

How The Market “Gets It”:

Why It’s So Hard to Beat the Market

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How the Market Gets It

- ◆ How does the stock market “understand” an economic model when so few investors use it?
- ◆ How do opportunities arise?

How the Market Gets It

“Perspective is worth 80 IQ points.”

Alan Kay

Why Do These Questions Matter?

- ◆ Time allocation
- ◆ Decision making

How Does the Market Understand?

1. Lead steer (centralized)
2. Complex adaptive systems (decentralized)

Positive Economics

◆ Lead Steer

“The relevant question to ask about the ‘assumptions’ of a theory is not whether they are descriptively ‘realistic,’ for they never are, but whether they are sufficiently good approximations for the purpose in hand.”

Milton Friedman,
Essays in Positive Economics

Lead Steer

- ◆ The assumptions are not realistic – and predications fail just when you need them most
- ◆ Suggests an “efficient market”
 - ◆ population of price changes is normal

Lead Steer

- ◆ “If the population of price changes is strictly normal, on average for any stock...an observation more than five standard deviations from the mean should be observed about once every 7,000 years. In fact such observations seem to occur about once every three to four years.”

Eugene Fama,
The Behavior of Stock Market Prices

Lead Steer

- ◆ “Much of the real world is controlled as much by the ‘tails’ of distributions as by means or averages: by the exceptional, not the mean; by the catastrophe, not the steady drip; by the very rich, not the ‘middle class’.”

Philip Anderson,
“Some Thoughts About Distribution in Economics”

Complex Adaptive System

The dynamic interaction of a diverse group of agents (i.e., investors) creates a market that is efficient

Complex Adaptive System

- ◆ Example
- ◆ Description
- ◆ Characteristics

Complex Adaptive System – Example

Academy Awards

- ◆ 12 categories
- ◆ Economic incentive
 - ◆ Not a poll, a prediction
- ◆ Large sample size
 - ◆ $n > 100$



Complex Adaptive System – Example

The 2000 Result:

- ◆ Consensus got 10/12 correct
- ◆ Best human got 9/12 correct
- ◆ Average human got 5/12 correct

Complex Adaptive System – Example

The Message:

Lots of agents with diverse decision
rules lead to efficient results

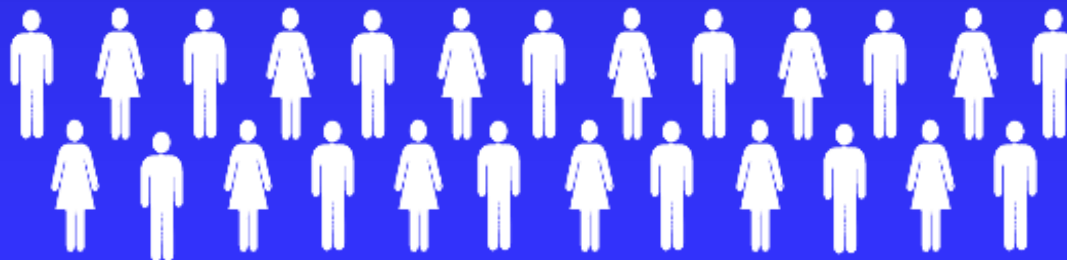
Complex Adaptive System – Definition



Emergence



Dynamic Interaction/Decision Rules



Complex Adaptive System – Characteristics

- ◆ Evolving decision rules
- ◆ No additivity
 - ◆ Can't understand system through agents
- ◆ Critical points
 - ◆ Small world work helpful

Complex Adaptive System – Takeaways

- ◆ The structure of double auction markets leads to “mostly” correct answers
- ◆ Markets are generally efficient when agent errors are independent-i.e. there is diversity of decision rules

How Do Opportunities Arise?

- ◆ Information advantage
- ◆ Analytical advantage
- ◆ Diversity breakdown

How Do Opportunities Arise?

- ◆ Information advantage
 - ◆ Possible but tough
 - ◆ Grossman/Stiglitz: “The Impossibility of Informationally Efficient Markets”

How Do Opportunities Arise?

- ◆ Analytical advantage
 - ◆ Quantify expectations
 - ◆ Interpret with best available tools

How Do Opportunities Arise?

◆ Diversity breakdown

◆ When agents all pursue the same strategy

- ☞ Information cascades
- ☞ Herding = when a large group of investors make the same choice independent of their own knowledge

◆ Results in booms and crashes (i.e., fat tails)

Conclusion

- ◆ The market is smart, but not because of “super smart” investors
- ◆ The shift from centralized to decentralized mindset adds perspective (and hopefully IQ points)
- ◆ Helps investors allocate time