Rational Roots of Irrational Markets: Game Theory and Financial Bubbles

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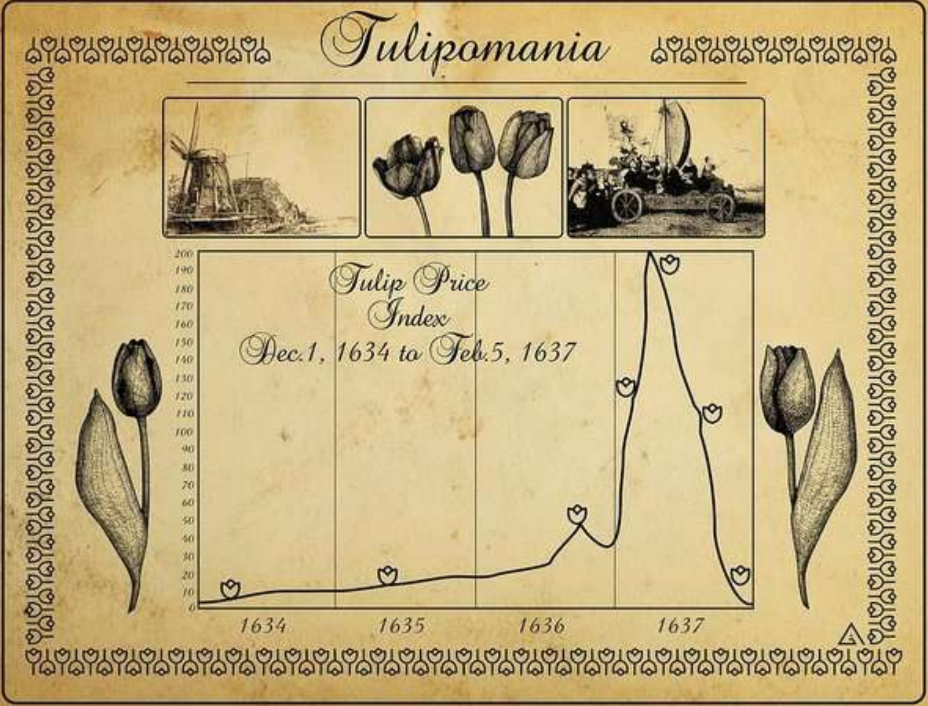
The Tulip Mania

- In 1637, The Dutch ruled the world as the most powerful and prosperous economy.
- Tulips, especially the rare "broken tulip" (with flame-like patterns), became a symbol of wealth and status.
- Tulips were seen as a surefire investment: buy low, sell high, and profit.
- The Viceroy tulip became the most prized variety.
- At its peak, one Viceroy tulip was traded for:

- 8 pigs, 4 oxen, 12 sheep
- 24 tons of wheat, 48 tons of rye
- 2 hogsheads of wine, 4 barrels of beer
- 2 tons of butter, 1,000 lbs of cheese
- A silver cup, clothes, a bed with bedding, and even a ship!

Bubble Bursts

- Stock traders jumped in, believing prices would rise forever.
- People bought tulips on debt, assuming the frenzy would never end.
- Reality hit: ”Max Stupid” was reached.
- Debts came due, and no one wanted to buy tulips at inflated prices.
- The market collapsed, leaving many bankrupt.


Tulipomania
Tulip Price Index
Dec.1, 1634 to Feb.5, 1637
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1634
1635
1636
1637

Bubbles that Burst

- History Repeats Itself
  - We've seen countless bubbles:
    - The Dot-com Bubble of the late 1990s.
    - The Startup Bubble of the 2010s.
    - The NFT Craze of the 2020s.
- The Big Question
  - Why do bubbles form?
  - Why do they inevitably burst?
- What's Next?
  - This talk will dive into game theory to uncover:
    - The psychology behind speculative frenzies.
    - The strategies that drive bubbles.
    - The tipping point when rationality returns.

Rationality

Rationality

Most of economics runs on the assumption that all involved agents are rational. After all, with money on the line, who wouldn't be?

- "Do the best you can given how you perceive the game and how you evaluate its various possible outcomes."
- In theory…but in practice?

Advertising War: Coke vs. Pepsi

- Without any advertising, each company earns \$5b/year from Cola consumers.
- Each company can choose to spend \$2b/year on advertising.
- Advertising does not increase total sales for Cola, but if one company advertises while the other does not, it captures \$3b from the competitor.

	No Ad	Ad
No Ad	\$5b, \$5b	\$2b, \$6b
Ad	\$6b, \$2b	\$3b, \$3b

- What will the Cola companies do?
- Is there a better feasible outcome?

Laws of Game Theory

- First Law of Game Theory: We never play strictly dominated strategies!
- Second Law of Game Theory: Rational Choice may lead to outcomes which suck.

Connection to Prisoner's Dilemma

This is clearly just another version of the Prisoner's Dilemma. But we know that people do solve the Prisoner's Dilemma in real life all the time. So why? I'll leave that as a question for you to explore.

Hint: Look for repeated interactions!

Best Response

Best Response

When I am getting ready to reason with a man, I spend one-third of my time thinking about myself and what I am going to say, and two-thirds about him and what he is going to say.

—Abraham Lincoln

Cocaine Oligopoly

From one coke to another, cocaine is controlled by oligopolies. Let's work with a small case: two cartels have about 100 tons each. Let's say the cost per gram is $200 - q_1 - q_2$, where q_1 and q_2 are the amounts of cocaine the cartels(in tons) let into the market. Here, 200 is just a constant representing the maximum someone will pay per gram(in USD).

- Drug dealers and consumers don't have much brand loyalty; they buy the cheaper cocaine.
- Each firm has revenue: $10^5 \cdot q_i(200 - q_1 - q_2)$.
- Cost to produce a ton of cocaine is \$1000, so profit is: $10^5 \cdot q_i(200 - q_1 - q_2) - 1000q_i$.
- What does the price converge to?

Best Response Analysis

Let's say if my opponent is producing q_2, my best response is to produce q'_1. Using simple differentiation, for a given q_2, cartel 1's best response is:

$$q_1 = 50 - \frac{q_2}{2} - \frac{1}{200} \text{ tons of cocaine.}$$

If cartel 2 shuts down, the monopoly production is still just short of 50 tons.

The same analysis can be made for q_2, yielding a similar equation. If they keep adjusting prices, they will eventually converge to a point called the Nash equilibrium, where no one can do better by unilaterally changing their strategy.

This is called the Cournout Price!

Applications of Nash Equilibrium

- Competitive pricing and differentiation.
- Buying on a line.
- Voting theory.

Example: Political Candidates

- Candidates choose a platform (left to right).
- Voters are (may not be even) spread out along an ideology line.
- Simultaneous announcements of position (1 to 100).
- Voters go for the closest candidate.
- Play to win the election!

Median Voter Theorem

Proof.

- Suppose not.
- Without loss of generality, suppose that p_1 has more votes than p_2 and that $p_1 < b_{median}$.
- Then p_2 will deviate and instead choose $p_2 = p_1 + \varepsilon$, with ε small, so that $p_2 < b_{median}$.
- From single-peakedness, all the voters with ideal points in the interval $[p_2, \infty)$ prefer p_2 to p_1.
- Since $p_2 < b_{median}$, this is more than half of the voters.
- So p_2 would win, and thus would prefer to deviate.So it is not an equilibrium for p_1 to win with $p_1 < b_{median}$.
- Thus the only equilibrium where there is no profitable deviation is $p_1 = p_2 = b_{median}$.

□

Applications of Nash Equilibrium

As we proved, the median voter's position is dominant:

- Intuitively, this is true as you cannot lose; there are equal numbers of voters on either side.
- This is why parties often become almost identical in ideology, with small differences in execution.
- Why doesn't this always happen? That's deeper voting theory, which we won't cover today.

More Applications

- Firm location (Hotelling, 1929).
- Product positioning (Lancaster, 1966).

Simple Retelling: Beach Vendors

- Firms (beach vendors) choose a location.
- Consumers are evenly spread out along a line (0 to 100).
- Prices are fixed (say, $1).
- Consumers buy from the closest vendor.
- Firms locate to maximize sales!

Commoditisation

- "Commoditisation" is a long word but a simple concept.
- You've encountered it when walking down the cereal aisle and discovering four different brands of corn flakes.
- Or when shopping for a new TV at Best Buy and staring at 50 indistinguishable black sets, all playing the same Pixar film.
- It's when there ceases to be any noticeable difference between competing products.
- As we saw, Commoditisation reduces profit by bringing prices to Cournout Prices. If we can avoid direct competition, we can charge monopoly prices.

Branding can solve this problem. Explore the candidate-voter model and branding on a line for more insights.

Microsoft Interview Question

Here's an extremely hard question that Microsoft asked for years, only to realise it was wrong(and much harder) recently:

Suppose a game host comes to you with the following challenge: They will choose a number between 1 and 100. During each turn of the game, you (the guesser) gets to guess a number. The host will then answer that their number is equal to, less than, or greater than the number you guessed. During the game, you will guess numbers until you get to the host's number – if your first guess is right, you get $5, then $4, and so on until $0, then -$1, and so on.
Should you accept this challenge?

Nash Equilibrium

Coming back to our topic, Nash Equilibriums are these magical stalemate points. The formal definition is:

Definition

Given a strategy profile $a_1, a_2, a_3, \ldots, a_n$; $b_1, b_2, b_3, \ldots, b_n$ and onwards for agents,

WLOG, $(a_1, b_1, c_1, \ldots)$ is a Nash equilibrium if and only if:

$$U(a_1 \mid b_1, c_1, \ldots) \geq U(a_i \mid b_1, c_1, \ldots) \quad \forall i$$

and the same for b and c and so on.

Why are we interested in Nash Equilibriums?

- It always exists* (John Nash, 1950)
- Easy to find
  - For us
  - For firms (given enough time)
- It is stable
- A tool for out-of-sample predictions
- A criterion for investment decisions
  - What if demand ↑ or ↓?
  - What if one firm cuts its costs?
- They leave players with no regrets: A player can't do better by changing strategies if everyone else plays the same way.
- They are self-fulfilling and self-adjusting.

Limitations of Nash Equilibrium

- Equilibrium does not mean optimal!
- Many interesting games have more than one Nash Equilibrium!

Why the * in ”Always Exists”?

Consider this example:

- Two friends want to take the same class.
- They are math majors, so they lack communication skills.
- They can choose between ”Proof and Types (PNT)” or ”Measure Theoretic Probability (MTP)”.
- Their payoff matrix:

	PNT	MTP
PNT	(2,1)	(0,0)
MTP	(0,0)	(1,2)

There is no pure strategy Nash equilibrium. However, if A chooses PNT with probability p and MTP with probability $1 - p$, then we can solve for p to find a mixed Nash equilibrium.

Mixed Strategy Nash Equilibrium

- A Nash equilibrium does not always mean choosing just one option.
- It can be a probability distribution over options.
- This is called a mixed equilibrium, and it always exists.
- The reason for existence is due to Brouwer's Fixed Point Theorem(and hence will not be covered).
- Although the algorithm to find it is much simpler, just assign probabilities to all non-dominated choices of A and solve so that B's choices are equal. It is a bunch of linear equations really.

Application: Sports Statistics

- Mixed equilibria are useful in sports statistics, especially for discrete sports.
- Studies exist on tennis, badminton, and penalty kicks.
- However, there is little research on cricket.
- We’ll see a poker theory example later down the line.

Experiment: Investment Decision

- You have a binary choice: invest 100 rupees or not.
- If 90% invest, you get 150 rupees (payoff: 50 rupees).
- If fewer invest, the investment fails and you lose 100 rupees.
- There are two equilibria: everyone invests, or no one does.
- The first is Pareto dominant, but we often converge to the bad equilibrium.

Coordination Games and Bank Runs

- This is a Coordination Game.
- Example: Bank runs.
- Banks rely on depositors not withdrawing money simultaneously.
- A loss of trust can trigger massive withdrawals, leading to collapse.

Historical Examples of Bank Runs

- "It's a Wonderful Life" illustrates a bank run.
- More recently:
  - Northern Rock(2012): First British Bank run in 150+ years
  - Silicon Valley Bank(2023): 42 billion dollars withdrawn in a day. Got acquired later.
  - FTX Collapse(2022–2023): 6 billion dollars withdrawn within 72 hours. No real recovery.
  - And we are still getting data on this one, Celsius's 12 billion dollar collapse(2024).

FTX Case Study

- FTX was a crypto exchange founded by former Jane Street trader and MIT alumnus Sam Bankman-Fried (SBF) in 2019. It quickly became one of the largest crypto exchanges in the world, valued at $32 billion at its peak.

- Alameda Research, FTX's sister company, was founded in 2017 and led by Caroline Ellison, a former Jane Street trader and Sam's romantic partner.

    - Alameda functioned as a crypto hedge fund and market maker.
    - It played a key role in providing liquidity to FTX and executing complex arbitrage strategies.

FTX Case Study

- FTX stored customer funds in its own token (FTT) and heavily relied on it for collateral:
  - FTT was an exchange token issued by FTX, meant to provide trading fee discounts and other benefits.
  - A significant portion of FTX’s assets were tied up in FTT, making it vulnerable to market fluctuations.
- Binance, an early investor in FTX, withdrew its investment in 2021 after tensions grew between SBF and Binance’s CEO, Changpeng "CZ" Zhao.
  - Binance received a large amount of FTT as part of the buyout deal.
  - In November 2022, a leaked Alameda balance sheet revealed that much of its assets were FTT-based, raising concerns about FTX’s solvency.

FTX Case Study

- CZ announced that Binance would liquidate its remaining FTT holdings, sparking panic in the market.
    - This triggered a bank run as investors rushed to withdraw funds from FTX.
    - FTX struggled to meet withdrawals, as customer deposits had been loaned out to Alameda.
- Liquidity Crisis and Collapse:
    - FTX halted withdrawals, confirming fears of insolvency.
    - SBF sought emergency funding, even approaching Binance for a bailout.
    - Binance initially considered acquiring FTX but backed out after conducting due diligence, citing "mishandled customer funds."

FTX Case Study

- The final blow came when the Coin Desk audit confirmed FTX had misused customer funds and engaged in risky, undisclosed loans to Alameda.
  - Alameda had borrowed billions of dollars from FTX to cover its losses.
  - FTX executives allegedly used a secret backdoor to move customer funds without triggering accounting alerts.
- Salt on wounds…
  - FTX had invested $500 million in AI startup Anthropic, which later surged in value.
  - If SBF had managed to restore trust and survive the crisis, not declare bankruptcy, this investment could have been a financial lifeline.

Sequential Games

The hat game

- Let's play another game. I will pass a cap.
- The first person can keep either no money, 10 rupees or 50 rupees in it. And then pass it to the second person.
- The second person can look in the cap and decide to take the money or match the amount.
- I take the cap then. If it has 20 rupees, I give each of you
  25. If I see 100, I give you both 95 each.

Due to my inability to fit a tikz diagram in a slide, we will make the game tree on the board!

Morel Hazard

- Here is the problem, adding 50 each has the best payoff. But player 1 is afraid of player 2 getting greedy.
- By throwing in a 10, to begin with, they reduce their own payoff, but lose the risk of losing all the invested capital. This game in ways is similar to venture capital investment.
- This is called a morel hazard.

- The classic problem is car insurance. What should the the terms be so that you don't mistreat your car?
- This process is called incentive design. If we change the payoffs in such a way that it is no longer a good idea to mistreat your car, well people won't.

Let's look at what all we need to consider here

- p = insurance premium
- r = recovery if car crashes
- c = cost of car
- ρ = probability of a car crash given you were driving recklessly
- κ = probability of a car crash given you were driving carefully

Are these enough?

No. To model life well, we need to put some bounds here

- $\rho > \kappa$ because reckless driving should have a higher chance of accident.
- $r > p$ because if the premium is more than recovery in case of crash... well thats a policy no one is taking.

To prevent me from needing to type monstrous math, we shall move to the black board now.
These kind of analysis are studied a lot in contract theory and policy design. You will also see them appear time and again in risk management and investment work.

Recap

A sequential game is:

- Decision nodes
- Action edges
- Terminal payoff

Backward induction procedure:

- start at the terminal decision nodes in the game tree, and determine what players there choose.
- work backwards through the tree, where at each stage players anticipate how play will progress.
- This results in a (usually) unique prediction called a subgame-perfect equilibrium (a "special" Nash eq.)
- Note perfect rationality has been assumed.

Extended example: Boomer Snap

In Marvel Snap, there is an advice often given NEVER BOOMER SNAP.

First, some context. Marvel Snap employs poker-like betting mechanics. Players enter a match wagering 1 point and can "Snap!" on any turn to double their wager. Their opponent is given the option to either match the raise, or to retreat and forfeit the pot. Additionally, the game will always double the wager on the final turn. If you snap on this final turn, you are effectively re-raising to quadruple your wager. This is the notorious "boomer snap".

- Suppose both players can see their opponents' cards and are perfect probability computers. They still do not see the results of any future randomness, like dice rolls or card draws, but can compute all probabilities.

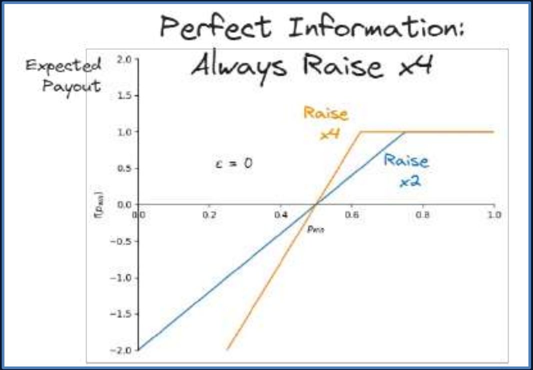
  We can describe the game as:

  - There are two players, A and B.
  - The game is zero-sum, so B's payout is the negative of A's payout
  - The stake is initially set to 1
  - Both players know the probability of A winning, P(win)

  The nodes of decision tree are:

  - A: Call, Fold or Raise
  - B: Call or Fold

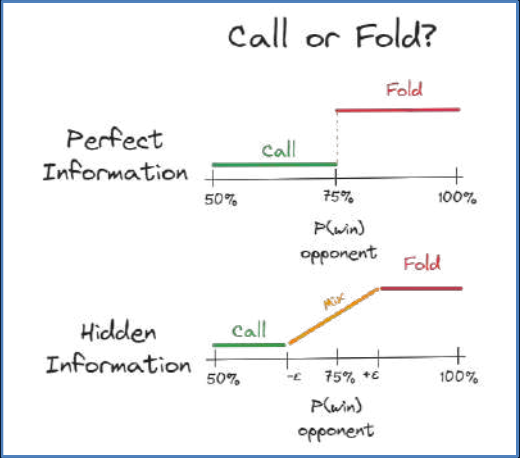
To prevent me from needing to type math, we shall move to the black board now.



Why is then boomer snap bad?

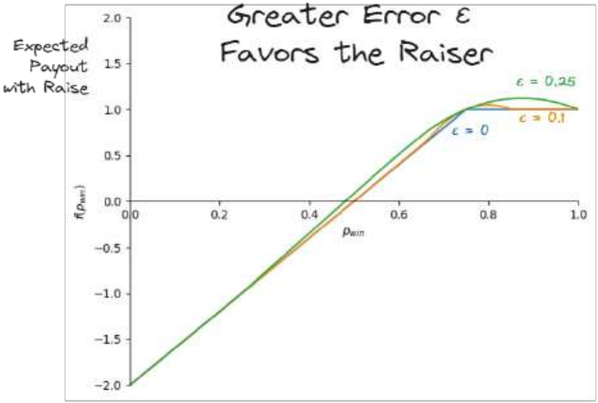
- Of course, Marvel Snap is not a perfect information game. Opponents cannot see the cards in your hand. Additionally, players are not perfect computers. They might misjudge the situation and miscalculate P(win), which can be interpreted as hidden information. Given the variety of cards and decks, Snap seems to have even more hidden information than Poker. Let's add this to our model.
- Both players perceive $\hat{p}$(win), a noisy signal for P(win)
  - $\hat{p}$(win) is in the range [P-ε, P+ε], uniformly distributed
  - ε is the error term. Larger values of ε represent more hidden information
  - Note that $\hat{p}$(win) is unbiased. The expected value of $\hat{p}$(win) is the true value P(win). Payouts are still calculated based on P(win)

Boomer Snap

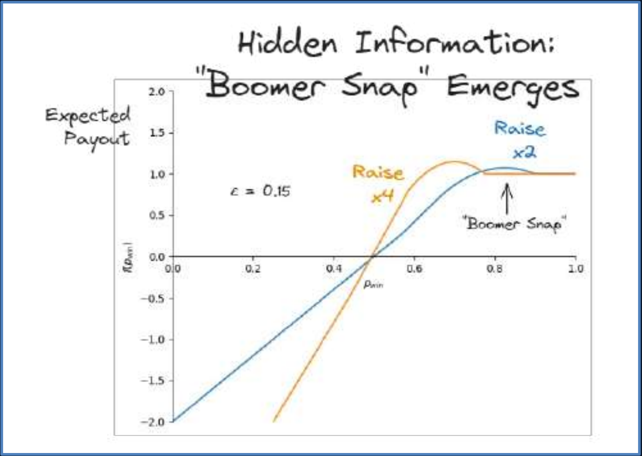


Call or Fold?
Fold
Perfect Information
Call
50%
75%
100%
P(win) opponent
Fold
Mix
Hidden Information
Call
50%
-ε
75%
+ε
100%
P(win) opponent

Boomer Snap


Greater Error ε
Favors the Raiser
Expected
Payout
with Raise
ε = 0.25
ε = 0.1
ε = 0
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
p_{win}
$f(p_{win})$

Boomer Snap



Hidden Information:
"Boomer Snap" Emerges
Expected Payout
Raise x2
Raise x4
ε = 0.15
"Boomer Snap"
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0

Boomer Snap

- This explains the infamous Boomer Snap! When your P(win) is very high, you should not raise too much. Better to give your opponent the rope to hang themselves. This again mirrors conventional wisdom from poker, where you should try to lure your opponent in rather,
- Notably, this also suggests there is a correct time to boomer snap – if your P(win) is close to 62.5%(in our model), you have a lot of potential to gain from a x4 raise, as it will encourage opponents to fold decent hands.
- But this is also not a complete model? What are some hidden assumptions and simplifications we are making?

- Signals: Bets and play patterns signal about your hand state, which in-turn update the p(win) in a Bayesian fashion. While we will not talk about signalling here, note Spence's education game is a good introduction.

- Asymmetric information. We assumed that both players had the same error ε. However, if your opponent has more information than you, then that further muddies the decision. This scenario often arises, as one player may have played more cards to create a winning board state, but the other player may have more cards in hand or have been preparing a powerful combo for the final turn. 'Market for Lemons' by Akerlof is a great start to talk about such asymmetric scenarios.

- Raise error. As we'll see going forward, people are not perfectly rational. They make irrational decisions for many reasons.

- Multiple turns. Our model was a single turn affair, but betting in Snap occurs over multiple turns. In Snap, you can only "snap!" once in the whole game. A boomer snapper held onto their one snap until the final turn. If they have a dominant lead, they likely should have snapped earlier. This is similar to poker, where strong hands will push repeated small raises rather than a single aggressive raise.

- Curiosity calls. In an extended affair like a poker tournament, it is sometimes be valuable to pay for information on your opponent's play style. Similarly, many competitive snap players do Boomer snap and take up boomer snaps just to understand their opponents better.

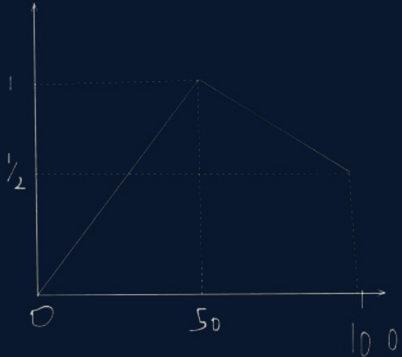
Note: Spence and Akerlof along with Stiglitz got the 2001 Nobel for the mentioned works.

Other than that, such analysis is part of an intersection field of Probability, combinatorics, behavioural psychology and Game theory called Poker Theory

Bubbles

Schelling's Model

- There are two towns E and W
- There are two types of people, +'s and -'s.
- Every town has 1000 people, and every town can hold 1000 people.
- The utility function of pluses and minuses is based on population of people in the same sign in their town.
- We can let the utility function be like the graph!



- As we can see the people are not sign-ist.
- They just prefer to not be the minority which is justifiable.

Rules contd.

- Let’s say we play a game every turn. Every person decides which town they wish to live in simultaneously.
- If more than 1000 people choose a town, a random 1000 of them are allowed to be there and other are send to the other town.
- What do we observe here?

Discussion

- As we can see, agents who were not sign-ists happened to get segregated on the basis of signs.
- This is called the Schelling Model of Segregation which brings up the possibility that observation of segregation doesn’t imply preference of segregation.
- It was proposed by Thomas Schelling who shared a Nobel prize with Robert Aumann in 2005.
- While not relevant here, Aumann’s work on game theory on peace and war is extremely interesting and essential to policy design.
- Coming back to the model, what are the Nash Equilibriums here?

Discussion Contd.

- The easiest to notice is when all + are in E and - in W and vice verse.
- The other(which Pareto Dominates) is 50% + in E and 50% - in W.
- The hardest ones to observe are if all people try to go to E and are distributed randomly and if all people try to go to W and are distributed randomly.

- Note: The last one is not something that really happens. It is induced by our method of modelling. We should be aware of such things when modelling the world!

As you can notice, and subsequently prove, reducing the sign-ism tendency to say 33% or 25% or 5% or even some value just above 0, doesn’t work.

So does this imply we will remain segregated no matter what? Not really. Another error of this model is the fact that all agents know everything about the population ethnic's of their and the other city.

In reality, we can only be sure about our neighbours.

Another model

- Schelling's original model was much simpler.
- The model was a cellular automaton with cell's of two colours on a n by n grid.
- If a cell had less than k% neighbours of a given colour, they would move to another empty square which was more feasible. But agents would never move unless this condition was triggered.
- While the formal proofs came quite late(and were quite technical), even 33% was enough to cause segregation.
- An excellent resource for this and policy methods to solve this is Vi Hart and Nicky Case's polygons simulation.

Another model

- We didn’t begin with the automata model as while it is older, much of its data is from simulations and not formally proven.
- Secondly, ever since social media has become more common, we are getting a resurgence in casteism and segregation. Well, social media does make our model seem less hypothetical as we do have information on what are the population statistics of the other regions and all.
- But one has to ask, what does this have to do with Bubbles?

The Trend of Trading

- This section is based on Russell Golman, Aditi Jain, Sonia Saraf(CMU) 2021.
- The trading equivalence is by Arjun Maneesh Agarwal and Ryan Hota.
- Trading is just like fashion!
    - In fashion: Wearing trendy styles provides social acceptance and status.
    - In trading: Following the market trend (momentum trading) ensures short-term gains and reduces risk.
- However,
    - In fashion: Innovating or adopting trends early creates a unique identity and sets new trends.
    - In trading: Exiting before the trend reverses or identifying undervalued assets gives a competitive edge.

The Fashion Game

- We model the expression of social identity as a game played by a population of N individuals. Let us say there are d aspects (or dimensions) of identity. Each person i chooses an expression of his identity xi ∊ {a..b}^d , i.e., represented as a tuple of d integers from some interval. For example, in the case of choosing a colour to wear, three integers between 0 and 255 might correspond to shades of red, green, and blue that mix together to form any colour.
- We define the utility of an agent to be

$$u(x_i) = -\|x - x_i\| - \lambda n(x_i)$$

Discussion

- Here $||x_i - x||$ is the distance of your choice from the mean choice of everyone else. $n(x_i)$ represents the number of people who have the same choice as you. λ is a coefficient to show how affected you are by it.
- Every player keeps changing their xi to get better payoffs.
- As it turns out, we can prove that this game converges to a Nash equilibrium. But that would mean some people would always follow a trend and others never follow it. This is false from our experience in fashion and finance.

Discussion contd.

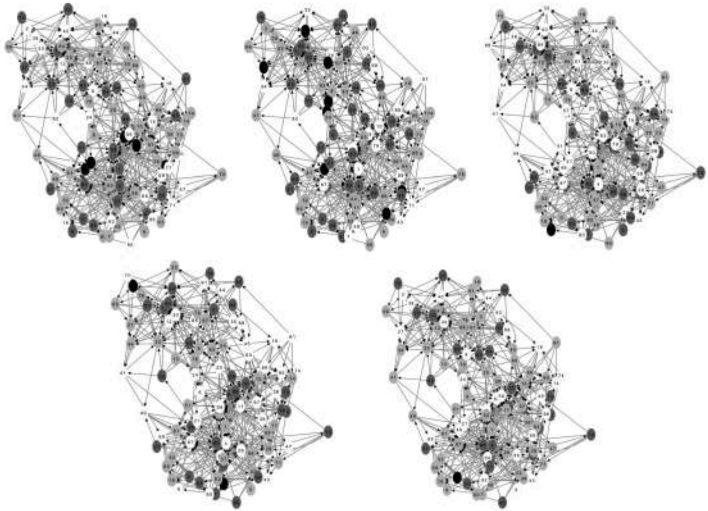
- Similar to Schelling's model, we don't really know about everyone else.
- We know about people close to us. People we follow on social media in fashion and other investors we talk with in finance.
- This means our formula should only talk about only our neighbours.

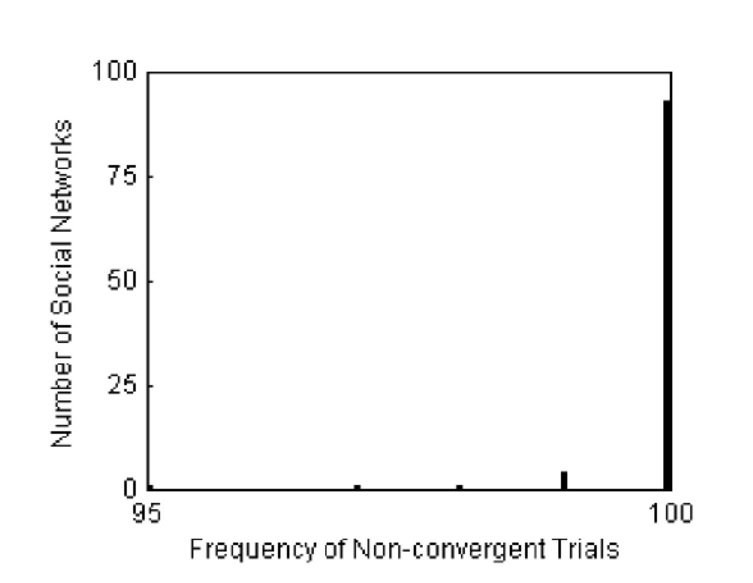
$$u(x_i) = -||x_i - x_{\eta(u)}|| - \lambda n_{\eta u}(x_i)$$

- Here, n(u) is the set of neighbours of u.
- And this much, is enough for there to exist networks with no Nash equilibrium. The proof is by construction, can anyone get it?

Discussion contd.

- With only local interactions in a social network, perpetually changing identity expression and popularity cycles become possible.
- However, our construction was highly pedagogical.
- It does not tell us whether complex social dynamics typically emerge from our model when people are connected by realistic social networks.
- While obtaining a formal proof of this is much harder(and open), we can use computational modelling to get an idea. This is the same set of issues as Schelling's automata.
- We need to make some changes here to fit a financial market. I shall do them on the board.





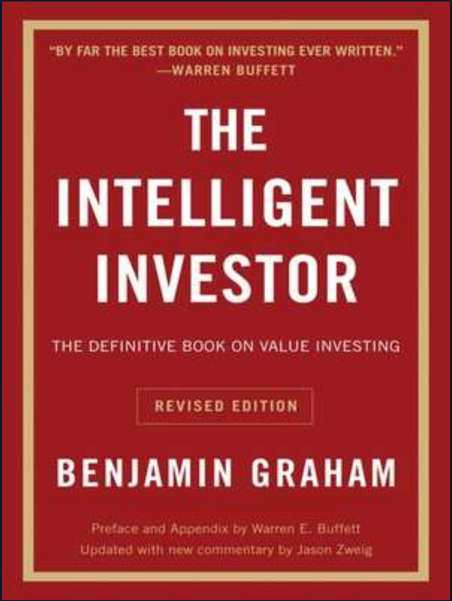
100
75
50
25
0
95
100
Number of Social Networks
Frequency of Non-convergent Trials

Discussion contd.

- We also notice that despite starting with 200 choices for identities, the individual have almost all chosen the same 3-6 identities.
- This is true both sides. Despite many trends coming and going, people still wear Polo’s.
- Similarly, despite market ups and downs, Tata, ITC etc are always dependable investments.
- Finally, We can now begin to understand the role of networks and local interaction. Popularity cycles(bubbles), perpetual change(bursts), and novel expressions(arbitrages) of social identity(makes) should be expected when people observe their neighbours in realistic, directed social networks and care about being unique(not being the last man holding the dollar) as well as fitting in(riding the momentum).

Conclusion

Conclusion



"offshore"
"the opportunity of a lifetime"
"prime bank"
"This baby's gonna move."
"guaranteed"
"You need to hurry."
"It's a sure thing."
"our proprietary computer model"
"The smart money is buying it."
"options strategy"
"It's a no-brainer."
"You can't afford not to own it."
"We can beat the market."
"You'll be sorry if you don't . . ."
"exclusive"
"You should focus on performance, not fees."
"Don't you want to be rich?"
"can't lose"
"The upside is huge."
"There's no downside."
"I'm putting my mother in it."
"Trust me."
"commodities trading"
"monthly returns"
"active asset-allocation strategy"
"We can cap your downside."
"No one else knows how to do this."

We hear this, about every thing nowadays!
So is the greatest book on investing just wrong in 21st century?

Conclusion

Over centuries, we've seen people—smart people, rich people, entire economies—fall for the same trap. Whether it was tulips, dot-com stocks, crypto, or AI, the game has always been the same: hype inflates, logic evaporates, and then—boom—gravity wins.

So, what's the lesson here? Markets aren't rational. People aren't rational. But you? You can choose to be.

Game Theory and the Art of Not Being an Idiot

- Every Bubble Has a Max Stupid Point – When prices stop being about value and start being about speculation, you're playing chicken with reality. Don't be the last fool holding the bag.
- Rationality ≠ Profit – Just because you're making money doesn't mean you're being smart. The smartest people in history have lost fortunes thinking they're invincible.
- The Crowd is Often Wrong, But That Doesn't Mean You Should Be a Contrarian for the Hell of It – Sometimes, the herd is running towards a cliff. Sometimes, they've actually found a good thing. Your job? Know the difference.
- Understanding the Game is More Important Than Playing It – Everyone wants to win, but few understand why the game works the way it does. Study incentives. Study behavior. That's where the real power is.

Conclusion contd.

I am sure some of you want to tell me that "Crypto is the future" or "AI is not a bubble" or "Have fun staying poor!", and I want to tell you to beware.

But if you feel this was all too much ado about nothing, then well I have a tulip to sell you!

PS: Keep Playing the Game

Game Theory, market design, poker theory, contract theory, incentive design, voting theory, mathematical economics, and behavioural finance are gold mines of useful insights. If today made you think, dive deeper. Because the more you understand the game, the better your odds of not getting played.

Thank You!

Questions? Arguments? Outrage? Bring it on.