Soccernomics 2006

ABN AMRO Economics Department

Soccer and the economy
edition March 2006

- **The economic preview on the World Cup 2006**
- **Italy is the economic favourite …**
- **… but betting markets and statistics pick Brazil as winner**

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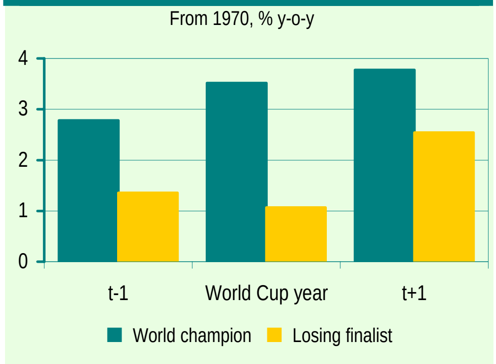
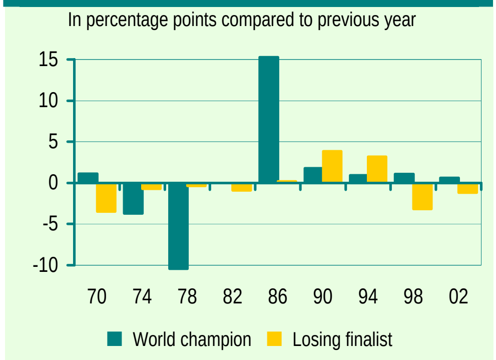
Soccernomics 2006

Soccer and the economy. It has become a tradition that the ABN AMRO Economics Department considers the relationship between the two in the run-up to major international soccer tournaments. So too for this summer's World Cup in Germany. For education, but certainly also for entertainment, we will examine in this and forthcoming issues the macro-economic impact of soccer, the economics of the soccer industry and movements on the stock markets. Here, in the first instalment of Soccernomics 2006, we decide which team is our 'economic favourite', that is, the country which should become world champion in order to maximise the impact on the world economy. In this and subsequent issues we will also consider the markets' favourites and we will use our own model based on the ongoing domestic league competitions to predict which country will lift the World Cup in July.

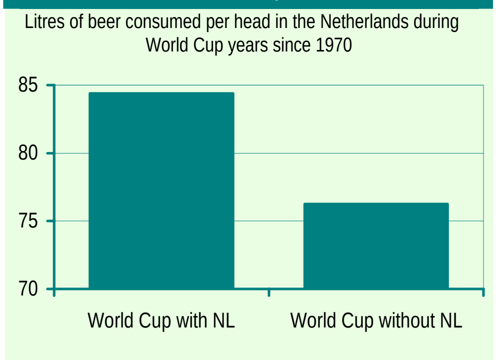
Average economic growth World Cup finalists



Change in economic growth for World Cup finalists



Beer consumption boost with Dutch qualification for World Cup finals



Why do we do this?

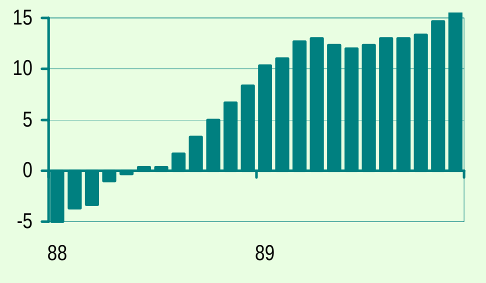
Leaving aside the fact that many economists who are also soccer fans will use any excuse to bring soccer into their work, we are convinced that soccer has an impact on the economy and therefore justifies some research effort. The effects at macro-economic level and on the financial markets are not so great that they can turn a recession into a boom, but they should not be underestimated. Past figures show, for instance, that economic growth among world champions tends to outstrip that in the losing finalist countries during a World Cup year. With a few exceptions, it is a case of winner takes all. A World Cup winner enjoys an average economic bonus of 0.7% additional growth, while the losing finalist suffers an average loss of 0.3% compared to the previous year. Since 1970 there have been two major exceptions to the winner-takes-all rule. In 1974 and 1978 the German economy and Argentine economy respectively experienced a sharp downturn (in the latter case even a deep recession) after the national teams became world champions. The economy of the losing finalist – the Netherlands in both cases – also suffered, but far less so than the victor's. So if the Dutch team reaches the final this year, its opponent should be warned that a victory on the pitch may well have some unpleasant economic consequences ....

When the Netherlands became European champion in 1988, the correlation noted above was again confirmed: economic growth that year was sharply up on the previous year's. And the stock market also performed very well, with the Amsterdam stock exchange gaining no less than 29% over the year. Is this stock market correlation also evident in the context of the World Cup? Unfortunately the available data are patchy, but it is clear that during the last three World Cups the winning country's stock market performed much better in relative terms than the losing finalist's. On average there was a positive return of 10% for the world champion and a negative return of 25% for the losing finalist.

The economic effects of performances on the pitch are ultimately psychological, the feel-good factor in other words. Happier consumers are more inclined to spend more. Leaving aside the fact that the parties in the winning country will last longer (which

Soccer effect on consumer confidence?

Dutch consumer confidence index after European Championship victory in June 1988



means higher turnovers at bars and supermarkets) and that there will be a market for souvenirs of the sweet victory (DVDs, shirts and other merchandising), it is undeniable that confident consumers spend more. That consumer confidence can be boosted by soccer results is illustrated by developments in the Netherlands at the time of the 1988 European Championship. Over the first half year of 1988 most Dutch consumers were still pessimistic, but after the victory in June the index turned positive and was 7 points higher on average during the second half year. Consumers were also much more upbeat about both the past and the future. Like consumers, businesses can also be affected by soccer-related developments. A country which attracts attention will find it easier to establish trade and investment relations with other counties. After all, economic relations start with contact between real people, and soccer may well help to facilitate such contacts.

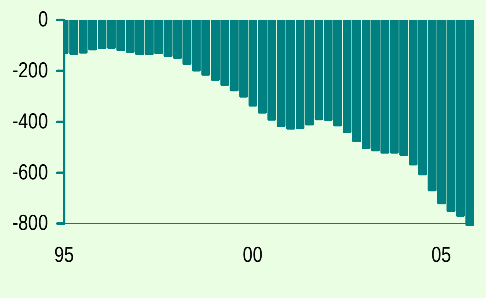
The economic favourite

Good performances on the soccer field often go hand in hand with performances on the stock market and in the economy. If we put aside any soccer chauvinism for the moment, and look purely at the economic boost it will generate, then which country should win the World Cup? By using several objective criteria, we will try to block out, however briefly, our support for a particular team.

Criterion 1: It has to be a European country

Record US current account deficits

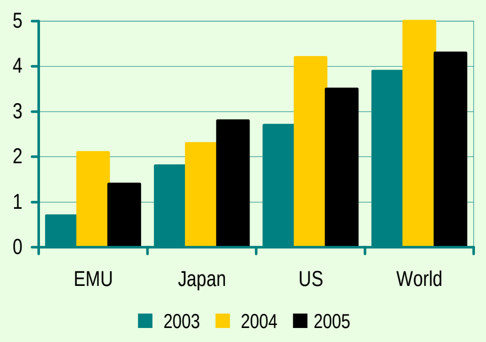
Moving four-quarter totals in USD billions



In the past years the imbalances in the world economy have become more accentuated. Most striking is the gaping and widening current account deficit of the United States (by now equivalent to 7% of GDP), which is largely financed by Asian countries. What this boils down to is that US consumption is being financed by an ever larger debt mountain. As every householder knows, this is unsustainable: it is not possible to get the groceries 'on tick' forever. The danger is that the inevitable correction of this imbalance will take place not gradually but suddenly. This could mean the dollar depreciating sharply, US interest rates shooting upwards and the US economy heading for a painful recession. When the world's largest economy has to take such blows, the news is bad for the rest of the world as well. Not a scenario that will be welcomed by any of us, then. Gradually eliminating the deficit is a much more desirable scenario, and this is certainly within the realm of possibilities. How is this to be achieved? The key lies with Europe. This because the current situation is due to the imbalance in economic growth rates across the world. While growth in the United States, as well as in Asia and Latin America, has been high in recent years, Europe has lagged behind. Stronger domestic demand in Europe would be good for the exports of the other regions. The United States could then reduce its current account deficit without too much economic damage, because higher demand from Europe would compensate for lower demand at home. And the Asians would be able to switch their exports from the United States to Europe. A European growth acceleration would also offer an attractive alternative investment opportunity to Asian investors, who are putting most of their money into dollars at the moment. So from the perspective of the need for balanced world economic growth, a European country should win the World Cup this year. A US victory would further skew the imbalance, and an Asian victory

Skewed world economic growth

% y-o-y



could lead to an overheating of the region's already booming economies. Success for a Latin American country would not inflict much damage on the world economy, but it would not help matters much either. Only a European victory would help to mitigate a serious economic problem, namely the global imbalances.

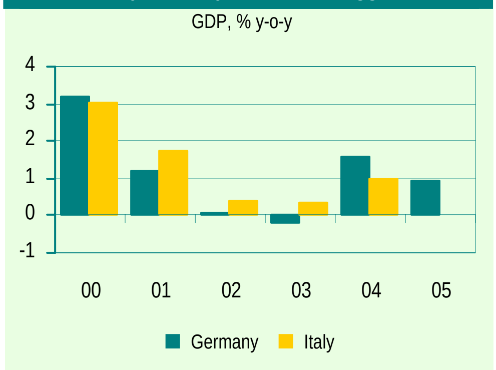
Criterion 2: It has to be a European country that matters

To have some effect on the European economy, it is of course important that the World Cup is won by a country that has some economic clout. A first prerequisite is a substantial GDP. On those grounds we can cross off the two Central European countries (Czech Republic and Poland). It is worth remembering that the economies of the 10 new EU members *together* are comparable in size to the Dutch economy. Croatia, Serbia & Montenegro and Ukraine do not count for much in economic terms either. Nor does Portugal, whose economy is smaller than Poland's. Sweden and Switzerland have very high GDPs per head, but because their populations are relatively small, they cannot be considered major economies. So we bid goodbye to the Swedes and the Swiss (despite their impressive qualification at the expense of the Turks). The Netherlands also falls short. It may be a significant force in soccer terms, but in economic terms it is not a major player. This leaves five of the 14 European countries: England, France, Germany, Italy and Spain.

Criterion 3: It must be an economy which needs a growth impulse

Which one of the countries with large economies should win depends on their economic circumstances. We do not want to pour oil on the fire in countries which are already performing well. The Spanish economy, for example, has been posting above-trend growth for years. That is why the country is struggling with inflation rates above the euro zone average and with a widening current account deficit. The Spanish do not need another economic stimulus. Adios! England accounts for the lion's share of the British economy. This is also expanding at close to potential. So the self-declared 'home of soccer' is not a suitable candidate. This leaves three countries which are underperforming in economic terms and therefore could do with a pick-me-up: France, Germany and Italy. But the French economy does not really fit in: over the last five years it has been the least-worst performer of the three, posting an average of 1.5% growth per year, while the German and Italian economies achieved less than half that. So from an economic perspective it is clear, then, which countries should contest the final ....

Germany and Italy: Economic laggards ...

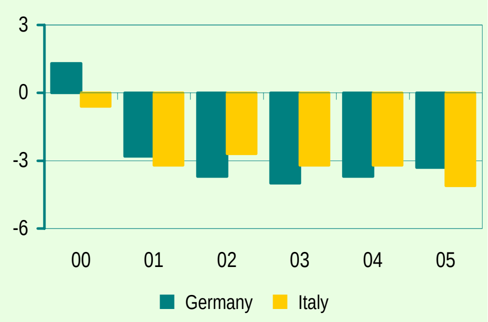


The economic final: Germany v. Italy

A World Cup final between Germany and Italy would be a top bill. The two teams have met once before in a final, in 1982 in Spain, when the Azzurri won 3-1. Italy did not benefit in economic terms that year, although growth did 'accelerate' to 1.4% in 1983, which was double the 1982 rate. But of course it may all pan out rather differently 24 years later. So let the economic final begin.

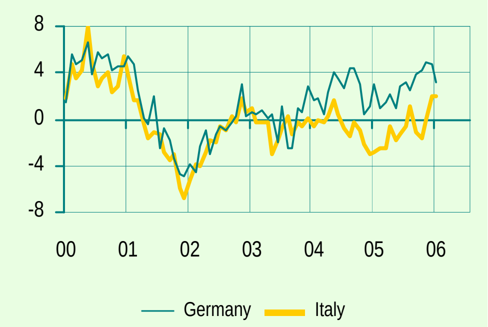
... and budgetary problems

Budget deficit in % of GDP



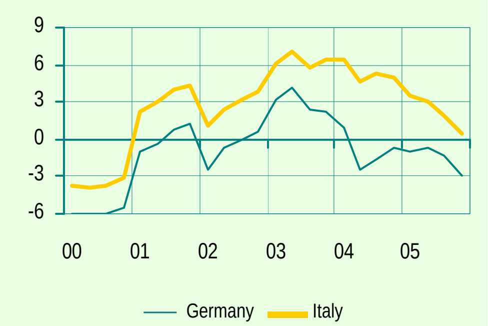
Germany and Italy: Difference in manufacturing output trends ....

% y-o-y



... because of Italy's deteriorating competitiveness

Unit labour costs, % y-o-y



The two three-time champions are evenly matched during the first half. Both economies are slow growers with inflexible labour markets, high unemployment rates and inefficient financial systems. Both have also been exceeding the stability pact's budget deficit limits (3% of GDP). Economic reforms are materialising very slowly in both countries. And both face a considerable ageing of their populations. A rather dour affair, then, and the score at half time is 0-0 (as it was in the real match in 1982, incidentally).

The second half is more exciting. The 'output gap' (i.e. the difference between actual and potential output) is larger in Germany, especially given the size of its economy: 1-0 to Germany. The German fans in the Olympic Stadium in Berlin are over the moon. But the Italians are not phased, defend well (as ever) and hit back. Germany's home advantage is actually a disadvantage in this game of deciding who is the economic favourite. For as the tournament host, Germany receives an economic growth impulse (stadium building, tourism, consumption etc) which will reduce the output gap: 1-1. Buoyed by the equaliser, the Italians create more chances. Italian manufacturing output has been contracting since 2001, while the German output has achieved some growth during this period. This is because Germany's manufacturing sector has become more competitive again, while Italy's continues to lose ground. Hence the referee awards the Italians a penalty, which they gratefully convert: 2-1 to Italy. The Germans work hard to find an equaliser, but they are up against it. The German Ifo indicator has been at its highest level in 15 years, which certainly is not the case for Italy's confidence indicator. Moreover, Italy's potential growth rate is so low that economic reforms are even more urgent than in Germany. This earns them another goal: 3-1. The Germans are beaten. Italy is our economic favourite.

An Italian victory in the World Cup final would make consumers and producers more confident, which would translate into higher consumption and investment. It would also help Italy to improve its image, which is good for exports. The economic impulse would make it easier for the new government – left or right, the voters will decide in April – to take decisive steps towards the necessary reforms. It would also make it easier to stay within the terms of the stability pact.

What do the betting markets say?

Italy is the economic favourite, then, but this does not say anything about the actual chances of the 32 finalists. For that we have to look at the betting markets (at the bookmakers, in order words). At any one time the odds and prices show the consensus view among betters. Of course they will have their own views, but the prices reflect the average. After all, if the prices are too low according to the majority, they can earn money by moving into the underlying instrument. This additional demand would raise the price. It is also worth noting that if all market players held the same view, there would be no market, because no one would expect to gain from a transaction[1].

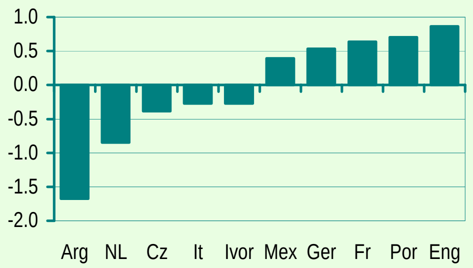
[1] Let us assume that everyone believe that Brazil has a 50% chance of winning the World Cup, that the odds are 2 to 1, in other words. If the punters get a return of twice their bet if Brazil win, they will not be that keen to place a bet because if the chances or winning and losing are even, the expected value is zero. Odds of 2 to 1 are only attractive to betters who assume that Brazil has a more than 50% chance of winning. Betters who believe that Brazil has a less than 50% chance of winning can then act as the counterparty and bet that Brazil will not succeed.

Betting market prices yield information

Prices on the financial markets are determined by buyers and sellers with different views on the underlying instruments. Of course no one has a monopoly on truth, but acting on the basis of a perception that actually transpires brings a monetary gain, while getting it wrong costs money. The prices formed on the betting markets – between bookmakers and betters – can yield information on the success chances of the teams which have qualified for the World Cup finals. People bet on what they think is going to be the outcome, not on what they hope for. Of course the punters may be swayed by chauvinism and probably overestimate the qualities of their national team, but if that happens in every country – and betting markets on the internet are international – then the impact of these factors will be cancelled out in the prices. Moreover, there is scope for arbitrage by betters who try to take advantage of this situation. Traditional bookmakers always aim to keep their books balanced, so that they make money regardless of the outcome. The level of the odds thus also depends on any imbalances in their books which may arise at any one time. However, this does not come into play on the peer-to-peer betting markets on the internet, where individuals make anonymous bets with each other.

Top-5 lucky and unlucky draws for the World Cup groups

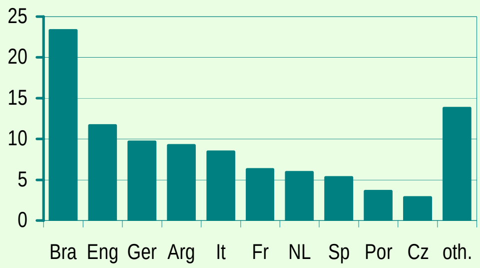
Percentage point changes in World Cup success chances before and after group draw



Source: www.betfair.com, ABN AMRO calculations

Top-10 favourites for the World Cup

Winning chances, in %, according to the betting markets



Source: www.betfair.com, ABN AMRO calculations

So what can we conclude from the betting markets? They not only give indications of the various teams' chances, they also show the impact of the draw for the group stage of the tournament. The absolute favourite to lift the World Cup is – not surprisingly – Brazil (23%), followed at a respectable distance by England (12%). Germany is given a 10% chance of winning. (This, by the way, is rather more than the 3% of Germans who believe that their team can become world champion. The Germans were also pessimistic in 2002, and in that year the team reached the final.) Among the other contenders, the chances of Argentina and the Netherlands (both in the same group) winning the World Cup are assessed at 9% and 6% respectively.

By examining the prices before and after the group draw, we can say which countries had a lucky draw and which an unlucky one. The country which saw its chances improve most after the draw was England. The three lions team could certainly have come up against stronger opposition than Paraguay, Sweden and Trinidad & Tobago. Consequently its chances of winning the whole tournament increased by 0.9 percentage points. Portugal cannot complain either after drawing Mexico, Iran and Angola; the betting markets now give it a 0.7 percentage point higher chance than before the draw. The big loser in the draw was Argentina. Its chances of winning slumped by 1.7 percentage points. The Dutch also saw their chances reduced, by 0.8 percentage points. And the Czechs were also deemed to have a difficult draw, losing 0.4 percentage points, because they have to play Italy at the group stage.

The effect of the draw can also be estimated by aggregating the winning chances of the teams in each group before and after the draw. Group C (with Argentina, Netherlands, Ivory Coast and Serbia & Montenegro) probably deserves its tag as the 'group of death'. Before the draw, the betting markets assessed the chances of this group's teams winning the World Cup at 20%; this dropped to 17% after the draw. By way of comparison, Group F with Brazil had and still has a chance of 25% (mostly accounted for by Brazil of course). Group B with England saw its chances increase by 1 percentage point. Mexico seems to be at the head of a 'group of fun'. The chances of Group D supplying the world champion are estimated at a mere 6%, the lowest for all the groups, but before the draw the four team's chances were thought to be even more marginal (5%).

What do the statistics say?

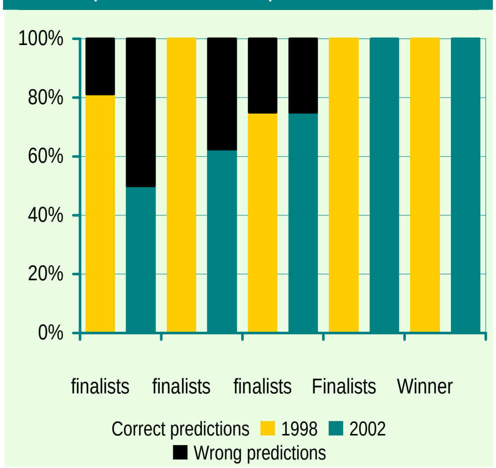
Besides looking at the betting markets, we can also look at statistical correlations from the past. Our tentative conclusion on this basis is that not our 'economic favourite' Italy will win the World Cup, but Brazil, which will beat France in the final in Berlin. On its way to the final France will knock out Italy in the quarter-final and the Netherlands in the semi-final. We base these predictions on a model which we have developed in-house, which converts the Coca-Cola® FIFA rankings (of national teams) and the performances of the clubs which the internationals play for into a prediction of a team's progress at the World Cup in June and July.

How the model works

The model used for the predictions on these pages seems complex, but that is mainly because it is based on many data. The model works quite simply. The information entered into the model consists of only two basic components
.
The first input component is the Coca-Cola® FIFA-ranking of national teams, which is published by the world governing body every month. The higher the ranking, the better the country's performance on the soccer pitch (according to FIFA). We have translated these rankings into an index figure, so familiar to economists. The higher the FIFA ranking, the higher the index figure
.
The second component of the model is the leading standings of the clubs for which the selected national team players play. The higher a club's placing in its domestic league, the more points for a player. Adding the points for the whole squad yields a total team score. However, not all leagues are the same: Italy's Serie A and Trinidad & Tobago's Pro League do not have much in common. So each of the domestic leagues has been given a weighting, so that a player playing in a more difficult league will contribute more points to the national team score
.
The final model score is based on a weighted average of the FIFA index figure and the total league score. The weightings are obtained by optimising the model for the results of the last two World Cup tournaments. By comparing the model scores of the countries meeting on the pitch, we can predict the course of the tournament and the final result.

The model outcomes are subject to change until the World Cup starts because the FIFA rankings and the league standings will change, but more importantly, because the final squads have not yet been announced.

Model optimisation based on previous World Cup tournaments



Past results

The model is optimised from the results of the last two World Cup tournaments, in France in 1998 and Japan and South Korea in 2002. The weighting factors have been set so that the model offers the highest predictive accuracy. In the previous two competitions the model correctly identified the winner and the semi-final results, as well as three of four quarter-final winners. The predictions for the group games were less reliable, especially during the 2002 World Cup, when several favourites were knocked out early on. Some caution is definitely in order, because, as with investing, past performance is not a guarantee for the future. A model is a simplified representation of a slice of reality, and in economics it is often used to examine particular relationships. This means that certain assumptions have to be made. So too with this model. The key assumption made in our model is that success in domestic league competitions coupled with a high FIFA ranking translates into absolute success in the World Cup finals. Another assumption is that other competitions, such as the Champions League or domestic cup competitions, have no effect on the course of the World Cup. Whether these assumptions are justified is of course arguable. We acknowledge that the model is far from perfect, but it certainly offers a foundation for an educated guess. And to reiterate, the model worked pretty well during the last two World Cup tournaments.

Hard and easy groups

Apart from predicting the winner, the model outcomes can also be used for other comparisons. For instance on the difficulty of the eight groups. Adding the model scores per group gives an indication of the difficulty or otherwise of the group in question. On this basis, Group F (with Brazil and Croatia) is the strongest, followed by Group C (with Argentina and the Netherlands). The view that Germany has enjoyed some good fortune by ending up in the easiest group (Group A) also seems justified. But according to our model, Spain in Group H will have an even easier time qualifying for the knock-out stage. We made a similar prediction for the 1998 World Cup, but at that time we were proved wrong, because Nigeria and Paraguay qualified at the expense of La Selección.

What awaits the host country?

The friendly match between Italy and Germany on 1 March, which Italy won decisively by 4-1, caused consternation in the World Cup host country. Our model does not predict scores, but it did tip Italy to win. This prediction was based not so much on the domestic league performances of the players' clubs, because there was little to choose between the two teams, but more on the model's other input component, namely the FIFA rankings of national teams. Germany has been slipping down the rankings for some years now, while Italy's position has remained virtually unchanged. The World Cup hosts currently rank 19th in the world. And to add insult to injury, the bad defeat in Italy will probably drag Germany further down this month's global rankings. In our model this means that Germany's chances of winning the World Cup are shrinking steadily.

World Cup 2006 - projected outcome

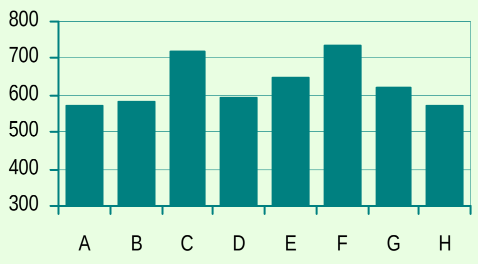
Winners in bold

Group A	1/8 final	1/4 final		1/4 final	Group E	Group F
Germany					**Italy**	**Brazil**
Ecuador	**Germany**-Sweden	Germany-**Holland**		Italy-**France**	**Czech**	**Croatia**
Poland					US	Japan
Costa Rica	**Holland**-Mexico	**Semi-final**			Ghana	Australia
		Holland-**France**				
Group B						**Group G**
England	**England**-Ecuador	**Final**			**Italy**-Croatia	**France**
Sweden		France-**Brazil**				**Switzerland**
Paraguay	Portugal-**Argentina**				**Brazil**-Czech	Korea
Trinidad & Tobago						Togo
		Semi-final				
Group C	**Group D**	Egnland-**Brazil**			**France**-Ukraine	**Group H**
Holland	**Portugal**					**Spain**
Argentina	**Mexico**	**England**-Argentina		**Brazil**-Spain	**Spain**-Switzerland	**Ukraine**
Serbia & Montenegro	Iran					Tunisia
Ivory Coast	Angola	**1/4 final**		**1/4 final**	**1/8 final**	Saudi-Arabia

Forecast ABN AMRO Economics Department

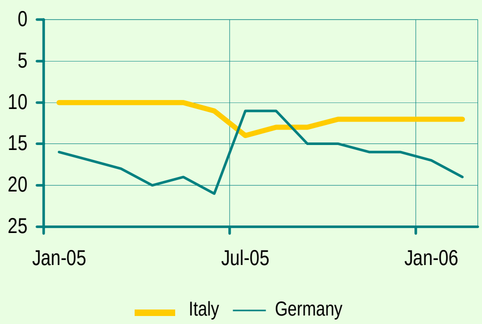
Some groups hard, others easier

Total score per group



Germany will have problems

Coca-Cola® FIFA ranking (inverted axis)



Source: FIFA

Predictions are subject to change

The World Cup is approaching fast, but that does not mean that our model's predictions are firm at this stage. Changes in the FIFA rankings will certainly change the model scores. And the domestic league standings can also change. Most European domestic seasons are coming to a close, and any changes in standings will probably have only marginal effects on the model scores. This is certainly the case for the English Premiership, Spain's Primera División and Italy's Serie A, with the title races virtually decided in all three. A relatively large number of likely World Cup squad members play in these leagues, the world's strongest. The situation is quite different in several South American countries and in the Nordic countries, where the domestic seasons have only just started or not started yet[2]. However, the main factor which will affect the model scores in the coming months will be changes in the team selections. The squads have to finalised and names have to be submitted to the World Cup organising committee by 15 May. Until that time much can change: players may get injured or managers may change their minds about certain players, for instance.

Finally, there is one more point to consider. The model does not take into account the home advantage enjoyed by the European teams. Since 1958 no Latin American country has been able to win the World Cup on European soil. So the clear favourite, Brazil, has not won yet, and our 'economic favourite' Italy may yet spring a surprise. An Italian World Cup victory would make a contribution to an economic upswing in Europe which would help to reduce the imbalances in the world economy. Still, as the legendary German manager Sepp Herberger was fond of saying, 'the ball is round'. Which is just as well, because if the outcome of the World Cup tournament could be determined in advance, it would not be much fun.

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[2] This is the case in Brazil for instance. The league standings used in the model at the moment are the final standings of last season, which ended in December 2005.