Price Formation in Sports Prediction Markets

- A Cross-Cultural Study -

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1 Prediction markets

Interest in prediction markets has continuously increased in the last couple of years. The basic idea is to trade artificial stocks whose payoffs are tied to the outcome of uncertain future events. Until the outcome is finally known, the trading price reflects the traders' aggregated beliefs about the likelihood of a future event. Market prices can thus be interpreted as predictions of the likelihood of those events.

Public examples for prediction markets include the Iowa Electronic Markets, TradeSports, NewsFutures, the Hollywood Stock Exchange, and STOCCER. Several major companies are currently also using internal prediction markets. The results of recent studies on forecasting markets are encouraging. The Iowa Electronic Market (IEM) for predicting the outcome of the presidential elections in 1988 was the first political stock market (Forsythe et al. 1992). By then, the accuracy of the prediction by far outperformed traditional polls.

Current research in the field of prediction markets mostly focuses on innovative fields of application (Spann et al. 2003), the prediction accuracy of these markets compared to traditional forecasting methods such as polls (Berg et al. 2001), fraud and manipulation (Hanson et al. 2006), as well as specific questions on designing prediction markets such as whether to use real-money or not and how to provide incentives for participation and information revelation (Luckner 2006, Servan-Schreiber et al. 2004).

2 A cross-cultural study

In this paper, we study the impact of the traders' country of origin on portfolio and price formation in prediction markets. We expected that especially in situations where emotions come into play (e.g. in

sports prediction markets for international tournaments), the traders' behaviour would be influenced heavily by their nationality. For our study, we use data from a prediction market for the FIFA World Cup 2006 in Germany. Among others, traders of this market bought and sold shares of the 32 national teams participating in the World Cup. As can be seen in Figure 1, more than 1.500 traders from all over the world registered for our experimental market called STOCCER.

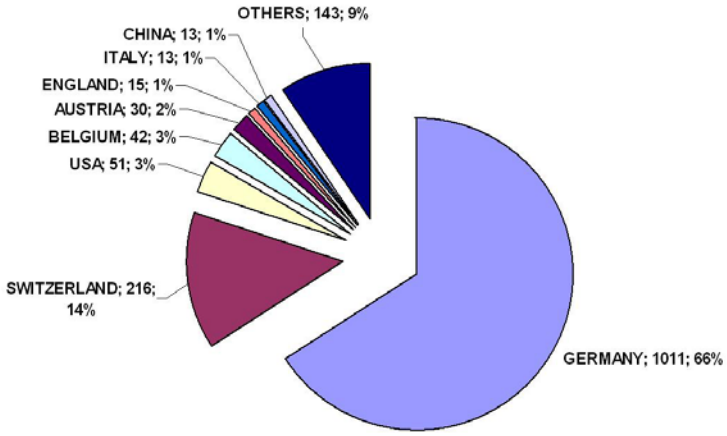

Figure 1. Home Countries of Traders

2.1 Portfolio Formation in an Experimental Market

We expect that there is a correlation between the traders' nationality and the number of shares they hold of different national teams. Based on the data collected in our experimental market we can study the composition of traders' portfolios in the experimental market. Our first results show that investors indeed tend to hold a disproportionately large part of their portfolio in shares of their own national team. This is also depicted in Table 1.

Table 1. Shareholdings of STOCCER Traders

		AVERAGE NUMBER OF SHARES					
		Germany	Switzerland	USA	England	Italy	Average
ORIGIN OF TRADERS	Germany	401,96	214,02	327,27	323,84	324,75	**318,368**
	Switzerland	189,39	1153,05	592,93	262,11	396,83	**518,862**
	USA	218,86	95,39	387,39	377,05	268,29	**269,396**
	England	70	73,33	60	1347,6	543,86	**418,958**
	Italy	79,69	114,53	226,07	79,92	1406,5	**381,348**
	Others	185,64	205,07	166,85	292,03	187,98	**207,514**

Out of the countries with a reasonable number of traders depicted in Figure 1 we consider the five countries that actually took part in the World Cup. Looking at the average number of shares that traders from one country hold in other countries, we find that they always hold more shares in their own national team than in any other team. All of them also hold more shares in their own national team than they hold on average over all national team. This is evidently a sign of some kind of bias.

2.2 Price Formation in an Experimental Market

Knowing that the number of shares traders hold depends on their country of origin, we also study whether they tend to buy and sell shares of their home country at higher prices than traders from other

counties do. To tackle this question, we will study the order flow from our experiment market for the FIFA World Cup and analyse whether traders tend to accept higher prices for shares of their own national team than other traders do.

We also expect to see an overvaluation of a national team in markets where the majority of traders come from the corresponding country. For example, in markets like Bluevex and BallStreet with a focus on German traders, we expect the shares of the German national team to be overvalued compared to other markets that are not focused on German traders. In order to study this effect we collected data from several prediction markets operated in different countries during the FIFA World Cup. Our first results show that the expected effect can actually be observed.

3 Summary

In our paper, we study the impact of the traders' country of origin on portfolio formation and price formation in prediction markets based on a field experiment and data collected from other real-world prediction markets. Our first results show that traders indeed hold a disproportionately large part of their portfolio in shares of their own national team and that they probably also overvalue these shares.

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