

# An Introduction to Market Auction Theory (MAT) and Order Flow Trading Strategy

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## o. Introduction (MAT: Market Is a Double Auction)

### (i) *What Is a "Double" Auction?*

Order flow trading is grounded in Market Auction Theory (MAT), which originates largely from the work of [J. Peter Steidlmayer](#).

In a traditional auction (like an art auction), only one side competes — multiple buyers bid against each other for a fixed seller. In a financial market, both sides compete simultaneously. Buyers **compete with each other** to buy (bidding up), sellers **compete with each other** to sell (offering down), and the market matches them when their prices meet.

#### Note

It's interesting that MAT notices the competition **within the same side**, beyond the traditional explanation of supply and demand.

### (ii) *MAT Is a Market Model*

MAT is a model of the market. In my opinion, it can also be used to interpret the cause of **market cycle**. By modeling, we are aiming to answer the question:

- From the price observer's view: why does the market **accept and stay** at one price range while it **rejects and quickly moves away** from another?

- From the market cycle theory's view: why are there **trends** (reject) and **trading ranges** (accept)?
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## I. MAT's Explanation of Market Cycle: Balance and Imbalance

There are two patterns in **market cycle**: trend and trading range. In MAT, **trend is the result of imbalance** whereas the **trading range is balance**.

### *(i) What Is Imbalance and Balance?*

Balance and imbalance are two terms in MAT, used to refer to the two states of the market.

**Imbalance** means one side is **actively** and **persistently** more aggressive, **consuming the other side's limit orders (liquidity) through extensive market orders**. Therefore, price must move to a new level to find fresh counterparty supply, generating a clear trend.

**Balance** means neither side is **consistently** more aggressive — price rotates back and forth within a range because neither buyers nor sellers can sustain dominance. Price still moves, just without direction.

### *(ii) Aggression Can Be Passive*

Note that the aggression can be **\*\*triggered\*\*** in a market that allows leverage. Specifically, when there is a large-scale liquidation, there will suddenly be a burst of market orders, amplifying the imbalance.

### *(iii) Price Naturally Moves Between the Balance and Imbalance Zone*

#### **Definition (Balance/Imbalance Zone)**

Balance/Imbalance Zone is a price range where the buyers and sellers constantly agree/refuse to trade.

Note that **constantly** agreeing or refusing to trade needs multiple confirmations, and the price range during which the market is in the balance/imbalance state isn't necessarily the balance/imbalance zone.

### Example (Biased Zone During a Breakout)

*During the breakout, the market is actively searching for the balance zone, leading to imbalance. As time goes by, the price might reverse and go back to the level that was rejected by the market previously during the breakout. Therefore, if we define the **imbalance zone** during the breakout, it will be biased.*

In conclusion, the rules for price movement are:

- The **balance zone attracts** price
- The **imbalance zone repels** price

### Note

Knowing which prices are accepted/rejected can provide the scalping trading opportunity. The above insights originate from two forces:

**Balance zone can pull:** when price leaves a balance zone (a place of acceptance), it "remembers" that zone. Balance zones become magnets — when price returns to them, **participants who missed the original trade pile in**, recreating the same agreement. That's why they attract.

**Imbalance zone can push:** imbalance zones (where one side completely overwhelmed the other — aggressive buyers or sellers) are areas where the losing side never got filled. When price returns, those unfilled orders waiting there cause price to move quickly through — that's the repel effect.

### (iv) MAT Models the Market Cycle Through Price, Time, and Volume

**Price** naturally moves based on who is more aggressive. A buyer who refuses to wait and **hits the ask** is **aggressive**. A seller who hits the bid is **aggressive**. The direction price moves reflects which side is more desperate to transact **right now**.

**Time** tells you whether the market accepted a price. By acceptance, it means a lot of transactions are willing to happen (buyers agree to buy and sellers agree to sell).

Furthermore, **volume** confirms the time signal (acceptance and rejection). High volume means strong acceptance (everyone wants to trade there). Low volume

means strong rejection (no one wants to trade there). The balance zone typically owns the highest volume.

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## 2. When to Trade?

There are two distinct opportunities:

### *(i) Ride the Imbalance (Continuation)*

Enter in the direction of the dominant side, expecting price to continue moving to find new counterparty liquidity. This works best when **imbalance** is **sustained**, not a single spike.

Besides, it's also less risky to trade when both sides are active and one dominates the other. Be careful when the dominance results from the other side's being inactive.

### *(ii) Fade the Exhaustion (Reversal)*

When the existing aggressive side becomes less aggressive:

- fewer market orders from the dominant side show up, consuming the other side's limit orders
- more limit orders/market orders from the dominated side appear, offsetting the aggressor's market orders,

which shows the aggression dries up.

#### Note

As the speculator, we should always trade during the imbalance, carefully assessing the **relative** aggression, and evaluating whether the existing imbalance is going to continue or fade and reverse.

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## 3. Tools

### *(i) Order Book and the Depth of the Market*

**Balance** and **imbalance** are core ideas of MAT. To inspect them, we need to know how limit/market orders are traded, and an exchange's **order book** and depth of the market (DOM) tells us how limit orders cluster across different price levels in **real time**. Note that limit orders are just a part of the market: **they can be faked (placed and then withdrawn)**, and there are substantial transactions that are invisible and outside the exchange (OTC trading, dark pools). Moreover, some exchanges allow institutional traders to place **iceberg orders**, which are limit orders that are partially visible — only when all visible limit orders are filled does the invisible part show up.

#### **Definition (Market Depth)**

It's used to measure the number of limit orders set at a price level or range.

#### **Example (Deep/Shallow Market)**

*If there are many/few limit orders at a price level/range, then we say the market is deep/shallow at that price level/range.*

### **(ii) Volume Profile**

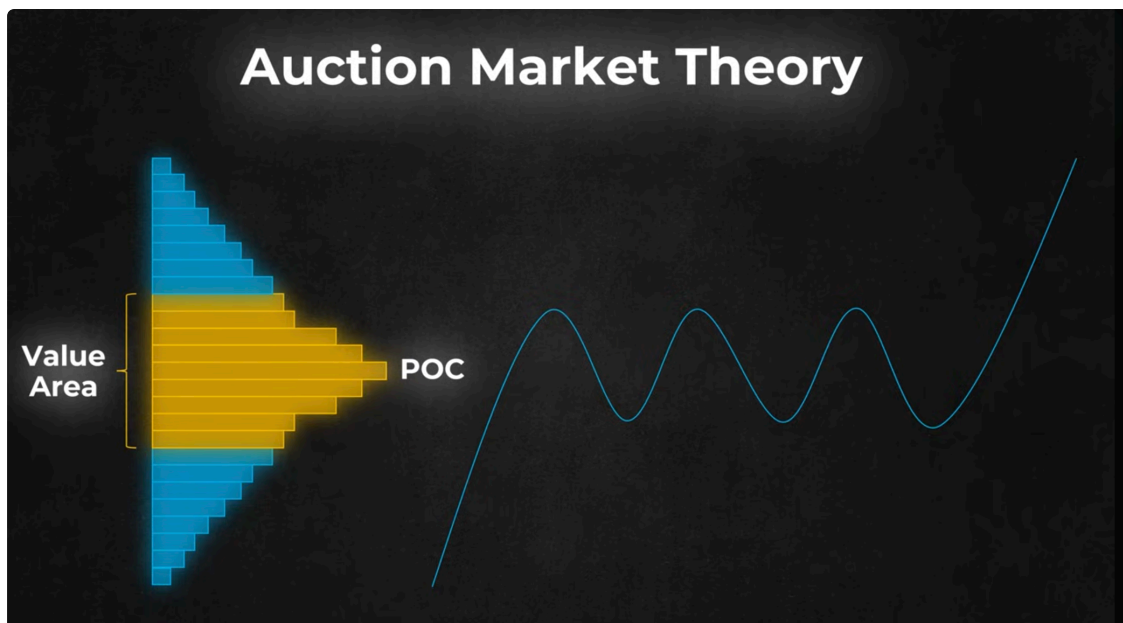
The volume profile demonstrates the volume across **price levels**.

#### **Definition (Value Area)**

Given a time interval, the value area is a price range that covers around 70% of the volume. Note that the 70% comes from the **normal distribution** with  $\pm 1$  standard deviation.

#### **Definition (Point of Control (POC))**

The point of control is the price range that covers the most of the volume.



### *(iii) Footprint Chart*

A footprint chart is a candle plot where each price candle is accompanied by two additional bars.

The bar at the **right** of the price candle aims at measuring the **buying aggression**, by computing the number of sell limit orders (ask volume) consumed by the buy market orders across the various price ranges embedded in the associated candle. The bar at the **left** aims at measuring the **selling aggression**, by computing the number of buy limit orders (bid volume) consumed by the sell market orders.

Note that the measure of buying and selling aggression is not 100% accurate, as **some limit orders are consumed by stop orders, which are triggered due to stopping loss rather than aggression.**

Besides, in the order book or the DOM, the left part measures the **buying intention** through the number of **stacked** buy limit orders. Nevertheless, the left bar of the footprint chart measures the **selling aggression** through the number of **consumed** buy limit orders.

#### **Definition (High Volume Node (HVN))**

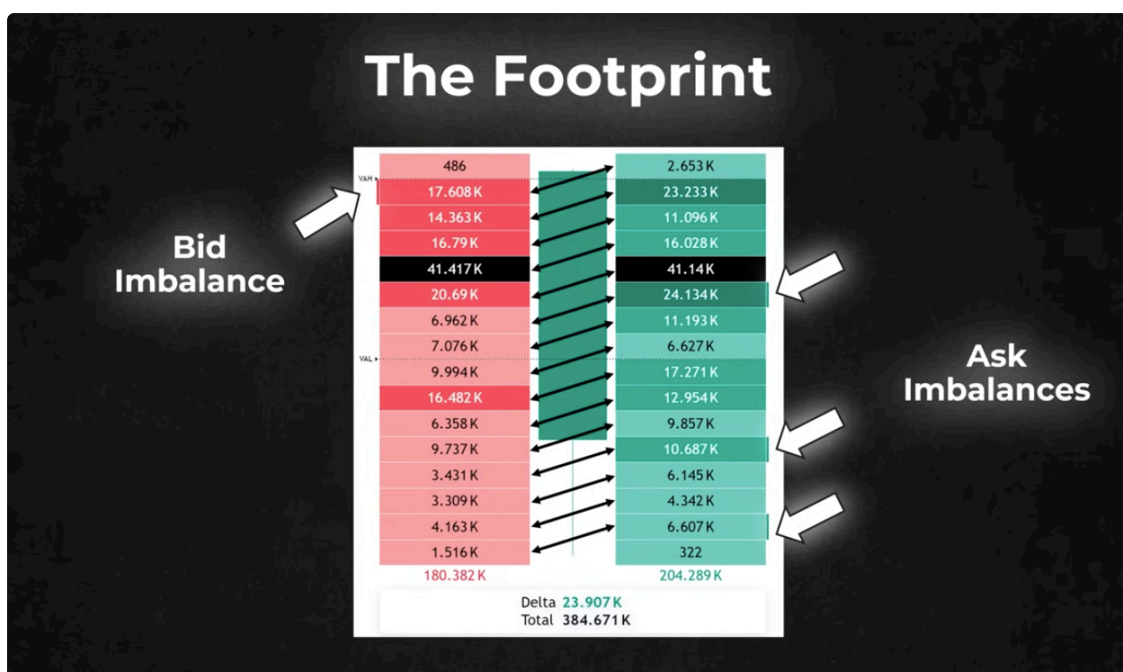
The high volume node is a price range within the candle of the footprint chart that has the most volume, in which buyers and sellers highly prefer to trade.

#### **Definition (Value Area (VA))**

It's similar to [the value area in the volume profile](#), but the volume is computed within a single candle rather than a time interval.

Note that the upper/lower bound of the VA is called value area high/low (VAH/VAL).

In the below plot, we can observe the HVN (black price range), value area, VAH, and VAL. Note that we can also observe some price ranges have selling or buying imbalance, which indicates a substantial difference (300%) of the volume of consumed limit orders [diagonally](#). The intuition of the diagonal comparison results from buy market orders attacking sell limit orders above, while sell market orders attack buy limit orders below.



#### Definition (Volume Delta)

Delta is computed by subtracting bid volume from ask volume (the number of sell limit orders consumed by buy market orders).

That is, ask volume – bid volume.

#### Definition (Delta Divergence)

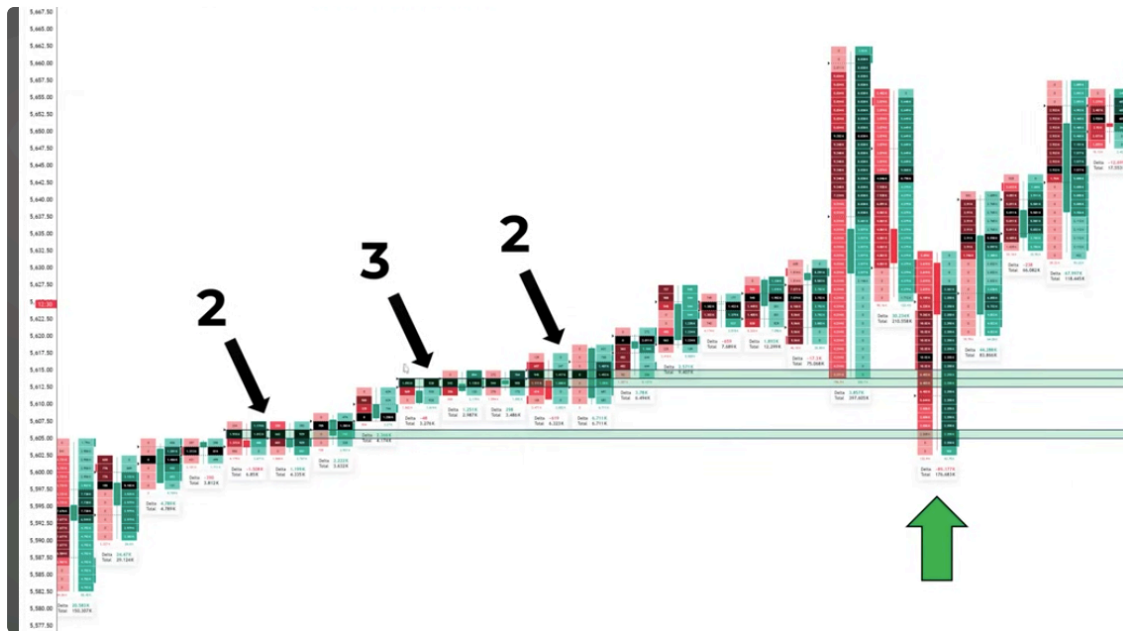
Normally, a bullish candle will have positive delta and a bearish one will have negative delta. If this is not the case, then the situation is called [delta divergence](#).

## 4. How to Trade?

### (i) Use the Footprint Chart to Identify/Validate Support and Resistance (S&R)

In the footprint chart, S&R can be identified through **\*\*consecutive HVN\*\*** or **\*\*stacked imbalance\*\***.

- consecutive HVN



- stacked imbalance



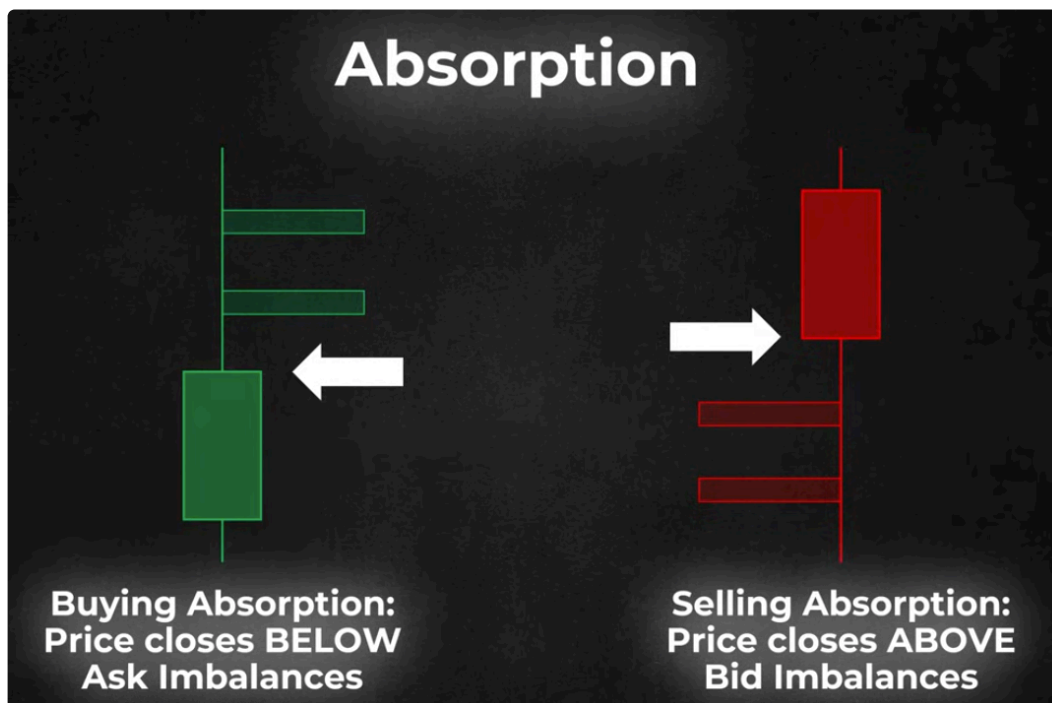
### (ii) Price Imbalance Relationship: Absorption and Initiation



One of the useful pieces of information in the footprint chart is the imbalance indicator. **Absorption and initiation** is a pattern for the trend reversal.

#### Definition (Buying/Selling Absorption)

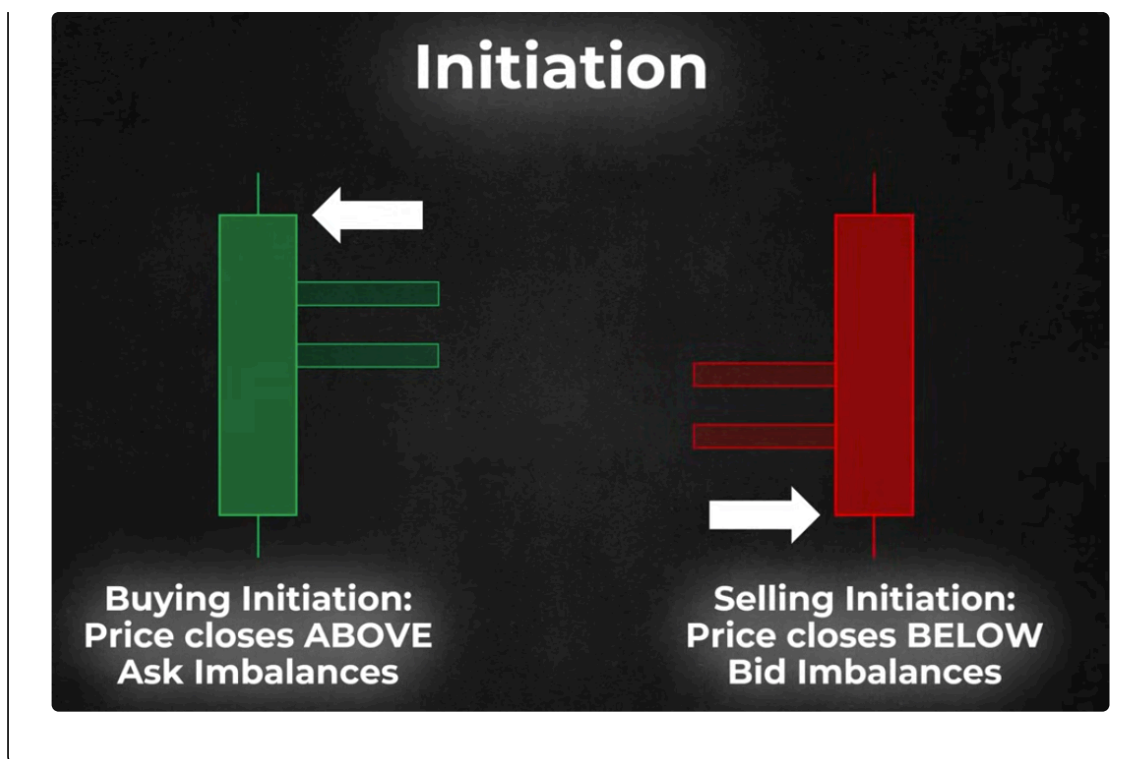
The buying/selling absorption happens when the close price of a candle is below/above the ask/bid imbalance.



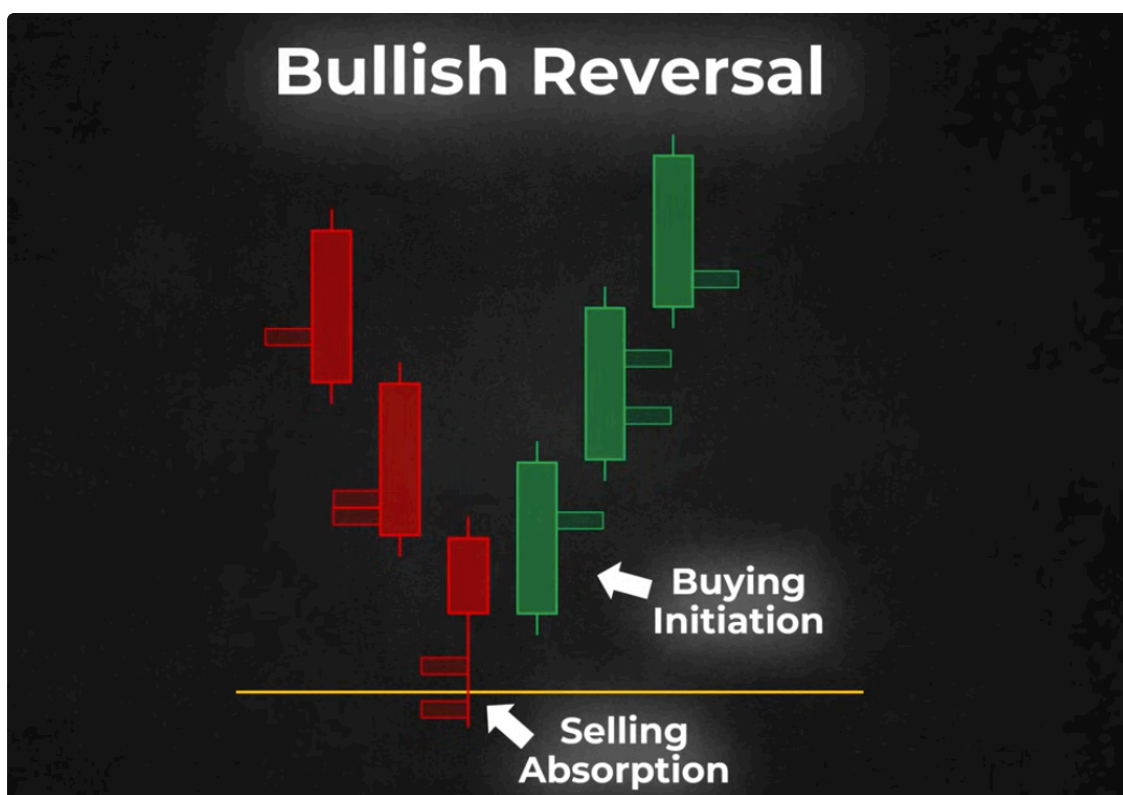
The intuition is that within a candle, one side became aggressive, but the other side finally dominates and further pushes the price the other way. That is, the other side might intentionally place the limit orders, wait for the aggression, then build the position and push the price movement.

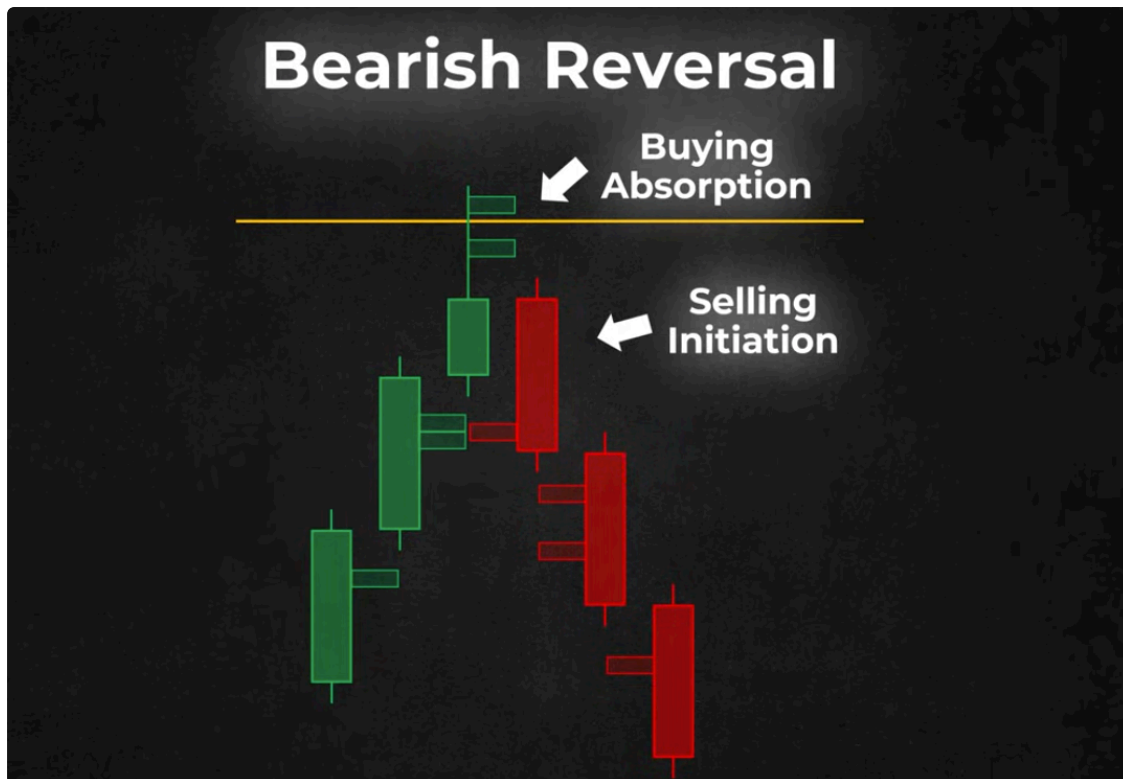
#### Definition (Buying/Selling Initiation)

The buying/selling initiation happens when the close price of a candle is above/below the ask/bid imbalance.



The intuition is that the price follows the aggression.





Another possible signal is observing the relative position of the VA and the closing price.

### *(iii) Cumulative Volume Delta (CVD)*

Another tool based on the **volume delta** is **cumulative volume delta (CVD)**, which aggregates a period of volume delta, showing the dynamics of volume delta.

- price breakthrough without CVD breakthrough: **\*\*exhaustion\*\***
- price not breaking through with CVD breakthrough: **\*\*absorption\*\***

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## 5. Learning Resources

- [Youtube from Fractal Flow](#)