## **1-Hour Lesson Plan: Unhedged Podcast – "The Secret Giant of Finance"**

**Podcast Episode:** "The secret giant of finance" (Unhedged podcast, FT) **Date:** July 11, 2025 (as per transcript context) **Overall Goal:** To understand the role and operations of modern trading firms like Jane Street, the complexities of market manipulation, and the broader implications for financial markets and regulation.

### **Part 1: Jane Street – The "Secret Giant" (15 minutes)**

**A. Introduction to Jane Street (5 minutes)**

* **Podcast Context:** The podcast opens with a "spicy little scandal" involving Jane Street and the Indian regulator.
* **Key Question:** Who is Jane Street, and why are they so significant?
* **Notes:**
  + **What they are:** A trading firm, primarily a **market maker**.
  + **Role of a Market Maker:** Buys and sells securities to provide liquidity, ensuring there's always a buyer when you want to sell and a seller when you want to buy. They make money on the "bid-ask spread."
    - **Bid Price:** This is the price at which the market maker is willing to **buy** a security from you (the highest price a buyer is willing to pay).
    - **Ask Price (or Offer Price):** This is the price at which the market maker is willing to **sell** a security to you (the lowest price a seller is willing to accept).
    - The **spread** is the difference between the ask price and the bid price (Ask - Bid). The market maker buys at the lower bid price and sells at the higher ask price, profiting from this small difference on each transaction.
    - **Example:** If a market maker bids $100.00 for a stock and asks $100.05, the spread is $0.05. If they buy a share from one investor at $100.00 and immediately sell it to another investor at $100.05, they make $0.05. Over millions of trades, these tiny profits add up significantly.
  + **Scale:** "Huge," went from ~$2bn trading revenue (2018-19) to over $20bn last year. Made more money than Morgan Stanley in Q1 this year, close to Goldman Sachs.
  + **Origin:** Started trading American Depositary Receipts (ADRs), then branched into Exchange Traded Funds (ETFs).
    - American Depositary Receipts (ADRs)
      * **What they are:** An **American Depositary Receipt (ADR)** is a certificate issued by a U.S. depositary bank that represents a specified number of shares (or one share) of a foreign company's stock.
      * **Purpose:** ADRs allow U.S. investors to buy shares of foreign companies on U.S. stock exchanges (like the NYSE or Nasdaq) without having to directly trade on foreign exchanges.
      * **How they work:** The foreign company's actual shares are held by a custodian bank in the company's home country. The U.S. depositary bank then issues ADRs in the U.S., which are denominated in U.S. dollars and trade just like shares of U.S. companies.
      * **Benefits:** They simplify foreign investment for U.S. investors by:
        + Trading in U.S. dollars.
        + Clearing and settling through U.S. systems.
        + Making foreign company financial information more accessible (often in English).
        + Avoiding foreign exchange complications for individual investors.
      * **Podcast Context:** Jane Street started by trading these, indicating their early focus on facilitating cross-border investment.
    - An **ADR** is a way to buy a **single foreign stock** on your local exchange, while an **ETF** is a way to buy a **diversified portfolio** of assets (which could include ADRs or foreign stocks) with the ease of stock trading.
* **Prompt for Understanding:**
  + *Imagine you want to buy a share of Apple. How does a market maker like Jane Street facilitate that transaction? What's their incentive?*

Okay, let's imagine you want to buy a share of Apple stock and how a market maker like Jane Street would facilitate that transaction.

### **How a Market Maker Facilitates Your Apple Stock Purchase:**

1. **You Place Your Order:** You go to your brokerage account (e.g., Fidelity, Schwab, Hargreaves Lansdown) and place an order to **buy** 1 share of Apple (AAPL) stock.
2. **Order Reaches the Market Maker:** Your brokerage firm routes your order to a market maker like Jane Street (or one of their competitors like Citadel Securities, Virtu, etc.). These firms have agreements with brokerages to handle a large volume of these orders.
3. **Market Maker Sells to You:** Jane Street, as a market maker, is constantly quoting two prices for Apple stock:
   * The **Bid Price:** The price at which they are willing to *buy* Apple shares from someone else.
   * The **Ask Price (or Offer Price):** The price at which they are willing to *sell* Apple shares to you.
4. When your "buy" order comes in, Jane Street will **sell you** the Apple share from their existing inventory of Apple stock (which they hold precisely for this purpose) at their **ask price**.
5. **Immediate Execution:** The key benefit for you, the investor, is **immediate execution**. You don't have to wait for another individual investor to show up who wants to sell exactly one share of Apple at your desired price. The market maker ensures there's always a counterparty.
6. **Inventory Management:** After selling you the share, Jane Street might then look to replenish its inventory by buying a share from another seller at the bid price, or it might hold a slightly lower inventory if it anticipates future selling pressure. Their sophisticated algorithms constantly manage this inventory and adjust their bid/ask quotes.

### **What's Their Incentive?**

The market maker's incentive, and how they make money, is through the **"bid-ask spread."**

Let's use a simple example for Apple stock:

* **Jane Street's Bid Price for Apple:** $170.00 (This is what they'll *buy* Apple for)
* **Jane Street's Ask Price for Apple:** $170.02 (This is what they'll *sell* Apple for)

The **bid-ask spread** is $170.02 - $170.00 = **$0.02**.

When you buy a share of Apple from Jane Street, you pay $170.02. If, shortly after, another investor wants to sell a share of Apple, Jane Street might buy it from them at $170.00.

By buying at the lower bid price and selling at the higher ask price, Jane Street makes a **profit of $0.02 per share**. While this seems tiny, market makers execute millions, even billions, of shares per day across countless securities. These small profits on each trade accumulate into enormous revenues, as highlighted in the podcast (e.g., Jane Street's $20+ billion in net trading revenues).

So, their incentive is the **accumulation of profit from these tiny spreads** by facilitating a huge volume of trades, thereby providing essential liquidity to the market.

**B. How Jane Street Operates (10 minutes)**

* **Key Question:** What makes these "new-style trading firms" different from traditional Wall Street banks?
* **Notes:**
  + **Technology-driven:** Not like old trading floors with shouting traders. They are "all technology and algos essentially."
  + **Human Element:** Jane Street *does* have hundreds of traders, but they are "clever nerds doing math Olympiads," often in shorts and T-shirts, whispering quietly. This contrasts with traditional, human-intensive operations.
    - **Algorithm Design & Strategy Development:** The "clever nerds" are the ones *building* the sophisticated algorithms, mathematical models, and trading strategies. They are constantly researching, back-testing, and refining these systems to find new edges and improve existing ones.
    - **Risk Management:** They design the complex risk management systems that monitor the algorithms, ensure they don't take on too much risk, and can pull them back if market conditions change unexpectedly.
    - **Problem Solving:** When something unusual happens in the market (a "black swan" event, a new regulatory change, an unexpected market behavior), these human experts are crucial for understanding it and adapting the algorithms.
    - **Competitive Edge:** Their intellectual capital is what allows Jane Street to continually innovate and stay ahead of competitors in the arms race of speed and smarts.
  + **Arbitrage:** A core strategy. They "see two prices that should be linked that are less linked than they should be." They buy one security and sell the other, expecting prices to converge.
  + **ETFs:** Their success was greatly tied to the rise of Exchange Traded Funds, which became a "huge, successful thing for them."
* **Prompt for Understanding:**
  + *Think about the "arbitrage" concept. If the price of a stock on one exchange is slightly different from its price on another, how would Jane Street try to profit from that?*

***Scenario:***

* *Imagine Apple stock (AAPL) is trading on the* ***New York Stock Exchange (NYSE)*** *at* ***$170.00****.*
* *At the exact same moment, Apple stock is trading on the* ***Nasdaq Stock Market*** *at* ***$170.05****.*

***Jane Street's Action (Leveraging Technology):***

1. ***Detection:*** *Jane Street's sophisticated algorithms are constantly monitoring prices across all relevant exchanges in real-time. They would instantly detect this $0.05 price discrepancy.*
2. ***Simultaneous Execution:*** *Their algorithms would then immediately:*
   * ***Buy*** *shares of Apple on the* ***NYSE*** *at $170.00.*
   * ***Sell*** *the same number of shares of Apple on the* ***Nasdaq*** *at $170.05.*

***The Profit:***

* *For every share they execute this trade on, they make a gross profit of* ***$0.05*** *($170.05 - $170.00).*
* *If they can execute this trade for, say, 10,000 shares before the price discrepancy disappears (which happens very quickly due to other arbitrageurs), their gross profit would be 10,000 shares \* $0.05/share =* ***$500****.*
  + *Why might a firm that relies heavily on "technology and algos" be able to make more money than traditional banks in certain market segments?*

### **Part 2: The Indian Scandal & Market Manipulation (20 minutes)**

**A. The Allegations (10 minutes)**

* **Key Question:** What exactly is Jane Street accused of, and what's the context of the Indian market?
* **Notes:**
  + **Accusation:** Market manipulation by the Indian stock market regulator.
  + **Impounded Funds:** Over $500mn in "illegal gains."
  + **Jane Street's Defense:** Firmly denies allegations, claims they tried to engage with the regulator but received "radio silence."
  + **Indian Derivatives Market:** Described as "insane," "the eighth wonder of the modern world," "bigger than every other market in the world combined, times a factor of three." It's an options market.
  + **Retail Trading in India:** "Went to town" since 2020, with close to 90% of retail options traders losing money quickly (compared to 80% globally). Jane Street was on the profitable "other side."
  + **Derivatives:** Financial instruments that "bet on what the stock is gonna do without necessarily owning the stock." Can be used for hedging (conservative) or wild bets.
* **Prompt for Critical Thinking:**
  + *Given that 90% of retail traders lose money in Indian options, what does this imply about the sophistication and risk management of the "other side" (like Jane Street)?*
  + *How does the scale of the Indian derivatives market make it attractive for market makers?*

**B. The "Duck-Rabbit" Dilemma & Specifics of the Allegation (10 minutes)**

* **Key Question:** Where is the line between legitimate trading and manipulation, especially in this case?
* **Notes:**
  + **The Allegation (Specifics):** Jane Street allegedly "went long, bought lots of Indian bank stocks, shorted Indian bank derivatives, especially options. And then, once they had a massive position in options on Indian bank stocks, they then dumped all the Indian bank stocks."
    - The core of the allegation is that Jane Street used the **illiquidity of the Indian stock market** to their advantage, making a large profit on a derivatives position that far outweighed a smaller loss on a stock position.
    - The Allegation (Simplified Strategy):
      * Build Positions: Jane Street allegedly bought a large quantity of Indian bank stocks (going "long" on stocks) AND sold a large quantity of Indian bank derivatives, specifically call options (going "short" on calls).
        + Why short calls? If you sell (short) a call option, you profit if the underlying stock price falls or stays below the strike price, as the option will expire worthless and you keep the premium.
      * Execute the "Dump": Once these positions were established, Jane Street allegedly dumped (aggressively sold) all the Indian bank stocks they had just bought.
      * Market Impact (Due to Illiquidity): Because the Indian stock market is described as "not very healthy" and "illiquid," this large-scale dumping caused the stock price to fall significantly.
      * Profit Mechanism:
        + They lost money on the stock side (bought high, sold lower).
        + However, the significant fall in the stock price made their short options position "much more worth" (i.e., highly profitable), because the call options they had sold became worthless or could be bought back for very little, allowing them to keep a large premium.
        + The profit from the options outweighed the loss from the stocks, resulting in a net profit.
      * Calculation Example: Alleged Jane Street Strategy
      * Assumptions (Simplified for clarity):
        + Underlying Asset: Indian Bank X Stock
        + Initial Market Conditions:

Indian Bank X Stock Price: $100 per share

* + - * + Jane Street's Initial Positions:
        + Stock Position (Long): Jane Street buys 1,000,000 shares of Indian Bank X at $100/share.

Total Cost: 1,000,000 shares \* $100/share = $100,000,000

* + - * + Options Position (Short Calls): Jane Street sells (shorts) 10,000 Call Option contracts on Indian Bank X.

Each contract controls 100 shares, so 10,000 contracts \* 100 shares/contract = 1,000,000 shares controlled by options.

Strike Price: $105 (meaning the buyer has the right to buy at $105)

Premium Received (per share): $15.00 (This is the money Jane Street gets from selling the calls)

Total Premium Received: 1,000,000 shares \* $15.00/share = $15,000,000 (This is an initial profit for Jane Street)

* + - * The "Dump" & Market Impact:
        + Jane Street then aggressively sells (dumps) its 1,000,000 shares of Indian Bank X.
        + Because the Indian stock market for this bank is "illiquid," this large selling pressure causes the stock price to crash significantly.
        + New Stock Price (after dump): $90 per share
      * **Calculating the Profit/Loss:**
      * **1. Profit/Loss on the Stock Position:**
        + Bought at: $100 per share
        + Sold (dumped) at: $90 per share
        + Loss per share: $100 - $90 = $10
        + **Total Loss on Stock:** $10/share \* 1,000,000 shares = **-$10,000,000**
      * **2. Profit/Loss on the Options Position (Short Calls):**
        + Initial Premium Received: **$15,000,000**
        + At the new stock price of $90, the **$105 Call Options** are now **"out-of-the-money"** (because the current stock price $90 is *below* the strike price $105).
        + This means the buyers of these call options will **not exercise** their right to buy at $105, as they can buy the stock cheaper in the open market ($90).
        + Therefore, the call options expire worthless (or can be bought back for a negligible amount). \* **Total Profit from Options:** Jane Street keeps the entire premium they received. So, **+$15,000,000**
      * **3. Net Profit/Loss of the Entire Strategy:**
        + Profit from Options: $15,000,000
        + Loss from Stocks: -$10,000,000
        + **Net Result:** $15,000,000 - $10,000,000 = **$5,000,000 (Net Profit)**
  + **Market Impact:** Because the Indian stock market is "not very healthy" (illiquid), dumping stocks made the far larger options position "much more worth." They lost money on stocks but made way more on options.
  + **Jane Street's Defense (Arbitrage):** They claim it was "index arbitrage," making prices between the "massive, highly traded options market" and the "slightly decrepit crappy actual stock market" more closely linked.
  + **"Duck-Rabbit" Illusion:** Robin's analogy for the fuzzy line between normal trading impact and manipulation. All trading has an impact; when does it become manipulation?
* **Prompt for Discussion:**
  + *Based on the specific actions alleged, do you think Jane Street's explanation of "index arbitrage" is convincing, or does it sound like manipulation? Why?*
    - True arbitrage typically involves exploiting *existing* mispricings without actively *creating* them through aggressive, market-moving trades in the underlying asset. The deliberate act of "dumping" to influence the price for the benefit of a pre-established, larger position is what pushes it into the realm of alleged manipulation. The defense of "making prices more closely linked" sounds like an after-the-fact justification for an action that had a clear, intended price-moving effect.
  + *How does the illiquidity of the Indian stock market play a crucial role in this alleged scheme?*
    - The **illiquidity of the Indian stock market** is absolutely central and crucial to the alleged scheme's success. It's the **vulnerability** that Jane Street allegedly exploited.
    - **Amplified Price Impact**
    - **Discrepancy Between Underlying and Derivative Markets**
    - **Lower Cost to Influence**
    - In essence, the illiquidity of the Indian stock market was not just a background detail; it was the lever that Jane Street allegedly pulled to make their options strategy massively profitable, by allowing them to actively *create* the price movement they needed.

### **Part 3: Industry Implications & Future (15 minutes)**

**A. Industry Reaction & Reputation (8 minutes)**

* **Key Question:** How is the rest of the high-speed trading industry reacting to this scandal?
* **Notes:**
  + **Shocked:** Other firms (Citadel Securities, Hudson River Trading, Jump Trading, Virtu, XTX, IMC) are "shocked" but also express "disbelief and schadenfreude."
  + **Jane Street's Reputation:** Was considered "the best of the best," "the apogee of Wall Street," where the "smartest people aspire to work." Had a "pretty good reputation" even among rivals.
  + **Talent Attraction:** Pays interns more than the US Fed Chair or UK Prime Minister (e.g., $250,000/year equivalent). Having a Jane Street internship is a "cool, sexy thing."
  + **Origin of Scandal:** Emerged from a lawsuit Jane Street filed against former employees who allegedly took secrets of their Indian options trade to a rival (Millennium Management). This was a "Barbra Streisand effect" (unintentionally drawing more attention to something you tried to suppress).

**B. Regulatory Scrutiny & Market Resilience (7 minutes)**

* **Key Question:** What are the broader implications of this case for the industry and financial markets?
* **Notes:**
  + **Regulatory Scrutiny:** Other firms are wary that this case might lead to "broader sort of regulatory scrutiny" of their own operations. Regulators "crawling up every crevice is not a fun thing."
  + **Market Resilience:** Robin believes that even if Jane Street faced a "very sort of idiosyncratic downfall," the market would be resilient. "There are enough rivals that would gladly see the back of Jane Street that would step in and pick up everything."
  + **No Major Catastrophe:** Unlikely to lead to "any sort of major issues" for the broader financial system.
* **Prompt for Discussion:**
  + *Why might regulators be particularly interested in scrutinizing these "new-style trading firms" now, given their massive size and reliance on complex algorithms?*
    - Massive Market Share and Systemic Importance → their collapses mean severely disrupted market functioning, impaired price discovery, and potentially trigger broader instability.
    - Reliance on Complex Algorithms (Black Box Risk): could have a rapid, large-scale, and unintended market movements (e.g., a "flash crash")
    - Potential for Market Manipulation (The "Duck-Rabbit" Problem)
    - Concentration of Risk
    - Data Privacy and Security
  + *Does the potential for other firms to "step in and pick up everything" truly mean there's no systemic risk from a major firm like Jane Street facing issues? Discuss the role of competition.*
    - Argument for Limited Systemic Risk (Role of Competition)
      * **Redundancy and Capacity**
      * **Incentive to Step In**
      * **Diversification of Risk**
      * **Idiosyncratic vs. Systemic Failure**

### **Part 4: Long/Short & Concluding Thoughts (5 minutes)**

* **Prompt for Personal Reflection:**
  + *What was the most surprising or interesting aspect you learned about modern financial markets from this podcast?*
  + *How does the discussion about MicroStrategy (borrowing to pay debt) relate to concepts of financial sustainability or risk you've learned?*
* **Debt Sustainability and Solvency Risk:**
  + **Concept:** A company is financially sustainable if it can generate enough cash flow from its operations to cover its expenses, including its debt obligations (interest and principal repayments). Solvency risk is the risk that a company will be unable to meet its long-term financial obligations.
  + **Relation to MicroStrategy:** If MicroStrategy is borrowing new money simply to pay interest or principal on existing debt, it suggests their core "software company" business is *not* generating sufficient cash flow to service their debt. This is a classic sign of **unsustainable debt**. It's like using one credit card to pay off another – it doesn't solve the underlying problem of insufficient income.
  + **Risk:** This dramatically increases **solvency risk** and the likelihood of **default**. They are digging a deeper hole, relying on continuous access to new credit or a significant rise in their Bitcoin holdings to avoid collapse.
* **Liquidity Risk:**
* **Concept:** Liquidity risk is the risk that a company will not be able to meet its short-term financial obligations (e.g., interest payments) without incurring significant losses.
* **Relation to MicroStrategy:** If they need to borrow just to make debt payments, it implies a severe **cash flow shortage**. They lack the operational liquidity to manage their existing debt.
* **Risk:** This means they are highly vulnerable to any tightening in credit markets or a drop in Bitcoin's price, which could make it impossible to borrow more or sell assets to cover their obligations.
* **Leverage and Amplified Risk:**
  + **Concept:** Leverage is the use of borrowed capital to increase the potential return of an investment. While it can amplify gains, it also amplifies losses.
  + **Relation to MicroStrategy:** MicroStrategy has heavily leveraged its balance sheet to buy Bitcoin. When they borrow more to pay existing debt, they are increasing their leverage even further.
  + **Risk:** This amplifies their exposure to Bitcoin's volatility. If Bitcoin's price drops, their equity value can quickly erode, and their debt burden becomes even heavier relative to their assets. Katie's experience of being "thoroughly humiliated" trying to short it highlights that leverage can be a double-edged sword for both the company and those betting against it.
* **"Ponzi Scheme" Alarm Bells (as implied by Robin):**
* **Concept:** While not explicitly called a Ponzi scheme (which is a specific type of fraud), Robin's phrasing "borrowing more money to pay the early investors" and "the music has to stop" strongly alludes to the unsustainable nature of such schemes, where new money is used to pay off old investors rather than from legitimate profits.
* **Relation to MicroStrategy:** The concern is that the company's financial model relies on constantly attracting new capital (through new debt issuance) to service existing debt, rather than generating sustainable profits from its core business or its Bitcoin holdings.
* **Risk:** This points to a high risk of a sudden and dramatic collapse if access to new capital dries up or if the underlying asset (Bitcoin) experiences a prolonged downturn.