A Farewell to Arms?

By Rachael Horsewood

Editor's Note: ***A proposal by the United States Department of Defense to develop information futures was canned in July when a major gaffe on a sample web page of the market caused public outrage at home and abroad. But could something new be under it all? Rachael Horsewood investigates the market for intelligence and what it means for financial engineers.***

A bigger risk to model

Two years ago the Department of Defense allocated funding for the development of an information futures market. Based on a series of geopolitical data for eight countries in the Middle East, these futures were designed by the Defense Advanced Research Projects Agency (DARPA) mainly to aggregate better quality information for the government's war against terrorism. The project, which became known as the Policy Analysis Market (PAM), attracted a handful of other academics and information technology specialists involved in geopolitical research.

The objective, as stated in DARPA's launch presentation, was to use market research as input to further analysis. "The new approach is to set up two kinds of futures contracts. One pays $1 if an attack takes place, while the other pays $1 if there is no attack. Prices and spreads will signal probabilities and confidence. Currently we envision markets of 15 to 20 participants. These participants will address questions about the probabilities of failure within our national infrastructure."

The failure it encountered in the end was not what was anticipated – the project went belly up within two days of its release to the public in late July of this year. The bad fortune started when, in hopes of attracting more interest from the intelligence community, DARPA added hypothetical bets on terrorist attacks and assassinations in a mock-up version of the market created for its web site. (See Figure 2 below). Charles Polk, the CEO of NetExchange, a private information technology firm also backing the project, only aggravated the situation further when he used it in a presentation to Congress.

"Everything we were going to do was reasonable apart from the horrible examples that went in to the miscellaneous fields that day. Two Democratic senators noticed those right away and declared we were creating a betting market based solely on terrorist attacks, when the futures were really based on economic, civil and military assumptions. Unfortunately, nobody asked us for clarification or how the miscellaneous fields worked. Instead, the two senators went and held a press conference, and within a day the government pulled the plug on us," explains Robin Hanson, assistant professor of economics at George Mason University.

Robin Hanson

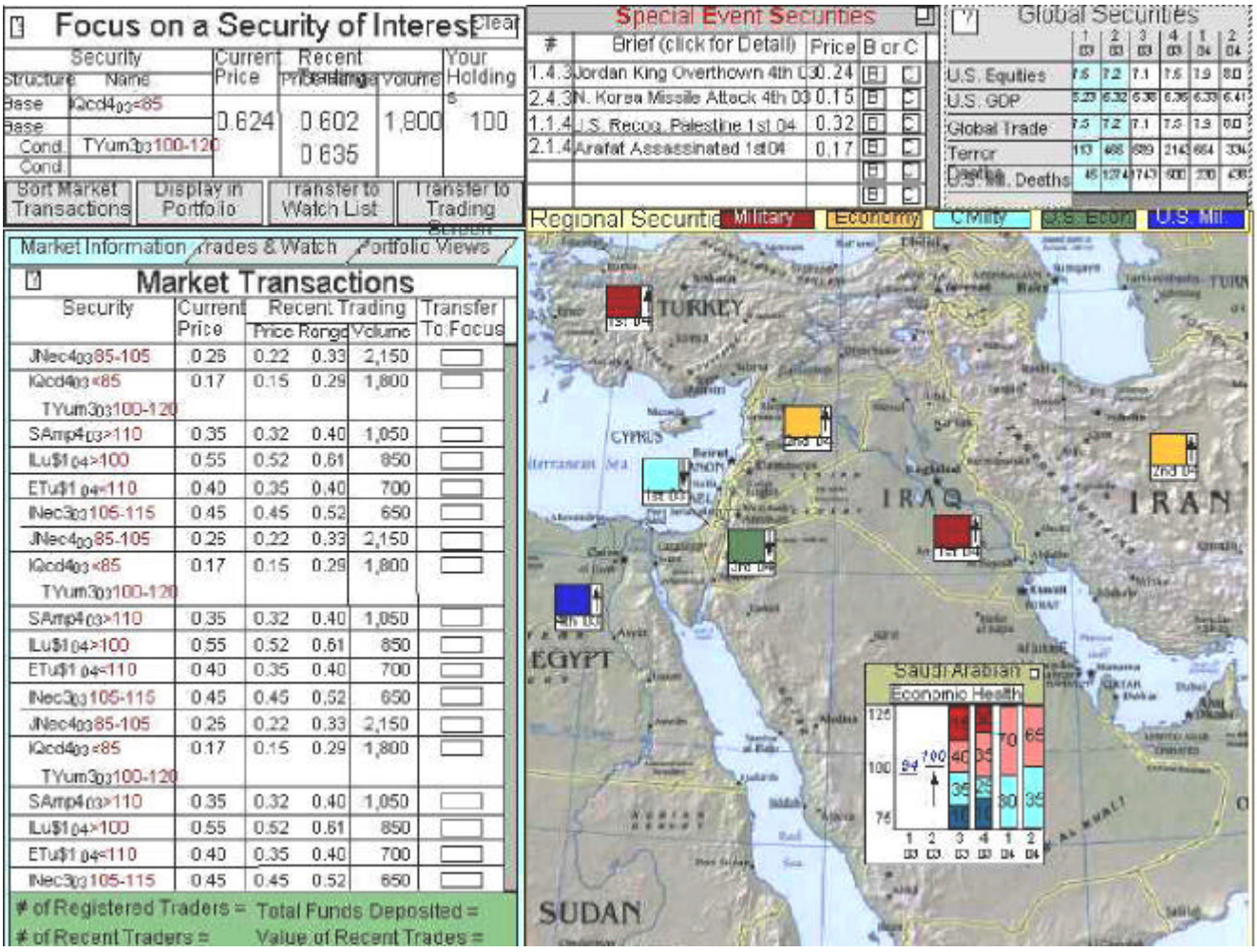
Hanson, a pioneer of information futures, designed the trading technology that DARPA was going to use for PAM. "We contracted information from the Economist Intelligence Unit (EIU), and this used up a large portion of our budget. The idea was to create data series on countries around the whole world, but the EIU charges a lot for their data and we could not afford it," he adds. Based on the EIU reports, DARPA's team created five quarterly data series with hundreds of parameters for Egypt, Jordan, Iran, Iraq, Israel, Saudi Arabia, Syria and Turkey. The first category was on economics, so it tracked information on gross domestic product (GDP) and other economic indicators. The second category focused on political information, which meant descriptions of the country as politically risky or stable. It also looked at the country's relations with the U.S. There also was a category for military activity, and its fields ranged from still to mobilization to war. Finally, there were two U.S. policy variables. One was on U.S. trade and aid and the other on U.S. military activity in that particular country.

"The goal was to get the speculators to estimate a description of what things would be like in these countries over set periods of time," explains Hanson.

DARPA's team also decided to give participants some auxiliary fields to play with, for example a few global parameters. These included assumptions on global trade, U.S. GDP, and more controversially, U.S. military casualties and Western terrorist deaths globally. This notion

was what led to the creation of the infamous miscellaneous category. (See mock interface below).

FIGURE 1



"We were trying to capture all of the major events and thought we could be missing some important things, for example the prospect of peace in Israel and Palestine. In this sense we were willing to consider a range of possibilities for the miscellaneous category," he says.

He adds: "But betting on death and assassinations is not what it was all about. This was a small-budget project from the start. We hoped for some media attention when we went public on it, which is why colourful and provocative and albeit bad examples were chosen for the miscellaneous fields. We wanted to give presentations to various intelligence organizations, academic institutions and specific amateur groups that talk about foreign policy. We were trying to get people in these places to participate so we could build the market up through word of mouth."

Despite the outrage PAM created, Hanson still believes someone from the private sector may see potential in information futures based on geopolitical events – albeit less morally sensitive ones – and the purpose for flushing out new information on them. Demand for this type of informationis only going to rise, he says, as the effects of geo-political events on financial markets and everyday life become evermore apparent.

Not only politically incorrect

PAM's innovators are going to have a lot more clarifying to do if they ever expect to see the project lifted up from the ground. Politics is not the only cloud covering information futures.

For example, although online betting of any sort is illegal in the U.S., portals like Tradesports.com quickly caught wind of the "provocative" miscellaneous bets. "Bookmakers are betting on Jordan's King being overthrown even though Jordan is one of the most stable countries in that region," one hedge fund quant in New England points out. "If I put a million dollars down, is someone going to go out and do that," he adds.

It also does not help when market commentators compare the proposed market to weather and commodities futures. "The idea was to create a

kind of futures market in which chaos and turmoil could be traded as commodities – the same way we predict the rise and fall of [prices on] pork bellies," one financial reporter in Chicago wrote.

Unsurprisingly, none of the futures forefathers wanted anything to do with DARPA's concept given its public association with bets on something as distasteful as death and destruction. Not even the usual frontline men, such as Richard Sandor, Chairman and CEO of the Chicago Climate Exchange, or Leo Melamed, Chairman Emeritus and Senior Policy Advisor to the Chicago Mercantile Exchange, would speak publicly about the PAM project or its demise this summer.

In September, Rudolf Ferscha, the CEO of Eurex, which is the world's largest futures exchange, told Financial Engineering News that it had no intentions of exploring the potential of geopolitical futures of any sort. "This is not something we are looking into, nor is it something we intend to [look into]," he said.

Moral hazards aside, advocates need to clarify the difference between information futures and financial and commodity futures before they can convince anyone – at least anyone in the financial world – of the potential for bets on less morally sensitive geopolitical events, such as election outcomes and monetary policy decisions.

According to Hanson, the differences lie in the functions that each market is meant to perform. These are associated with the different regulatory environments of the futures and the different criteria and monitoring of them. For example, he says, different rules are appropriate for an information market since its purpose is for the aggregation of information and not the hedging of risk.

"You do not actually need as much money [as you would for commodity and financial futures trading] in order for participants to create and aggregate information. What you do need is enough money at stake so that the people who know something will come in and bet. By betting they will tell you what they know," he maintains.
The point, he says, is that information futures do not depend on liquidity to support other participants' risk hedging needs. "If they can execute a trade and feel that they were rewarded for their insight, then that is good enough. All we want is speculators who are knowledgeable," he explains.

This amounts to a lot less than what is needed for a risk-hedging market, such as one on pork bellies. "In the Iowa Electronic Markets, markets where you can bet on presidential elections, the maximum deposit is only $500 and yet they still manage to do a very good job of aggregating information on voting behavior in presidential elections," he notes.

Sources say that $20 is usually traded on that market everyday. "You could not hedge as much risk for that in a commodity futures market," Hanson asserts.

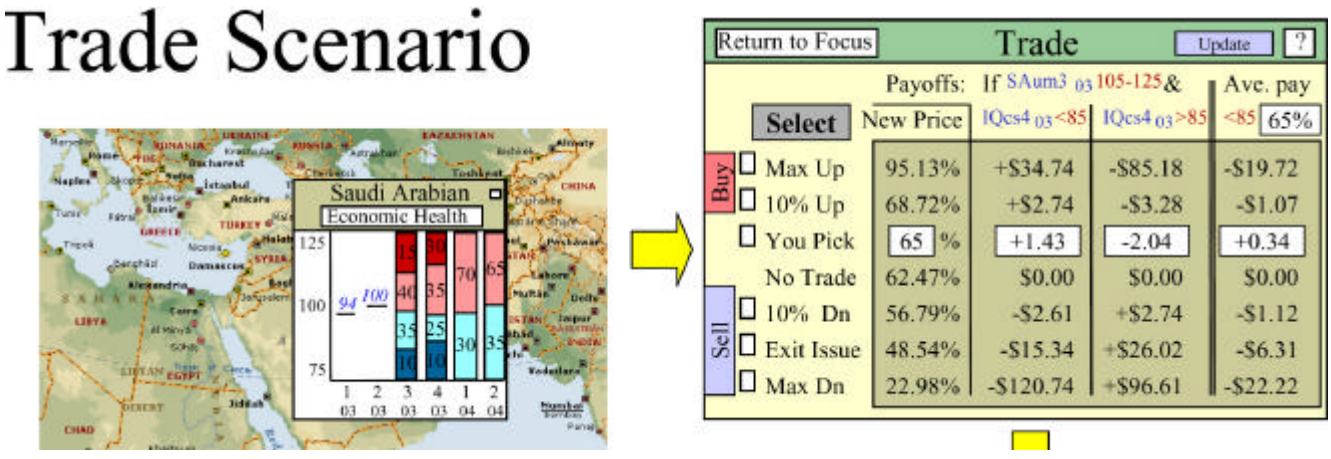
The Iowa Electronic Markets, the first market for information futures, is not regulated by the federal government, and this includes the Commodity Futures Trading Commission (CFTC). It also is not profitable.

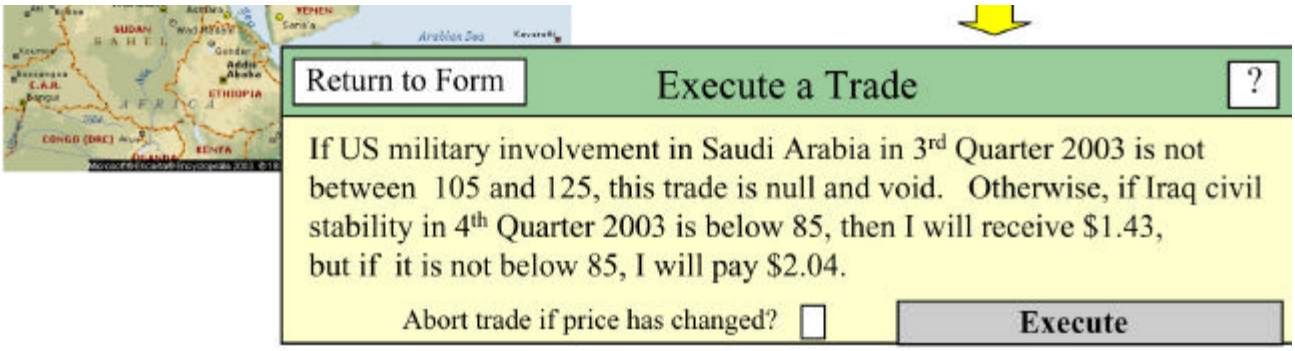
Considering it costs money to run an information futures market, especially for the data series and trading technology, who in this whole scenario will pay for it? Hanson says "the optimistic scenario" is that the market traders become so enthralled by it that they are willing to pay a tax.

"The original idea was that there would be a single large customer so interested in knowing the answers to the assumptions that they would be willing to pay to help support the market. Thus, DARPA was paying us to create this market for them. They provided the legal protection for the markets because they wanted to know the answers. Everyone else could free ride by browsing the prices," he explains. (According to Hanson, DARPA received a letter of no-action from the CFTC. This letter would have supposedly protected the PAM project from gambling laws and other legal issues.)

As the screen shot image (below) illustrates, the hope was that browsers would go in and bet when they thought a price was wrong.

FIGURE 2





The rationale

No one argues about whether better quality geopolitical data would be useful. Look at the importance such events have on financial engineering – almost everything spelled out in the PAM templates impacts the markets, from a credit rating to the price of a default swap and the cost of insuring a firm's headquarters. The question is, how can you be sure that information futures would in fact provide fresh, reliable data, and do so without incurring violence or corruption?

"Even if there were not any moral issues surrounding them, these futures are not a very smart thing to do. That is simply because there is a lot more information out there about what is going on geopolitical and terrorist-wise than what would ever come about from a market, comments Gordon Woo, a risk modeller at RMS. Indeed, one betting shop manager in the U.S. already admitted that success in his business depends on knowing when a new book or report on terrorism or foreign affairs is coming out so he can close his book beforehand. The head of quantitative research at one large investment bank put it more bluntly: "I think the fact that officials in Washington considered this in the first place makes the U.S. government look totally bereft of common sense when it comes to the threat of terrorism." He adds: "The point is that the market would allow any terrorist group to simply plan an attack and then have someone [or more] place a bet on it and make a pot of money. This is logical, but also immoral."

Gordon Woo

In the end it is safe to bet that some sort of non-moral geopolitical futures will come about when and if the economic benefits are rationalized. Inside information on elections, for example via election futures, has already proven successful. Whether this has enough potential to grow it into something bigger and broader remains to be seen. But most financial engineers would agree that despite DARPA's comparison to the Iowa Electronic Markets, the information that its team sought out is a completely different story involving a completely different game anyway. The one certain thing is that information trading is bound to attract financial engineers' interest at some stage, so we'll stay tuned.

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