Self-Organizing Markets And Time

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“Remember: no matter where you go... there you are.”

Buckaroo Banzai
Where Have We Been, Where Are We, And Where Are We Going?

I. Surface self-organization – 2D
II. Spatial self-organization – 3D
III. Market self-organization – 2D, 3D, 4D, and 5D
IV. Summary
Surface Self-Organization – 2D
What Is The Purpose Of This?

Penguins huddle for warmth and coordinate movements to and from the perimeter.

32.0 min
Players huddle to get information
There appear to be some huddling behavior here – what can we say about it?
Excepting a few outliers, the entire group lies within definite boundaries
How Does This Affect Buyers?

Quantity limits reflect buyer saturation; product forms define price limits.
How Does This Affect Sellers?

Producers need sufficient quantities and margins to keep learning and profits.
A chart like this exists for all large, mature stock markets every day.
Spatial Self-Organization – 3D
A tightly packed murmuration of starlings, a Sort Sol, protects itself from predators.
A squadron of F-117A fighters protects against predators
What Does This Have To Do With Markets?

1002 stocks, March 31, 2007
Market self-organization – 2D, 3D, 4D, and 5D
How Does Demand Change Over Time?

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Market start

Others enter

Customers need price reductions

Others enter

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2009 Electric Car Demand

2012 Electric Car Demand

2015 Electric Car Demand

2018 Electric Car Demand

Price

Models Sold

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What Keeps Any Model Selling?

When prices exceed costs, producers sell at a profit via sustainable disequilibrium: Production stops when costs exceed product values.
What’s Happening With Electric Cars?

In the same year, Value was a function of range and horsepower.

In 2013, the market had a Demand Frontier.

The 2D Demand Plane and the 3D Value Space share something in common.
4D systems use ordered quads about an origin of (0,0,0,0)
Adding Time To 4D Systems Turns Them Into 5D Systems

2012 Financial Opportunity Space (FOS), Value upper surface, Cost lower surface

2013 FOS

5D systems use ordered quads plus time, displayed as (0,0,0,0,T)
Electric Car Value Changed: In 2018, It Looked Like This

Value in 2018 was a function of horsepower, 0-60 time and seating capacity
The Demand Frontier’s slope (-0.30) mimics that of Aggregate Demand (-0.36), a phenomenon we see in mature markets.
Value goes up with added horsepower, down with slower 0-60 times
What If We Changed The Number Of Seats?

Going from 2 seats to 7 seats more than doubles the vehicle Value.
The Electric Car Market Has Self-Organized Its Value And Demand

Tesla Model X P100D: HP=762; 0to60=2.9; 2018 Qty=5143; 2018$ =$140K

It demonstrates flocking (for Value) and huddling (for Demand) behaviors
Summary

• Self-organization is common
  • Animals
  • People
  • Markets

• Demand Planes and Value Spaces
  • Self-organize
  • Share price axes to form 4D markets
    • Are linked, opposing, nonnegative systems (like Tug-of-War)
    • Can be altered by other factors

• Adding time to 4D systems reveals 5D systems
• Markets move over time, we need to map and analyze them