

Game Theory 4:

Personal Finance & Career Strategy



GAME OF GAINS

Financial Game Theory

The Mechanics of Choice

- **Opportunity Cost:** The value of the next best alternative forfeited when a choice is made. In financial games, every dollar spent on consumption is a dollar removed from the potential of investment.
- **The Self-Game:** An interaction between the "Present Self" (consumption) and "Future Self" (savings). This is modeled as a dynamic game where the Present Self chooses whether to "Cooperate" (save) or "Defect" (spend), impacting the Future Self's payoff.
- **Hyperbolic Discounting:** The tendency for the Present Self to overvalue immediate rewards over much larger future rewards, often leading to sub-optimal long-term financial outcomes.
- **Sunk Cost Fallacy:** The irrational tendency to continue an endeavor (like a bad investment) once an investment in money, effort, or time has been made, rather than cutting losses.
- **Utility Maximization:** The strategic goal of the player to allocate resources in a way that provides the highest possible level of satisfaction or "utility" over their lifetime.

Strategic Timing and Compounding

- **First Mover Advantage:** In personal finance, early investment allows compounding to generate a payoff that late-starters cannot mathematically replicate.
- **Time Value of Money:** The principle that money available now is worth more than the same amount in the future due to its potential earning capacity.
- **The Cost of Delay:** Because compounding is exponential, missing the first few "rounds" of the investment game significantly reduces the final terminal payoff, regardless of later effort.
- **Strategic Inertia:** Using automation (like 401k contributions) to "pre-commit" to a savings strategy, effectively removing the choice from the Present Self's move set.
- **Risk Tolerance Profile:** The "player type" definition that determines how much volatility a player is willing to accept in exchange for higher potential payoffs in the terminal nodes.
- **Diversification Strategy:** A "mixed strategy" approach where a player spreads resources across various assets to reduce the impact of a "Defeat" in any single investment branch.
- **Inflation Risk:** The invisible "opponent" in the financial game that erodes the purchasing power of cash payoffs over time if they are not invested in growth assets.

The Bargaining Zone (ZOPA)

Defining the Negotiating Space

- **Reservation Price:** The absolute "Walk-Away" point for a buyer (maximum) or seller (minimum). Any deal outside this price results in a negative utility for that player.
- **ZOPA (Zone of Possible Agreement):** The overlapping range between the buyer's maximum and the seller's minimum.
- **Surplus:** The "extra" value created by the deal. Negotiation is essentially a game to determine how the surplus within the ZOPA is divided between the two parties.
- **Negative ZOPA:** A situation where the seller's minimum is higher than the buyer's maximum. In this scenario, no rational deal can be reached, and the game ends in a walk-away.
- [visual definition] A ZOPA Diagram is a linear model that visualizes where two negotiating parties' price ranges overlap, representing the area where a deal is mathematically possible.
- [visual] A line showing the Buyer's Range (Max 60k) and the Seller's Range (Min 50k), with the overlap (50k to 60k) highlighted as the ZOPA.

Case Study: 2023 Hollywood Writers' Strike

- **Initial Conflict:** Studios and writers began with a Negative ZOPA, as the studios' maximum offer for streaming residuals was below the writers' minimum requirement for a living wage.
- **Dynamic Shift:** Negotiations stalled until the studios' Reservation Price shifted due to production losses, finally creating a ZOPA.
- **Outcome:** As the cost of "No Deal" increased for the studios, their reservation price rose, eventually overlapping with the writers' demands to allow for a signed contract.

The Salary Negotiation Game

Psychological and Strategic Anchoring

- **Anchoring:** The tendency to rely heavily on the first piece of information (the "anchor") offered during a decision-making process.
- **The First Move:** In salary games, the first number mentioned often dictates the boundaries of the remaining negotiation.
- **Strategy:** Applicants use high anchors to shift the negotiation range toward the upper limit of the employer's budget.
- **Adjustment Bias:** Once an anchor is set, the opposing party typically "adjusts" away from it, but rarely adjusts far enough to negate the anchor's original influence.
- **Range Anchoring:** Offering a range (e.g., \$95k–\$105k) rather than a single point; the lower end acts as a firm anchor while appearing flexible.

Advanced Negotiation Tactics

- **Aspiration Point:** The ideal target outcome a player hopes to achieve, usually set significantly higher than the Reservation Price.
- **Information Asymmetry:** A situation where one player (usually the employer) has more information about the "market rate" than the other, creating a strategic advantage.
- **Counter-Anchoring:** The tactic of ignoring the opponent's first offer and immediately proposing a different anchor to "reset" the ZOPA's perceived center.
- **Precise Anchors:** Using a specific number (e.g., \$92,500) rather than a round number (\$90,000) creates a psychological "Signal" that the applicant has done extensive research.
- **BATNA (Best Alternative to a Negotiated Agreement):** The strongest "Stay Out" option a player has; having a strong BATNA increases a player's bargaining power and raises their Reservation Price.
- **Bundling:** A strategy where a player introduces non-monetary payoffs (like remote work or extra equity) to expand the ZOPA when the salary "branch" is at a stalemate.
- **Silence as a Move:** Utilizing strategic pauses after an offer is made to force the opponent to "move against themselves" by offering a concession to fill the void.
- **The "Flinch":** A physical or verbal reaction to an initial offer designed to signal that the anchor is outside the player's acceptable range, triggering an immediate adjustment.

Trust & Credibility

Communication in Games

- **Cheap Talk:** Communication that does not directly affect payoffs and lacks a cost for lying. In a one-time interaction, "Cheap Talk" is often ignored by rational players.
- **Signaling:** An action that carries a cost, used to prove a player's "Type" (e.g., a high-quality applicant with an expensive degree).
- **Reputation:** The historical record of a player's past moves, used by others to predict future behavior in repeated games.

The Evolution of Cooperation

- **Repeated Games:** Unlike one-off interactions, games that are played multiple times allow for the "Tit-for-Tat" strategy, where players reward cooperation and punish defection.
- **The Shadow of the Future:** The degree to which players value future interactions. When the "shadow" is long, players are more likely to act honestly.

Case Study: eBay Reputation

- **Context:** Online transactions between strangers suffer from the risk of "Moral Hazard" (the seller taking the money and not shipping).
- **The Solution:** Repeated interaction turns a one-time game into a long-term game where a high reputation score acts as a "Signal" of a cooperation strategy.
- **Market Impact:** Sellers with high scores can charge a premium because their "Signal" reduces the risk for the buyer, turning trust into a financial asset.