



SBIR Phase I Final Presentation
Policy Analysis Market
19 June 2002

Overview

Predicting Events & Their Causes

The Basic Intuition

Basic Design

Examination in Parts

Conclusion of SBIR Phase I

Moving Forward

Predicting Events & Causes

Choose an intent, then design to it

- Predict events?
- Predict the causes of events?

Net Exchange has examined the prospect of a Policy Analysis Market (PAM) designed to predict the causes of manmade events. With mild augmentation, explicit predictions of the events can be added to PAM.

The Basic Intuition

Manmade events occur from a context

- Any specific event is made more or less likely by policies, circumstances, and other events.
- Context may make a specific event more or less relevant.

Necessary PAM Qualities

- Multi-year horizon (implying a huge # of possible events)
- Proactive as well as reactive (Why? is important)
- Traders must direct PAM evolution (like real markets)

Amplify insightful communication, not isolate it to a few, dated events.

Basic Design

Formal Tradables and Processes

Type of Security	Market Mechanism	Source	Time Horizon
Discrete Specific Event Derivatives	Periodic Combinatorial	Approved Nomination	6 months
Options Based on Interrelations between Discrete Securities	Call Market augmented by an Automated OTC	Internal Issuance	12 months
Discrete Securities based on Broadly Relevant Data Series	Market Maker	External (e.g. EIU)	36 months

With PAM will be Informal Info. Processes

Recall: Goal is to augment current practice

Examination in Parts

Demonstration Market Constructed for Discrete Securities and Options

- <http://66.106.131.154:7003/>

Sample Scenario Produced for Illustration

- Two-Nation plus U.S. Policy
- Three-state discrete securities covering economic, civil stability, and military matters
- Illustration of how event prediction could be assisted by options based on conditional probabilities between securities
- Run with eight GMU students: *Results* indicate that the scenario and interface were understandable; however, the principles were not tested.

Examination in Parts

Automated OTC Market Maker

- Design and financial tractability established by R. Hanson
- Rough version coded and bench tested by R. Hanson

Data Series and Judge

- Topic introduced to The Economist Intelligence Unit
- Prospect of working on PAM generally well-received
- Details of constructing data series will be critical
- Operation and Judging should be straightforward

Examination in Parts

Price Manipulation by Interested Parties

- Experiments conducted at GMU on two model environments
- Preliminary results show that price discovery is not adversely affected by the presence of some traders with an interest to manipulate prices

Issues and Reach of PAM probed

- Members of Intel Community interviewed
- Regions of greatest interest fairly clear: Middle East, FSU, Subcontinent, China, Koreas, with impacts to W. Europe and the U.S.
- Issue survey needs a better grounding in PAM design

Examination in Parts

Operational Structure

- Issues of Public/Private fund transfers strongly encourage the operation of two instances, one U.S. Government internal, the other for everybody else. Agency-to-agency transfers may also pose a problem.
- The same basic securities would underpin each; however, the options and event derivatives would evolve separately.

Securities Market Legal Concerns

- The U.S. Government market should not face any problems
- The private market should be able to avoid legal/regulatory concerns if all participants are sponsored by *sophisticated investors*.

Conclusion of SBIR Phase I

Basic PAM design sketched out

New Pieces of PAM Examined

- Technical issues bench tested to various degrees
- PAM operational roles (e.g., Judge, issuance)
- Programmatic concerns (Public/Private, Legal/Regulatory)

General Conclusion: PAM appears to be tractable and responsive to the goal of augmenting existing processes, but:

Full written report expected by end of 6/02

Moving Forward

Implementing a full trial of PAM will require

- Integration of all the Pieces
- Substantial interaction with clients to *fit* PAM to their needs
- Design of basic data series, including collection, reporting, and judging processes (much involvement with clients)
- Early clarification on and clearance of legal issues

Ready to proceed under SBIR Phase II, but suggest a serious inter-Phase effort

Ready to support a DARPA Program Initiative

Note: Early metrics on PAM should be easy -- compare the progress of PAM basic discrete securities to the actual data series on which they are based.