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Themes Series**



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“ Football World Cup 2014 in Brazil ”
Forecasting national football success

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- The FIFA World Cup 2014 will be held from 12 June to 13 July in Brazil.
 - We developed a football “production” function for forecasting national team success.
 - Accordingly, Brazil will win the World Cup 2014! Three of the four semifinalists will be from Latin America (Argentina second and Uruguay third). The only European team in the semifinals will be Germany. The quarterfinal matches are Brazil-Chile, France-Germany, Spain-Uruguay and Argentina-Ghana.
 - We compared our model forecasts to betting odds and derived top football trades. We recommend to go aggressively long in Uruguay and Ghana. In contrast, Belgium, Portugal and the Netherlands are quite overpriced.
 - Enjoy our analysis and the upcoming World Cup event in Brazil. Let us hope that the “best” team wins!
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Foreword from a (German) football fan

Not a psychic's business

In the meantime, it has become quite a tradition at UniCredit Research. Every two years, I'm the chosen one who is supposed to come up with a thoughtful analysis of football. It relates to either the European Championship or the World Cup. So here I go again. While my colleagues thought very hard about many fascinating topics (a negative deposit rate, the upswing in Europe, etc.), I tried to get a new perspective on football. My first step was what everyone does these days: googling it to get some inspiration. One of my first hits reads as follows: "*Germany will win 2014 World Cup*". As you can imagine, I was beaming with joy. Unfortunately, my happiness was short-lived as I continued reading. "*Germany is going to prevail, psychic diva Marcia Fernandes said in a highly anticipated prediction at Mystic Fair in Sao Paulo.*"¹ Hmm, with all due respect to Mrs. Fernandes and her psychic followers, there should be better ways of forecasting international football success! This was the starting point of our analysis. Are there any factors which allow one to forecast the outcome of the World Cup in a consistent and thoughtful way?

Enjoy!

Before giving the answer, I would like to thank my colleagues at UniCredit for their help and their (sometimes unwanted) advice. Despite all the hard work, they took time to look at my football research. Of course, I bravely resisted their insinuations by keeping this analysis strictly objective. Enjoy it and the upcoming World Cup event in Brazil. Let us hope that the "best" team wins!

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¹ In case you are really interested in more details, here is the link: <http://sports.ndtv.com/football/news/217748-germany-will-win-2014-world-cup-forecasts-brazil-psychic>

Executive Summary

Fans are looking forward to the FIFA World Cup 2014, to be held from 12 June to 13 July in Brazil. Naturally, every football fan is interested in the question of which country will win the cup and how his beloved home team will perform. Can football success be forecast in any consistent and rational way? And what are the factors behind such a forecast?

We developed a football production function in which the following variables were used: home advantage; continental advantage; the number of years being a FIFA member (as a proxy for a country's football enthusiasm); the appearances in the semi-finals of U17 and U20; and the points received at the last World Cup. Accordingly, Brazil will win the World Cup 2014! On the basis of our model, the complete match schedule was forecast. Three of the four semifinalists will be Latin American teams. Besides Brazil, the successful ones are Argentina (second) and Uruguay (third). The only European team in the semifinals will be Germany. The quarterfinal matches are Brazil-Chile, France-Germany, Spain-Uruguay and Argentina-Ghana.

We compared our model forecasts to betting odds and derived top football trades. Most of the "classic" teams are priced pretty accurately. In the case of a Brazilian victory, a one euro wager currently earns you EUR 3.9. For Argentina, the betting odds are 1-5.7; for Germany 1-6.1. In contrast, there are still some countries which are "cheap" in our view. We recommend to go aggressively long in Uruguay and Ghana. Both teams are significantly underpriced. Nigeria also seems to be an attractive buying opportunity. In contrast, Belgium (as a secret favorite), Portugal and the Netherlands are quite overpriced.

“Juntos num só ritmo”
Slogan of World Cup 2014 in Brazil²

I. Kick-off

Finally!

A thrill of anticipation and excitement has been building among football fans worldwide in the last couple of weeks. This is little wonder! Fans are looking forward to the 2014 FIFA World Cup, to be held from 12 June to 13 July in Brazil. It will be the 20th World Championship, with 32 national football teams of which 23 also participated four years ago.

Participating countries

- Four countries from the Asian Football Confederation: Australia, Iran, Japan and South Korea
- Four countries from the Confederation of North, Central American and Caribbean Association Football: Costa Rica, Honduras, Mexico and the United States
- Five countries from Africa: Algeria, Cameroon, Ghana, Ivory Coast and Nigeria
- Six countries from South America: Argentina, Brazil, Chile, Colombia, Ecuador and Uruguay
- Thirteen countries from the UEFA (of which eight are members of the eurozone!): Belgium, Bosnia-Herzegovina, Croatia, England, France, Germany, Greece, Italy, the Netherlands, Portugal, Russia, Spain and Switzerland

The most important question

Do you want to know anything else? We bet you do. Naturally, every football fan is interested in the question of which country will win the World Cup 2014 and how his beloved home team will perform. Forecasting the outcome of football tournaments has always been one of the most enjoyable but difficult tasks in recent human history. Inevitably, methods and forecasts differ widely with sometimes surprising actors and accuracy.

Paul is dead...

Four years ago, during the World Cup in South Africa, an octopus named Paul caused a furor among German football fans. In his tank, Paul was presented with two boxes each marked with the flag of one of the football teams (Germany and the opposing team) and – of course – containing identical food. The box Paul chose first was interpreted by spectators as choosing the winner. Believe it or not, the octopus "forecast" the correct outcome in all seven matches in which Germany participated. In addition, he managed to choose Spain against the Netherlands in the final. Unfortunately, Paul died in October 2010.

...and we need a systematic forecasting approach

Maybe you're now wondering where economics and all that stuff come into play. To be sure, economists are big football fans, too. In the last couple of years, they have been looking systematically for variables explaining international football outcomes. Apart from having fun like everyone else, the question is an intellectually interesting one. Can football success be forecast in any consistent and rational way? And what are the factors behind it?

Clustered World Cup success

If you take a look at past football proficiency, there are quite significant differences across countries (see charts 1 and 2). In 19 World Championships, only eight countries were able to win the Cup: Brazil (5 times); Italy (4); Germany (3); Uruguay and Argentina (2 each); England, France and Spain (1 each). When looking at the semi-finals, the picture is less homogenous but still pretty much clustered. Germany has been the most successful team with 12 appearances, followed by Brazil (10) and Italy (8). Uruguay and France managed to get into the semi-finals five times each. For Argentina, the Netherlands and Sweden, it was four times each. Put differently, in more than half of the semi-finals, only eight countries appeared. There must be some fundamental reasons behind it, right?

² “All in one rhythm”.

Brazil revisited

Before diving deeply into fundamental football theory, we have a short fun look at Brazil as being the new and old World Cup host. In particular, the events in 1950 say a lot about football and why we love it so much: the success, the surprises and the tragedies.

Chart 1 – Number of World Cup championships by countries

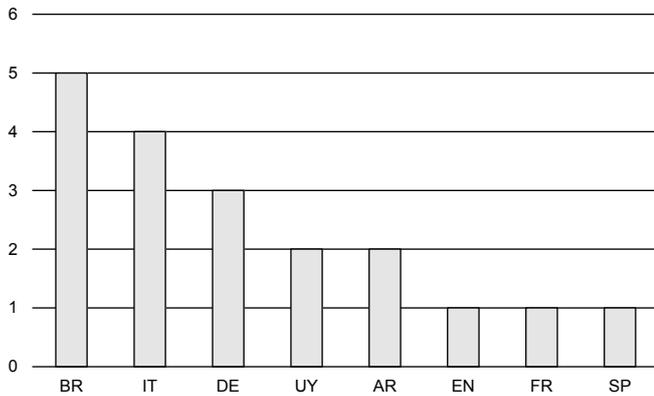
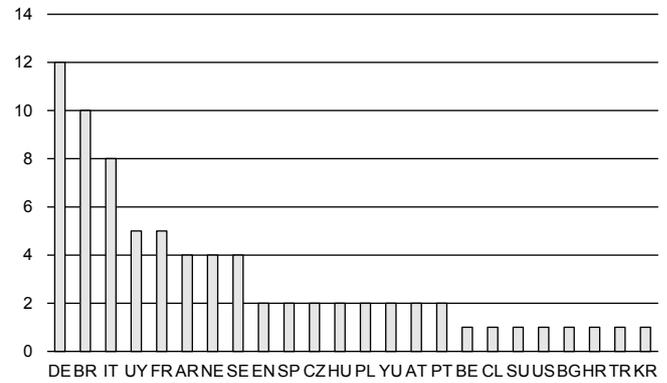


Chart 2 – Number of appearances in World Cup semi-finals



Source: Wikipedia, UniCredit Research

“Muchachos, los de afuera son de palo. Que empiece la function.”

Uruguay's football captain Obdulio Varela, in a speech to his team before the decisive match against Brazil in 1950³

II. Football is coming home ... to Brazil!

Brazil 2014

The World Championship 2014 is the 20th World Cup in history and the second one hosted by Brazil after 1950. A lot has already been written about the upcoming tournament. It ranges from the problems at various construction sites to the new goal-line technology. The latter sends an electronic signal to the watches of the referees whenever the ball passes the goal line. Wow! At the same time, I wonder what happened to my favorite sports I used to play with my friends in the afternoon. We just needed one football and a field. Before getting philosophical, let's keep it at that and undertake a “short” travel through time back to the year 1950. During the first Brazilian Championship, some anecdotes and curiosities occurred which are worth being reexamined.

Brazil 1950

The World Cup in 1950 was the fourth one after the tournaments in Uruguay (1930), Italy (1934) and France (1938). More importantly, it was the first championship after the Second World War which still left its marks on football. Germany did not participate and only became a FIFA member again a couple of months after the World Cup. The qualifying rounds cannot be described as orderly in the true sense of the word. Tensions between countries were still high. For instance, Argentina had strong reservations to meet Chile and Bolivia on the football field and withdrew. Austria, Belgium, Finland and Turkey also withdrew. France was invited and initially accepted. However, after seeing the traveling schedule during the World Cup, the French declined as well. In all probability, the most curious thing occurred in Asia. India had qualified for the World Cup (after having a walkover) but then withdrew. The reason: The Indian players allegedly wanted to play barefoot in Brazil but were not allowed to do so by FIFA!⁴ In any case, it was a missed chance. The Indian team never participated in a World Championship, neither in 1950 nor since ...

A group with two teams

After these quarrels, 13 teams participated in the end: Bolivia, Brazil, Chile, Paraguay and Uruguay; England, Italy (as defending champion from 1938), Spain, Sweden, Switzerland and Yugoslavia; Mexico and the US. The problem was that 13 teams could not be distributed evenly in groups in the preliminaries. Hence, there were two groups with 4 teams each (orderly), one group with three countries (okay) and one group with only two teams (absolutely unfair!). Since Uruguay defeated Bolivia 8-0, it qualified for the final round of four teams by playing just one game.

Two favorites: England and Brazil

England and Brazil were seen as hot candidates to win the Cup in 1950. Only a few days before the tournament, England won 4-0 against Italy and 10-0 against the Portuguese. However, events during the World Cup turned out to be very different. ***If you are an English or Brazilian football fan, it is highly recommend to stop reading here and skip the remainder of this chapter!***

³ “Boys, outsiders don't play. Let's start the show.”

⁴ Source: www.planetworldcup.com. In contrast, Wikipedia reports that the “cost of travel, the lack of practice time, team selection issues and valuing Olympics over FIFA World cup” were the major reasons (see http://en.wikipedia.org/wiki/India_at_the_FIFA_World_Cup).

The US as English giant killer

Still with us? Okay, our story continues. After defeating Chile, England played its second match against the US four days later. Things were supposed to take its course. At that time, the US team consisted of part-time players and could only train together once. The bookie's number before the match was 500-1 in case you were brave enough to bet on a US victory. Bill Jeffrey, the US coach, summarized all the anticipation very well. He told the press that "we have no chance" and that his players are "sheep ready to be slaughtered". The Daily Express agreed and wrote in the spirit of great English sportsmanship that "it would be fair to give the US three goals of a start." On 29 June 1950, after 90 minutes in Belo Horizonte, the sensation was perfect. The US defeated England 1-0! The result was so unexpected that many people thought that the 1-0 scoreline was a typing error. Accordingly, British newspapers reported in the beginning that England had won 10-0 or 10-1.⁵ But this was not the end of the (sad) story for the English team including the great Stanley Matthews, certainly one of the best football players ever. Theoretically, England could still make it to the final round. However, on 2 July, the English were defeated by the Spaniards 1-0. Allegedly, after scoring the goal in the 49th minute, the Spanish team switched over to sinister tactics. It simply played for time by permanently kicking the ball out of play. Unfortunately for England, there were no ball-boys available during the whole tournament ...

Poor Brazil

For Brazil, it was even more bitter. In the final round, there were four teams: Spain, Sweden, energy-saving Uruguay (which "qualified" by only one game) and Brazil. There were no semi-finals or a final. Instead, for the first and in all probability for the last time, each team was playing against each other (round-robin). The decisive match was between Brazil and Uruguay. After defeating Sweden 7-1 and Spain 6-1, a draw would have been enough for Brazil to become World Champion. Uruguay needed a win. What then happened was later called "Maracanaço", the Maracana Blow. A record crowd of about 200,000 people watched the game in the Maracana stadium in Rio de Janeiro in which the World Cup final 2014 will also take place (although the stadium capacity was reduced to 88,000). Feverish confidence among Brazilian football fans was spreading. Already days before, a victory song titled "Brasil os vencedores" ("Brazil The Victors") had been composed. The newspaper O Mundo printed an early edition before the match with a photo of the Brazilian team, claiming that "these are the world champions". Even FIFA President Jules Rimet had prepared a speech in Portuguese to congratulate Brazil.⁶ They all could not have been more wrong. After Uruguay scored 2-1 with only 11 minutes to go, the Maracana crowd went silent in total disbelief. When the game ended, there was no proper victory celebration for Uruguay. Since riots were feared, the Uruguayan team received the cup in the combs of the Maracana stadium.

Angry Brazil with some tragic consequences

Indeed, Brazilian football fans were desperate and looking for scapegoats. The coach of the Seleção Brasileira could only escape Maracana by putting on woman's clothing. Among the players, three got the main share of the blame: defences Bigode and Amarijo and goalkeeper Barbosa. In particular, Barbosa became a tragic figure. Despite being one of the world's best goalkeepers in the 1940s and 1950s, Brazilian football fans never forgave him. In 1994, when the World Cup qualifier between Brazil and Uruguay took place, Brazilian coach Parreira did not allow his goalkeeper to speak with Barbosa. In 2000, Barbosa said in an interview that "The maximum punishment in Brazil is 30 years imprisonment, but I have been paying for something I am not even responsible for, by now, for 50 years."⁷

Dress for success

Less tragically, the lost game also had consequences for the dress of the Brazilian team. Until the Maracana Blow occurred, both shirt and shorts were white. Since this uniform was considered to be a jinx afterwards, the shirt was turned into yellow and the shorts into blue, the kind of dress we are now familiar with.

⁵ All these details were taken from an article at Wikipedia ([http://en.wikipedia.org/wiki/United_States_1%E2%80%93930_England_\(1950_FIFA_World_Cup\)](http://en.wikipedia.org/wiki/United_States_1%E2%80%93930_England_(1950_FIFA_World_Cup))). It is highly recommended read with a lot of additional details.

⁶ See [http://en.wikipedia.org/wiki/Uruguay_v_Brazil_\(1950_FIFA_World_Cup\)](http://en.wikipedia.org/wiki/Uruguay_v_Brazil_(1950_FIFA_World_Cup))

⁷ See http://en.wikipedia.org/wiki/Moacir_Barbosa_Nascimento

“We lost because we didn’t win.”

Ronaldo, Brazilian football player and World Champion 2002

III. A short theory of football success

Great attention, little analysis

Undoubtedly, football is the most popular sport in the world. In 2006, FIFA estimated that there are 265mn male and female players. This equaled 4% of the world’s population. Even more impressive is the number of football enthusiasts. Four years ago in South Africa, 3.2bn people gathered before their TVs over the course of the tournament. However, despite its huge popularity, football is largely under-researched. In the following, we briefly summarize the scarily thin theory of football success.⁸

1. Economic resources

Just in case you have forgotten, you are currently reading a piece written by an economist! Hence, what is more obvious than looking at some decent macro data? The most frequently cited economic variable in explaining football success is resources. Imagine a country’s football production function which depends on capital and labor. As is always the case, one has to find the most efficient combination of these two inputs to generate the maximum number of wins at the World Cup. Richer countries have more capital available which can be invested in proper football facilities, equipment and stadiums than poorer ones. For instance, Germany and Italy have better access to medical assistance and advanced training sites than Honduras or Cameroon. While the relation between football success and capital should be positive, the “classic” law of diminishing marginal returns kicks in (at least in theory). Increases in capital have a progressively smaller impact on the number of won football matches. The second input resource is labor. More populous countries have a greater pool of football talent available and are therefore expected to be more successful than less populous ones.

Football production function

To sum it up, our football production function can be written as $S_i = f(C_i, L_i)$ with S equaling football strength for country i , C as capital resource and L as labor input. Typically, as proxy for capital, GDP or GDP per capita is used. The number of inhabitants per country can be regarded as a rough yardstick for the available football talent pool.

2. Preferences

Of course, there is no automatism between more resources and football proficiency. It is not only a question of money and talent but also a matter of preferences! Undoubtedly, there are some countries which have a far stronger and more deeply rooted football culture than others. In Latin America, for instance, football goes far beyond sports. Things are completely different in the US with its (strange) obsession for baseball. Hence, Brazil has probably dedicated far more resources to football in the last few years than the United States, although the plain macro numbers are quite different. Brazil’s GDP per capita was USD 12,200 last year with a population size of 198mn. This compares to USD 53,100 and 316mn people for the US.⁹ To put it in a nutshell, football culture has to be an integral part of every serious forecasting model. But how to do this exactly in practice? Operationalizing football culture (or sometimes madness) into plain number is a tricky task. In the next chapter, we are using a proxy variable widely suggested in the literature: the number of years one country has been affiliated with FIFA.

⁸ A list with some references can be found at the end of our analysis.

⁹ IMF numbers

3. Home advantage

Being a host of the World Cup should also have a major positive impact on football performance. The advantages range from greater fan support to a higher familiarity with the local conditions. This time, the home advantage could be even more pronounced, since European teams are not accustomed to the humid weather conditions in Brazil. The data say it all. In twelve of the nineteen World Cups, the host nation came among the top four. In six cases, the host even became World Champion: 1930 in Uruguay; 1934 in Italy; 1966 in England; 1974 in Germany; 1978 in Argentina; and 1998 in France.

Box 1: Pitfalls of the FIFA World Ranking

Of course, we all know the FIFA list of national teams. Why not simply use this ranking as a forecast for the outcome of the tournament in Brazil? Currently, Spain is ranked first, followed by Germany, Portugal, Brazil and Colombia. First of all, the historical forecasting accuracy was not “overwhelming”. In May 2010, Brazil was ranked first but Spain became World Champion. Four years before, Brazil was again number one but Italy won the cup. In May 2002, the ranking signaled France to become champion but Brazil prevailed, and so on. What is the problem? The FIFA World Ranking is definitely a highly sophisticated one and worth being honored. It takes not only matches and goals into account but also the teams’ strength. For instance, winning a match against a highly rated team earns more points than prevailing against a weak one. However, there are also some pitfalls. By design, the FIFA World Ranking also includes friendly matches where the competitive pressure such as during a World Cup is certainly missing. To be fair, FIFA also takes this factor into account. Friendly matches are less worth than matches at competitions and qualifiers. Unfortunately, such a procedure also creates problems. Since Brazil is automatically qualified as being the host, it only has played friendly matches since the Copa America in 2011. As a result, Brazil may currently not get the fundamentally appropriate ranking in the FIFA list.

IV. Forecasting World Cup success

Introducing footballistic variables

1. Persistence

Since football theory was not that enlightening, we augmented the above-mentioned factors pragmatically with three “footballistic” variables to apply our forecasting model in practice.

The first one is based on the idea that success or failure in football is often quite persistent. Take the German and Brazilian teams as an example. Both in 2010 and 2006, Germany made it to the semi-finals. Brazil lost in the World Cup final against France in 1998 and became World Champion four years later. In other words, if you have built up human capital in the form of good players, the chances are high that you are successful over a longer period of time. Of course, the opposite also holds true, as every trainer of a lousy team knows all too well. Unfortunately, there are also countries whose performance at the World Cup rather resembles the hero-to-zero pattern instead of performing persistently. In 2006, Italy had won the World Cup against France 5-3 after a penalty-shootout. Four years later in South Africa, both countries were the last in the first round each. France even got only point and shot one goal. Heavens! Just for illustration, take a look at the two telling charts below which show the number of points gathered at the last four tournaments (of course, 3 for a win, 1 for a draw). Brazil and Germany were comparatively steady, while Italy and France ... well, see for yourself ...

2. Young talents

Another piece in the puzzle could be the work with young talent. If you have an internationally successful young team, some talented players may make it to the adult team (“trickle down”), thereby increasing a country’s football success. As a proxy, the number of appearances in the semi-finals of the U17 and U20 World Championships sounds reasonable.

3. Ancient football wisdom

Inevitably, there is a multitude of football wisdom which can be applied for our purpose. After deliberate consideration and a highly controversial discussion with my colleagues, I chose the slogan that “offense wins games but defense wins championships”. As a rough yardstick, we calculated the average number of goals conceded per match in the qualifying competition for the World Cup.

Chart 3 – Number of points at World Cups

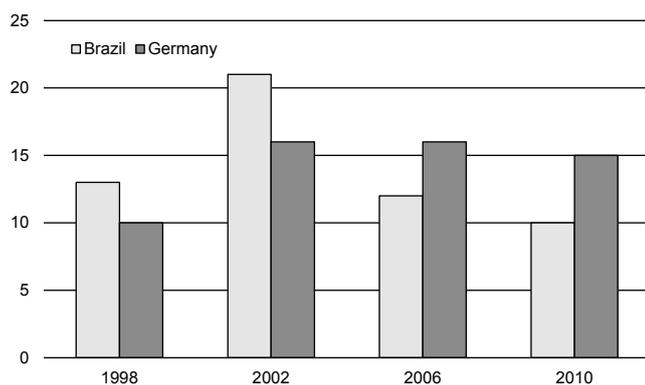
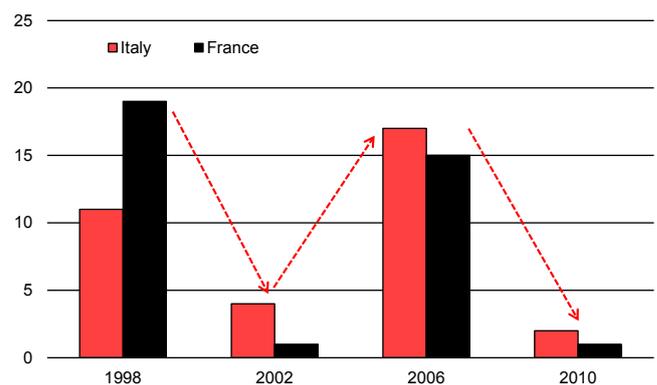


Chart 4 – Number of points at World Cups



Source: UniCredit Research

From theory to practice

Our complete forecasting model looks therefore as follows:

$$S_i = f(C_i, L_i, PR_i, H_i, CO_i, PE_i, Y_i, W_i) \text{ with}$$

- *S* (strength) equaling the number of country *i*'s points achieved at each World Cup from 1998 to 2010 (3 for a win and 1 for a draw)
- *C* (capital) being GDP (or GDP per capita) of country *i* in USD (PPP)
- *L* (labor) as the number of the male population aged between 20 and 29
- *PR* (preferences) approximated by the number of years country *i* has been affiliated with FIFA at each World Cup¹⁰
- *H* (home field advantage) as a dummy variable for being the host (1) or not (0)
- *CO* (continental home advantage) for playing on the same continent (1) or not (0)
- *PE* (persistence) as the number of country *i*'s points achieved at the World Cup four years ago. If a country did not participate, it received a value of minus 1.
- *Y* (youth) as the number of appearances in the semi-finals of the U17 and U20 World Championships in the last eight years before the World Cup for adults took place
- *W* (wisdom) equaling the average number of goals conceded per match in the qualifying competition of the World Cup. Since the strength of the qualifying groups differ substantially between continents, we additionally weighted the number of goals by using the FIFA weights of the corresponding country.¹¹

Separating the wheat from the chaff

Anyone who has worked empirically knows that theory and practice is not a one-on-one. Unfortunately, football economics is not very different. Of the eight variables included in the equation above, five turned out to be significant: home advantage, continental advantage, the number of years being a FIFA member, the appearances in the semi-finals of U17 and U20 and the points received at the last World Cup.

¹⁰ For instance, England became a FIFA member in 1905, i.e. the English *PR* variable amounts to 109 this year and 105 for the World Cup in 2010. In contrast, Nigeria became a FIFA member only in 1954 (*PR*=60 in 2014). It goes without saying that capturing a country's affinity towards football in such a way is pretty rough.

¹¹ For instance, in the 2014 qualifier, Australia prevailed against Oman, Saudi Arabia, Thailand, Jordan, Irak and Japan. With all due respect to all these countries, shooting a goal against Oman is probably easier than scoring against a European or Latin American team.

Box 2: Why some variables did not work

With 34%, the R-Squared of our equation is reasonably high by econometric model standards. However, it also means that about two-thirds of national football success still remains unexplained! In the case of GDP (or GDP per capita), we think that it is rather straightforward why this variable did not work. Football is less capital-intensive than other sports, especially when it comes to the promotion of young football players. You need a ball and a field, that's it. Only later on, medical maintenance for adult players could make a certain difference. Furthermore, rising income could also mean less outdoor sports activity of kids. Playing video games may be a too tempting alternative. In any case, richer is not better. In the case of population, it is more difficult to understand the lack of significance. In all probability, the number of football players would have been a far better yardstick. Unfortunately, a historical time series for all the 32 participating countries is currently not available, at least not to the best of our knowledge. When it comes to my football wisdom, I was probably not smart enough (which is why I decided to skip this topic). In any case, and as you are certainly fully aware, random factors can also play a non-negligible role. What about injured players, the lack of motivation and team spirit, mediocre fitness and irresponsible coaches? Not to forget the role of some poor referees who have to decide just within a second about offside positions, yellow and red cards, penalties, etc.

And the winner is ...

We don't want to keep you on tenterhooks. According to our model, Brazil will win the World Cup 2014! Having the home advantage, doing very successful work with young talents (three appearances in the semifinals of the U17 and U20 World Championship in the last eight years), strong football preferences and a highly persistent team are the reasons behind it.¹² Hence, our model forecast is pretty much in line with what many football fans currently think as the most likely outcome. But what about the other teams? Which countries will make it to the round of 16, the quarterfinals and the semifinals? Such an outcome does not only depend on strength but, of course, also on the match schedule. For instance, Group B and D are considered by many football fans as the "groups of death". In Group B, there are Spain, Chile and the Netherlands. In Group D, Uruguay, England and Italy have the pleasure of playing against each other. Put differently, some weaker teams may get to the round of 16 or even beyond thanks to the luck of the draw.

The whole match schedule

In order to take such effects into account, we proceeded as follows. We derived the two survivors and the two knock-outs each for group A to H by comparing the national teams' strength (see table 2). The country with the highest number of points forecast ranks first and then the three teams follow accordingly. Starting with the round of 16 and including the match schedule again (first of Group A versus second of Group B, etc.), bilateral strength is compared. Accordingly, the quarterfinal matches are Brazil-Chile, France-Germany (a classic European one), Spain-Uruguay and Argentine-Ghana. In the semifinals, Germany will (unfortunately) be defeated by Brazil, while Argentina will prevail against Uruguay. In the small final then, Uruguay keeps the upper hand, pressuring Germany to the thankless fourth place. If this is correct and I really hope not as a German football fan, Mrs. Fernandes is wrong and should consider a change of occupation. In the final, we can look forward to the Latin American El Clásico: Brazil versus Argentina!

Close calls: Spain-Chile and England-Italy

Of course, no model (and nobody) is perfect. Especially in the two groups of death, there are some close calls. In Group B, our model signals a surprisingly small difference in strength between Spain and Chile. The major reason is Chile's continental advantage, which narrows the gap between the two teams. It goes without saying that both countries will do their utmost to be on top of the group, as the second-ranked will encounter Brazil in the round of 16.

¹² Please note that we set the continental home advantage for Brazil to zero. Otherwise, it would have been a double count together with being a host.

In Group D, it will even be more thrilling. To their horror, Italian football fans have already noticed that our model favors England over Italy. To be completely fair, it is really neck and neck. The difference in forecast strength between the two teams is a tiny 0.39 points.

TABLE 2: COURSE OF WORLD CHAMPIONSHIP ACCORDING TO OUR FORECASTING MODEL

Survivors first round							
Group A	Group B	Group C	Group D	Group E	Group F	Group G	Group H
1. Brazil	1. Spain	1. Colombia	1. Uruguay	1. France	1. Argentina	1. Germany	1. Belgium
2. Mexico	2. Chile	2. Japan	2. England	2. Switzerland	2. Nigeria	2. Ghana	2. Russia
Knock-outs first round							
Group A	Group B	Group C	Group D	Group E	Group F	Group G	Group H
3. Croatia	3. Netherlands	3. Greece	3. Italy	3. Ecuador	3. Bosnia-Herzegovina	3. Portugal	3. South Korea
4. Cameroon	4. Australia	4. Cote d'Ivoire	4. Costa Rica	4. Honduras	4. Iran	4. US	4. Algeria
Round of 16							
Brazil-Chile	Colombia-England	Spain-Mexico	Uruguay-Japan	France-Nigeria	Germany-Russia	Argentina-Switzerland	Belgium-Ghana
Quarterfinals							
Brazil-Colombia		France-Germany		Spain-Uruguay		Argentina-Ghana	
Semifinals							
Brazil-Germany		Uruguay-Argentina					
3rd/4th place play-off							
Germany-Uruguay		Uruguay 3 rd		Germany 4 th			
World Cup final							
Brazil-Argentina							
World Champion							
Brazil							

Source: UniCredit Research

V. UniCredit's top football trades

Betting odds

Heads up now, gamblers! In a final step, we compared our model forecasts to betting odds and derived top trades. In the case of a Brazilian victory, a one euro wager currently earns you only EUR 3.9. For Argentina, the betting odds are 1-5.7; for Germany 1-6.1; and for Spain 1-7.9 (see chart 5).¹³ At the other end of the scale is Costa Rica. If you really think that the "Rich Coast" will be the next World Champion, one euro multiplies to EUR 1,500.

Relative value analysis

There are two interesting features in our relative value analysis. First, most of the "classic" teams are priced pretty accurately, at least when it comes to the rank. Both our model and betting odds suggest that Brazil and Argentine will meet in the World Cup final (see chart 6). The same message can be derived when looking at Germany, Spain and France. You cannot earn money or, at least, very little. The betting business has been highly efficient in pricing relevant information in these cases. Second, and in contrast, there are still some countries which are "cheap" in our view (no, it's not Costa Rica!).¹⁴

Chart 5 – Betting odds for the first group of 16 teams

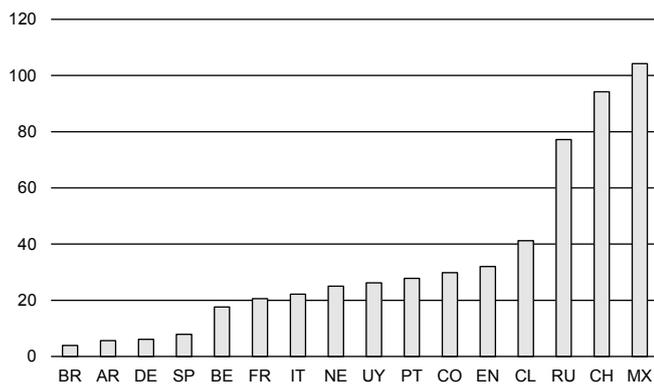
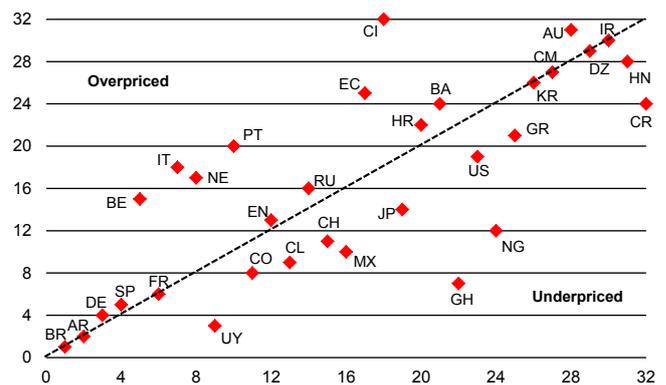


Chart 6 – X-axis: rank suggested by betting odds; Y-axis: rank implied by UniCredit model



Source: www.fußballportal.de, UniCredit Research

UniCredit's top trades

Our top trades are as follows:

Go long in Uruguay and Ghana

■ Go aggressively long in Uruguay and Ghana. Both teams are significantly underpriced. The bookies' number for Uruguay is 1-26.2 (rank: 9), while our model ranks it third. Ghana will make it to the quarterfinals before being knocked out by Argentina. However, the betting odds are 1:180.2 and hence Ghana is only ranked 22nd. What a fantastic buying opportunity! There is also some value in Nigeria which will encounter France in the round of 16 but is currently only at bookie rank 24.

Don't bet on Belgium, Portugal and the Netherlands

■ Belgium, Portugal and the Netherlands seem to be quite overpriced. Yeah, I know. To many football fans, Belgium is the secret favorite by being ranked fifth on the bookie list (see chart 5 again). But our model signals that this is a serious mistake. You should also not put your money on the Netherlands and Portugal. Both teams will be knocked out already in the first round.

May the best team win!

And on this note, we close our little football analysis. While we acknowledge the imponderables, let us all hope that the "best" team will win in the end!

¹³ These data are average numbers coming from five bookies.

¹⁴ However, and to be fair, there is also some value in Costa Rica. Our model ranks its team 24th, while betting odds are the highest one among the 32 participating countries.

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