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Spain Wins 2010 Football World Cup

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Money : Chance = Spain Wins 2010 Football World Cup

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Abstract

In this paper, we propose a simple and transparent method of predicting the outcome of the FIFA World Cup using the transfer market value of the teams. The results show that Spanish national team will win the 2010 FIFA World Cup. Another favorite is England. More elaborate and less transparent simulation studies that also incorporate experts' opinions arrive at essentially the same results: England and Brazil win on the computer, but Spain is also among the top favorites.

Zusammenfassung

Als eine einfache und transparente Prognose-Methode für das Ergebnis der Fußball-weltmeisterschaft wird der Transfer-Marktwert der Mannschaften vorgeschlagen. Als Ergebnis zeigt sich, dass die spanische Auswahlmannschaft den FIFA World Cup 2010 gewinnen wird. Mitfavorit ist das englische Auswahlteam. Aufwändigere und zugleich weniger transparente Simulationsstudien, in die auch Expertenmeinungen eingehen, kommen zum praktisch selben Ergebnis: England und Brasilien gewinnen im Computer, aber auch Spanien gehört zu den Top-Favoriten.

***Keywords**: forecasting, forecasting methods, efficiency, FIFA World Cup 2010*

***JEL Classifications**: B41, Z19*

Historically, football[1] experts' predictions[2] were the only method of predicting the outcomes of championships. Former players, coaches, and nearly all fans have tried their hand at it. And most of these predictions were wrong, since subjective desires and prevailing public opinions always played a major role. In the meantime, however, reliable methods are being used to make scientific predictions. And the methods utilized are becoming more and more complex.[3]

The question of how best to predict the outcome of the World Cup in modern football—a highly commercialized sport worldwide—is much easier to answer than sports fans may want to hear, given their desire to believe in the unpredictability of the game and the possibility of surprise upsets. But especially in the case of the World Cup, a team's overall skill level is nothing more than the sum of the skill levels of its individual players and coach. At the World Cup, national teams take the field that are not nearly as experienced and attuned to playing together as the club teams are: in the age of globalization, national team players are scattered around the world playing for different clubs far away from home. Therefore, the team with the best chances of winning is simply the one with the best individual players and the best coaching staff. While this simple calculation does not entirely do justice to the realities of team sports, which rely on the interaction among players, it is easy to see that a forecast based on the players' individual skill levels is highly plausible. This forecasting method is convincing above all in its simplicity; and at the same time, it fully utilizes expert knowlege about the players' skill levels and market value.

[1] We prefer the British concept "football" instead of the US American term "Soccer".

[2] The former coach of the German team, Rudi Völler, points particularly to "gurus and ex-gurus" who slip into the role of experts.

[3] Jürgen Gerhards and Gert G. Wagner, "Marktwert gegen Zufall – Wer wird Fußball-Europameister?" in Wochenbericht des DIW Berlin 75, no. 24 (2008), 326-328, here: 326f.

1 Market value method

How does one determine the skill level of the indivdual players? Well, football today is a smoothly functioning market in which players' past, present, and particularly future skill levels are revealed in the form of the prices teams pay to "buy" the players. It used to be different when there were players who could not or did not want to play abroad and when football leagues had more restrictive rules limiting foreign players. But football has become a more and more global sport. There are well-known Latin American, African, and Asian players, many of whom play for European clubs. Today, players tend to go wherever they can earn the most money. And since this is a globalized market, market value tends to be an accurate reflection of the athletic performance of the individual players, and indeed of entire teams.

Of course, one can argue interminably about what constitutes the exact market value. It is only partially observable: a player's market value can be determined only when a transfer actually takes place. But experts know the market value fairly well. The website www.transfermarkt.de, regarded as a serious source by leading sports economists, presents the picture described in the following (which, however, does not take coaches or coaching staff into account). So what does it look like for the upcoming World Cup?

As of late May 2010, the Spanish team has a total market value of an incredible 650 million euros (see Table 1). Although the world's most sought-after player, Lionel Messi, does not play for the Spanish but for the Argentinian team, Spain has four of the ten most valued players in the world—Xavi, Inesta, Fábregas, and Torres. Occupying second place in the table and at some distance behind Spain is England, with a market value of 540 million euros. The world's two most expensive teams are followed by a group with market values ranging between 390 and 350; these are the famed French, Brazilian, Argentinian, and Italian national teams. With Ballack's injury, the German team's market value has declined significantly to 308 million. The host country, South Africa, occupies the third-to-last place, with a market value of 32 million: for them, the motto will undoubtedly be that "being there is everything," since they have no real chance of winning the title. At last place in the table, South Korea may even have a better chances than the host country: the market value of the

players is virtually unknown, and the estimate of 9.5 million probably underestimates their overall potential.

Table 1: Market values of the national football teams in 2010

National team	Ø Market value	Total value
Spain	28,260,870 €	650,000,000 €
England	18,050,000 €	541,500,000 €
Argentina	12,943,333 €	388,300,000 €
Italy	13,464,286 €	377,000,000 €
France	15,978,261 €	367,500,000 €
Brazil	15,352,174 €	353,100,000 €
Germany	12,370,370 €	308,000,000 €
Portugal	11,975,000 €	292,100,000 €
Netherlands	10,038,889 €	271,050,000 €
Ivory Coast	6,632,500 €	198,975,000 €
Serbia	7,956,250 €	190,950,000 €
Cameroon	5,066,667 €	152,000,000 €
Uruguay	5,276,923 €	137,200,000 €
Nigeria	4,426,667 €	132,800,000 €
Switzerland	4,489,130 €	103,250,000 €
Ghana	3,440,000 €	103,200,000 €
Greece	3,363,333 €	100,900,000 €
Denmark	3,283,333 €	98,500,000 €
Mexico	3,710,417 €	89,050,000 €
Slovakia	3,027,586 €	87,800,000 €
Paraguay	2,681,667 €	80,450,000 €
Chile	3,327,083 €	79,850,000 €
Australia	2,457,258 €	76,175,000 €
Japan	3,173,913 €	73,000,000 €
USA	2,056,667 €	61,700,000 €
South Korea	1,740,000 €	52,200,000 €
Algeria	2,068,000 €	51,700,000 €
Honduras	1,621,667 €	48,650,000 €
Slovenia	1,691,071 €	47,350,000 €
South Africa	1,117,241 €	32,400,000 €
New Zealand	561,458 €	13,475,000 €
North Korea	415,217 €	9,550,000 €

Source: http://www.transfermarkt.de/de/weltmeisterschaft-2010/teilnehmer/pokalwettbewerb_WM10.html (accessed May 27, 2010)

The market value method correctly predicted the last European Champion in 2008.[4] Spain had the most expensive team and actually did win. It also actually accurately

[4] Jürgen Gerhards and Gert G. Wagner, “Geld besiegt Zufall,” Der Tagesspiegel, June 8, 2008, 19.

predicted the outcome of the World Championship in 2006. Brazil and Italy were the most expensive teams at the 2006 World Cup, and in fact, Italy won. [5] Furthermore, it predicted the teams that made it to the quarter-finals fairly well: of the eight quarter-finalists, six were in the market value list of the top eight. And out of the top ten by market value, seven reached the quarter-finals. In the semi-finals, market value correctly predicted three out of four teams—the exception being the German team, which had a fairytale summer season behind it and was able to benefit from its home advantage. But the idea that "money shoots goals"—that the quality of the individual players ultimately decides the game's outcome—was clearly evident in the semi-finals between Italy and Germany: in the 118th minute, when Klinsmann's men were reaching their personal limits and couldn't give any more, a back-heel shot by Andrea Pirlo decided the game. The Italians simply had more high-potential players on their squad. That, too, proved to be the downfall of the French team in the final.

2 The effect of chance in football

Only the total commercialization of football will generate new potential for big surprises: it will create a setting in which national teams are more or less equally strong because all the players are playing in the world's top leagues, which are in turn equally strong because of the players' global mobility. Then, exceptional individual skills—that is, rare cases that cannot be planned or trained for—will become decisive. But football has not yet reached that point: the differences in market value between teams are huge (see Table 1 above). So should the coveted World Cup trophy be handed over to Spain even before kickoff on June 11 in Johannisburg? By no means.

The market value of the players and the teams is a value that is simply *estimated* by experts. Furthermore, markets do not function perfectly, and the market can *make mistakes* regarding a player's skill level. So even if the exact market values of all the players and teams were known, predictions based on them would still be inexact.

[5] Jürgen Gerhards and Gert G. Wagner, "So wird man Weltmeister," *11 Freunde – Das WM-Magazin des Tagesspiegel*, (June 21, 2006), 12.

Even if Spain will be bringing the most expensive and thus ostensibly also the best players, the mid-level teams at such a short championship tournament as the World Cup—which is played according to a knockout system after the first round—always have good chances of being able stand up to the heavily financed teams. The national cup competitions suggest the same thing, even though they are played according to the classic knockout system. After all, along with market value, chance plays a much stronger role in football than in other sports, like basketball, handball, or tennis, often even determining who goes home with the coveted trophy in hand. And there are systemic reasons for the crucial role of chance in football. First of all, very few points are actually scored in this game, so even a single goal can mean victory, while a mistake by the referee or a ball that skids unpredictably off wet turf can decide the game in the other team's favor. Furthermore, the probability that any given shot at the goal will go into the net is quite small in football compared to other sports. You need a particular, sometimes even chance constellation of offensive moves and manoeuvers for a shot to actually land in the net. Basketball is completely different. This year Premier League winner Chelsea London shot 103 goals during the whole season, while a basketball team sometimes scores more points in a single game. It can be proven that in sports like basketball or handball, the nominally weaker team wins less frequently. But in football—according to a statistician from the Los Alamos National Laboratory—almost 50 percent of the games are won by the weaker team, that is, the team with the lower market value.[6] In tennis, on the other hand—where, in a good game, a player needs to win approximately 100 points to win the match—the better player almost always wins. In tennis, the outcome is uncertain and the game is exciting only when two almost equally good players take the court against each other.

3 Predictions for the 2010 FIFA World Cup

What does this mean for the World Cup in South Africa? If there is an extremely large difference in market value between the two teams, chance will be unlikely to turn the tables against market values and deciding the outcome of the World Cup. It is highly unlilkely that a mid-level team like Uruguay or the Ivory Coast will become World Champion. Spain is the top favorite for the World Cup, followed by England.

[6] Ben-Naim, E., et al.: *Randomness in Competitions* (Los Alamos, Texas, USA), http://cnls.lanl.gov/~ebn/talks/sports-mich.pdf.

Admittedly, the Spanish team has never won a World Cup before, but its victory in the European Cup showed that the team is more unified than in the long preceding decades. And a European team has never won a FIFA World Cup outside of Europe. But the championship has also never been played before in Africa. And might it be that England will enjoy a certain home advantage in its previous colony?

The football betting industry, which is now organized at a global level, apparently shares a similar view (see Table 2): Spain, Brazil, and England are the favorites at the top of the betting markets. Thus, winnings are low for anyone betting on these teams, while one can get rich betting on Algeria and South Africa. The fact that two very simple forecasting methods come to similar results is also highly plausible since a great deal of information is used to calculate betting odds. Apparently, this information also includes the players' market value.

Table 2: Bets placed on sports betting exchanges (certificates)

Team	Odds
Spain	394 %
Brazil	464 %
England	610 %
Argentina	720 %
Netherlands	1135 %
Germany	1158 %
Italy	1377 %
France	1823 %
Ivory Coast	3179 %
Ghana	7253 %
Cameroon	11948 %
Nigeria	14186 %
South Africa	15285 %
Algeria	33233 %

Source: http://www.welt.de/finanzen/article7742653/Boerse-kuert-Spanien-zum-Favoriten-bei-Fussball-WM.html (accessed May 22, 2010)

The team of the German based "DekaBank Makro Research" arrived at very similar results using much more elaborate methods.[7] Based on the skill levels of the teams playing in the last World Cup and the so-called Elo Ratings, which take into account

[7] Makro Research der DekaBank – Deutsche Girozentrale, *"Ein Drittel? Nee, mindestens ein Viertel" – Deutschlands wahre Chancen beim Cup der guten Hoffnung,* Frankfurt (2010).

all recent match results to determine a team's strength relative to its competitors[8], DekaBank Makro Research simulated the results of the upcoming World Cup championships. The outcome is a final pitting Brazil against Spain, with Brazil as the new World Champion. It should be kept in mind, of course, that the Elo Ratings and the players' market values are highly correlated. This indicates that using market value directly is a highly efficient forecasting method.

The DekaBank team also used the well-known "Delphi method" to make expert predictions: the members of the macro research team acted as experts making predictions on each individual game. Their results were identical to those generated by computer: in this scenario, Brazil faces off against Spain in the final to win the World Cup. The Europe Equity Research team of J. P. Morgan comes to a very similar conclusion.[9] In a simulation based on the so-called Quant Model, they use the teams' FIFA rankings as well as past match results, the J. P. Morgan Team Strength Indicator (which is not based on intersubjectively verifiable expert knowledge), and finally, the players' market values. In their computer-simulated FIFA World Cup, Spain faces England in the final, and England wins the cup, with the Dutch team taking third. The market value method proposed in the present paper thus comes to very similar results as the other methods, but with significantly less complex instrumentation. In addition, we think that the market value method is more reliable, as market values reflect current abilities of players, whereas all the simulation methods rely to a much greater extent on results of the past.

So, it is unlikely that the two top favorites, Spain and England, will be eliminated early on in the tournament. But one should keep in mind that two members of the Spanish team, Torres and Fàbregas, have been injured for several weeks now. And English players tend to exceed the boundaries of a professional lifestyle at tournaments. As a result, the teams behind them in market value—Brazil, France, Italy, and even the German team—have a chance if fortune intervenes in their favor, in the form of an unlucky bounce or a referee's mistake. Or the oft-cited "hand of God" could again be

[8] http://www.eloratings.net/world.html.

[9] Vgl. Matthew Burgess und Marco Dion, *England to Win the World Cup! A Quantitative Guide to the 2010 World Cup*. European Equity Research 18 May 2010 (J.P. Morgan).

on the side of Argentina, as it was in 1986. And thank heavens for this uncertainty: for otherwise, the World Cup would be just a dull, unexciting summer event.