

## **A conversation with Robin Hanson on January 15, 2014**

### **Participants**

- Robin Hanson — Associate Professor of Economics, George Mason University
- Alexander Berger — Senior Research Analyst, GiveWell

**Note:** GiveWell compiled these notes to give an overview of the major points made by Dr. Hanson in the conversation.

### **Summary**

Dr. Hanson is an Associate Professor of Economics at George Mason University, a Research Associate at the Future of Humanity Institute at the University of Oxford, and Chief Scientist at Consensus Point.

GiveWell spoke to Professor Hanson about the benefits of conditional prediction markets, opportunities to create such markets, obstacles to their broader use, and the future of their development.

### **Unconditional vs. conditional prediction markets**

To date, most prediction markets have been designed to produce unconditional predictions. These predictions may provide valuable information to decision makers, but they do not directly estimate the results of potential courses of action.

For many possible unconditional prediction markets, such as markets predicting GDP growth or the extent of climate change, the information that would be produced by the market is a public good that would be helpful to many different organizations. Often, no one organization is willing to pay for the prediction market. That said, many key indicators, such as GDP growth, already have substantial communities of experts working to predict them or can be predicted based on related securities sold in financial markets.

Predictions of outcomes conditional on which choice people make (conditional predictions) are more obviously useful than unconditional predictions because they can help people make choices with better outcomes. For example, knowing the likely consequences of firing a CEO on a company's stock price could influence investor behavior.

### **Building conditional prediction markets within organizations**

Prediction markets have been shown to be workable and to predict events with reasonable accuracy. Technologies and techniques for such markets are fairly well developed. At this point, Professor Hanson believes that the best way to move prediction markets forward is to use them to generate valuable information within organizations. Unfortunately, it is harder to find funding for useful applications of prediction markets within organizations than it is to find funding for academic research and demonstration projects.

Prediction markets will become more popular if organizations begin to implement them, tweak them to work well, use information from the markets in their decision making, and then share their techniques with other organizations.

A wide variety of decisions within organizations could benefit from conditional prediction markets. However, for decisions for which information is already aggregated relatively effectively, a prediction market might not add much.

To show the usefulness of prediction markets, it would be best to focus first on generating information that is of obvious value, probably within a small organization rather than a large one (since it would likely be easier to get permission).

Many organizations have a department that makes forecasts and distributes them throughout the organization, but decision-makers do not always know how to act on these forecasts. Conditional predictions for decisions that the organization needs to make would be more obviously useful than general (unconditional) forecasts.

### **Creating strong prediction markets**

A prediction market is a means for an organization to buy information from the market participants by subsidizing the market. Prediction markets usually have to be subsidized in some manner to attract participants.

Prediction markets are more accurate if they have more participants and greater diversity. Stock prices for large versus small firms show that heavier trading tends to lead to more consistent valuation. Election prediction market results show that heavier trading tends to lead to more accurate predictions. For most decisions within most organizations, the relatively low level of accuracy of prediction markets with low trading volume would still be higher than the accuracy of current prediction methods.

While it is not necessarily the case that prediction markets need to involve money to provide accurate forecasts, participants in a prediction market should stand to gain or lose something of value, and money is often the easiest to use. Reputation is another possibility, but it is difficult to convince people who might be interested in joining a prediction market that they should value their reputation within the community sponsoring the market. For this reason, it can be hard for reputation-based markets to recruit participants.

### **Examples of potential decision-conditional prediction markets**

#### *Aid projects*

An international aid organization could use decision-conditional prediction markets to choose which projects to fund. For example, the organization might be considering a water purification project designed to reduce the mortality rate in a region. To evaluate the likely impact of the project, the organization could create prediction markets to estimate how much the project would

reduce mortality rates in the region. The organization could use this procedure on a variety of projects competing for funding to identify the projects with the greatest predicted impact.

### *CEO retention conditional prediction market*

If Professor Hanson had sufficient funds, he would create prediction markets for the stock prices of public Fortune 500 companies conditional on whether the CEO leaves the company in the next quarter. He guesses that it would cost about \$1 million to get the markets up and running. These markets could be run in a country without legal restrictions on prediction markets. Professor Hanson has described this idea in more detail in [Forbes](#) and on his blog, [Overcoming Bias](#).

The CEO retention markets would likely make a compelling case for conditional prediction markets in general. This is because the question of whether the CEO was retained is clearly defined and the decision and its consequences are visible and occur over a relatively short period of time. The business press would likely write about the markets, increasing their influence and attracting more participants.

Eventually, CEOs might try to manipulate the markets to make themselves look better. However, the additional money that CEOs might put into the prediction markets would actually increase the accuracy of the markets by drawing in more investors willing to bet against the CEOs.

It would be possible to track whether each company made the choice that the markets predicted to have a better outcome (i.e., fired the CEO when the prediction markets predicted that the company's share price would be higher without her and retained the CEO when the prediction markets predicted that the company's share price would be higher with her). Then, the companies that made the choice that the markets predicted to have better results could be compared to the companies that made the choice predicted to have worse results. If the former companies performed better than the latter (as measured, for example, by change in stock price), this would indicate that the markets provided valuable information and that more of the companies should have followed their advice.

Eventually, a legal precedent might be set that prediction markets provide accurate information. Then, if boards of directors ignored the markets' advice, they might be sued for not carrying out their fiduciary responsibilities. If prediction markets were shown to be useful for making decisions about CEO retention, companies would likely begin using them to make smaller decisions as well.

## **Obstacles for conditional prediction markets**

### **Legal obstacles**

Legal obstacles to prediction markets are significant, but not insurmountable. In some situations, it may be illegal for organizations to set up real-money conditional prediction markets. However, in most cases, such markets would already be legal if they were kept within an organization. To avoid breaking gambling laws, a company might provide all of the money used in the internal

market, rather than having participants invest their own money.

In cases where it is illegal to use cash as the medium of exchange in prediction markets, it may be possible to use bitcoin instead, though it would likely still be illegal to do so. Since relatively few people use bitcoin, the pool of potential participants for a prediction market that used bitcoin as the medium of exchange would also be limited.

Insider-trading laws stipulate that only top corporate officers are allowed to know key information pertaining to important business decisions prior to certain public announcements. Since the information generated by prediction markets would be available to all market participants, prediction markets might be challenged in court on the grounds that they widely disseminate key information. Such a legal challenge would be more likely if people used information from the prediction markets they participated in to make trades on securities markets.

It is unclear which agencies should regulate prediction markets because prediction markets can be interpreted either as commodity futures markets or as a means of gambling. Since few prediction markets exist, it is hard to tell which agencies would regulate them if they were more common. Some operators of prediction markets have been prosecuted under state anti-gambling laws. The US Commodity Futures Trading Commission (CFTC) has exempted the Iowa Electronic Markets (IEM) from some regulations, which dissuaded state regulators from restricting IEM. The US Securities and Exchange Commission and the CFTC do not see themselves as having jurisdiction over the activities of the federal government, so prediction markets operated by the federal government would probably face looser regulation.

### **Organizational obstacles**

The main barrier to wider-scale adoption of prediction markets is that most organizations are reluctant to use them. It is unclear why this is the case. Those currently in power within firms may resist prediction markets because the markets would spread previously privileged information across the company and change perceptions of what is knowable and who knows what.

### **Attacks on gambling websites**

Internet gambling companies often compete by attacking each other's services via hacking and denial-of-service attacks. These sites must spend a great deal of resources protecting themselves from attack. A prediction market could hopefully avoid competing against such sites, but it might have to build defenses against their attacks.

### **IARPA prediction tournament**

Professor Hanson ran a team in the Intelligence Advanced Research Projects Activity's (IARPA) Aggregative Contingent Estimation prediction tournament. He estimates that the tournament costs IARPA about \$10 million per year. Though the tournament has led participants to develop more advanced prediction techniques, Professor Hanson believes it is unlikely to demonstrate the usefulness of prediction markets to a broad audience because its impact on the intelligence

community is difficult to ascertain.

Professor Hanson believes that the money spent on the tournament would be better used to fund prediction markets focused on providing information to help organizations make decisions.

### **People and organizations for GiveWell to talk to**

- David Pennock, Principal Researcher and Assistant Managing Director, Microsoft Research in New York City.
- Phillip Tetlock, Leonore Annenberg University Professor, University of Pennsylvania.
- Adam Siegel, CEO and Founder, Inkling Markets.
- Brad Wilson, Consensus Point.

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