Financial Markets and the Internet

Hal R. Varian
Professor of Economics and Finance
University of Michigan

Outline of talk

- Resources for finance professionals
- Financial markets on the Internet
- Speculations about the future

Web site for this material

`http://gopher.econ.lsa.umich.edu`

Economic Data

Resources for Economists on the Internet
Government data
- Dept of Commerce Electronic BBS
- Census data
- Bureau of Labor Statistics

Financial data

Stock quotes

Riskmetrics

EDGAR: SEC filings describing security issues

Financial Economics Network

Email abstracts and announcements

- Working Paper Series B - Derivatives
- Working Paper Series A - Corporate Finance and Organization
- Working Paper Series C - Capital Markets
- Working Paper Series D - Banking, Economics, and Methodology
- Accepted Paper Series
- Current (Job Listings) and (Professional Announcements)

Searchable Web page

Journal of Finance

abstracts of forthcoming articles

membership forms

more to come...

Economics Journals

JSTOR project: archival issues

American Economic Review

Econometrica

Journal of Political Economy

Quarterly Journal of Economics

Review of Economics and Statistics

Current issues?

Working papers at St. Louis archive

Markets on the Net

- Iowa Electronic Market
- Santa Fe Market
- Ideas Futures Market

Iowa Electronic Markets

Running markets since 1990

Earnings markets (IBM, Kmart, Entertainment industry)

Political events

12 markets to date

1996 Republican convention

1996 Presidential election

Presidential elections

bid-ask market

payoff = fraction of popular vote

no short sales or borrowing

$500 limit per account

Political stock market

- Market was very good predictor (on 12 occasions)
- Market was much less volatile than polls
- Polls did not "cause" market changes
- Average participant exhibited standard biases
- Marginal traders did not

limit orders close to market price

similar demographics (but more male)

invested twice as much as average

traded more, earned higher returns (12% vs 0%)

exhibited no biases

Subsequent IEM research

Event studies on industry returns and IEM

Marginal traders

- average participant violates "rationality" 37.7% of time
- market makers violate on 5% of time

Foreign markets

Santa Fe Market

1990 computerized double auction, AURORA rules

$10,000 prize

Variety of entrants

- 15 from economists
- 9 from computer scientists
- 3 from mathematicians
- investment broker, marketing, cognitive scientists

Variety of program types

- learning (statistical, Bayesian, cellular)
- neural net, cellular automata
- heuristics

Outcome of Santa Fe

Winner was simplest program

Written by grad student

Bid = last ask when when bid-ask gap=10%

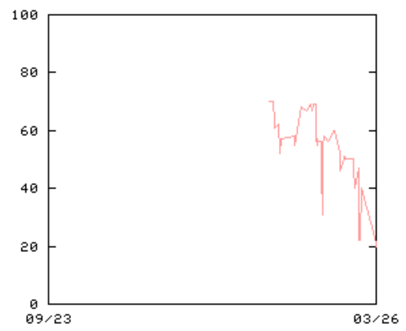
Outperformed average program by 33%!

Did poorly against itself...

Ideas Future Market 1

"Machine chess champion by 2000"

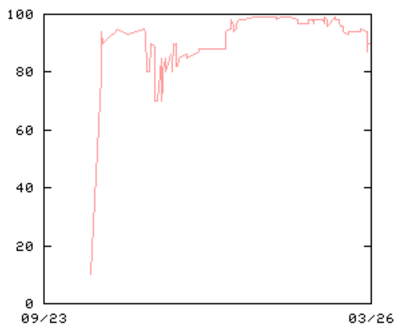
"Public broadcasting funds cut by at least 50% in 1995"



Ideas Future Market 2

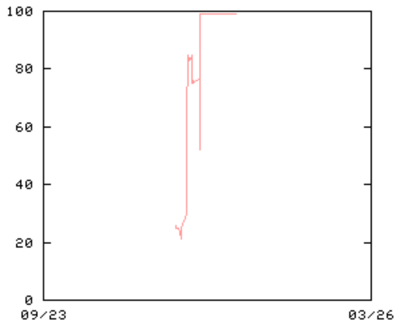
"512 bit number factored by 1997"

"Fermat's last theorem resolved"



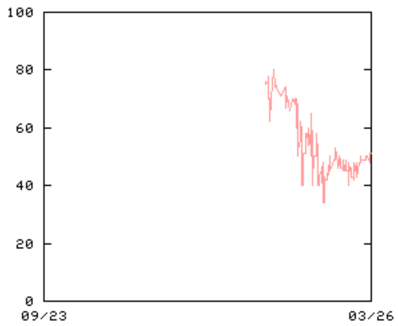
Ideas Futures Market 3

"Intel replaces buggy Pentium chips."



Idea Futures Market 4

"OJ found guilty"



Speculations

Customer orders, mutual fund purchases, etc.

Billing mechanisms for Internet

- at least 7 different ones now
- security/scalability is big concern

Marketing

- one-on-one marketing vs posted price
- reduction in transactions costs
- much closer contact with customer

Electronic markets

Toronto, Paris, Australia, Germany, Israel, Mexico, Switzerland, etc.

open book call markets = classic supply and demand

- Toronto's CATS, Tokyo's CORES, Paris' CAC, Arizona Stock Exchange

Economides and Schwartz found that 25% of survey participants would accept delay of 3 hours to save 25 cents trading cost on a $50 stock

More exotic markets will arise at consumer level

Future of Internet

- Was government supported up until recently
  - very inexpensive technology ($20 million/year)
- Now privatised
  - 3 big backbone providers, 12 in all
  - no usage fees, no settlements
- New applications
  - WWW
  - Internet telephone
  - Internet video
  - "It's all digital now..."

Internet problems

- Explosive growth
- Demands for bandwidth
- Viable economic model
  - usage pricing?
  - settlements?
- Standards setting
  - standards in competitive environment?
  - interoperability?

A reason for optimism?

30,000 for-profit information libraries started in 1980s

ubiquitous

rent 10 gigabytes of information for $3

problems they had to face

- network externalities
- compatibility
- pricing and contractual forms
- intellectual property

but they all were solved (more or less)!