gained was highly positive. The correlation coefficient value was 0.78. Hypothetically, if the rather unsuccessful Dutch team had been eliminated from the study, the correlation coefficient could have been up to 0.88.

Final statement "the higher market values, the more points gained" can be also interpreted that rewarding football players by special licensed agencies is very reasonable. Players' market values probably very significantly reflect their real performances. A confirmation of this hypothesis would require much more extensive analysis.

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ZÁVISLOST VELIKOSTI TRŽNÍ HODNOTY MUŽSTVA NA DOSAŽENÉM VÝSLEDKU NA ME VE FOTBALE 2012

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SOUHRN

Obsahem článku je porovnání celkových tržních hodnot fotbalových reprezentací, které se účastnily ME ve fotbale v roce 2012 v Polsku a na Ukrajině. Velikost tržní hodnoty týmu je dána součtem tržních hodnot všech hráčů v týmu bez ohledu na to, zda do utkání nastoupili, či nikoliv. Nejvyšší tržní hodnotu měl reprezentační výběr Španělska, nejmenší pak tým Irska.

Celková tržní hodnota týmů je dána do souvislosti s úspěchem (neúspěchem) na ME 2012, který je vyjádřen celkovým počtem získaných bodů. Z výsledků regresní a korelační analýzy je patrný silný vliv tržní hodnoty týmu na dosaženém výsledku na EURO 2012. Hodnota korelačního koeficientu je 0,78.

Dalším cílem bylo určení efektivity národních fotbalových týmů na EURO 2012 jako poměru kvality reprezentačního výběru a celkového počtu dosažených bodů na turnaji. Z tohoto pohledu nejefektivnějším týmem byla česká fotbalová reprezentace, nejméně efektivní nizozemská reprezentace.

Klíčová slova: fotbal, EURO 2012, tržní hodnota, efektivita

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