

How Order Books Work

The engine behind every price you see — how buyers and sellers are matched, what the two order types really do, and how to read the ledger that sets the market.

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An order book is the live list of every buy and sell order for an asset, organised by price, and it is the machine that produces the number you see quoted. Behind the single price on your screen sits a two-sided ledger of intentions — everyone willing to buy, everyone willing to sell, and the exact prices and quantities at which they will do it. Understanding it turns the market from something that happens to you into something you can read, because once you can see the book, you can see why your order fills where it does, why the price moves when it does, and where the traps are. This report explains the mechanism itself: the ledger, the matching engine, and the two orders every trade is built from.

AT A GLANCE

WHAT IT IS

Ledger of all resting orders

MAKER

Adds an order, waits

TWO SIDES

Bids to buy, asks to sell

TAKER

Hits an order, fills now

THE ENGINE

Matches by price, then time

READS AS

Price discovery in real time

01

The two sides of the ledger

Every order book has two halves. On one side are the *bids* — offers to buy, each stating a price and a quantity. On the other are the *asks* or offers — orders to sell, likewise priced and sized. Bids are ranked from highest down, because the buyer willing to pay most has priority; asks are ranked from lowest up, because the seller willing to accept least has priority.

The two sides face each other across a gap. The highest bid is the most anyone will currently pay; the lowest ask is the least anyone will currently accept. As long as the highest bid sits below the lowest ask, no trade happens — buyers and sellers have not yet agreed. The space between those two prices is the bid-ask spread, and it is the first thing the book tells you about a market. That single arrangement — buyers ranked down, sellers ranked up, a gap in the middle — is the whole structure. Everything else is what happens when an order arrives and closes the gap.

02

The two orders everything is built from

There are many order types, but two are fundamental and the rest are variations. A *limit order* specifies a price: buy at this price or better, sell at this price or better. It may not execute immediately — if no one is offering your price, it joins the book and waits as a resting order, adding to the depth on its side. A *market order* specifies no price, only a quantity: buy or sell this amount now, at whatever prices the book currently offers. It does not wait; it executes against the resting orders on the opposite side immediately.

The trade-off between them is the trade-off that runs through all of trading. A limit order gives you control over price but no guarantee of execution — you might never get filled. A market order gives you a guarantee of execution but no control over price — you take whatever is there. Choosing between them is choosing which of those two certainties you need for a given trade, and understanding the book is what lets you choose well. Building an entry from resting limit orders is the subject of [how to ladder buy orders](#).

03

Makers, takers, and why exchanges care

Those two order types map onto two roles, and the distinction is not cosmetic — it is priced into your fees. A trader whose order joins the book and waits is a *maker*: they have made liquidity, adding an order others can trade against. A trader whose order executes immediately against the book is a *taker*: they have taken liquidity, removing an order that was resting there.

Exchanges care about this because resting orders are what make a market usable. A book with many resting orders is deep and easy to trade; an empty one is useless. So venues typically charge takers more than makers, and sometimes pay makers a small rebate, to

reward the people who supply the standing orders everyone else trades against. The practical upshot is that a limit order that rests is usually cheaper than a market order that takes — a reason, beyond price control, to prefer limit orders when you are not in a hurry. This is the same maker-taker economics that shapes ladder placement and every other resting-order strategy.

04

The matching engine

At the centre of the exchange is the matching engine, the piece of software that pairs incoming orders with resting ones. Its logic is simple and almost universal: price first, then time. Price priority means the best-priced orders are matched before worse-priced ones — the highest bid and the lowest ask are always next in line. Time priority breaks ties: among orders at the same price, the one that arrived first is filled first.

This is why a resting order's position in the queue matters, and why being early at a price level is an advantage — you are ahead of everyone who arrives later at the same price. When a market buy order arrives, the engine matches it against the lowest ask, and if the order is larger than that ask, it continues to the next lowest, and the next, consuming resting sell orders in ascending price order until the whole quantity is filled. That sequential consumption is the mechanical heart of the entire system, and it is worth holding onto, because it is exactly what produces the two most important effects a trader feels: the moving price, and the imperfect fill.

The price is not set by the exchange. It is simply the point where the highest bid finally meets the lowest ask — a number produced, tick by tick, by orders arriving and matching. The book is not a picture of the market. The book is the market.

05

How the book makes the price move

The single quoted price is usually the *last* price at which a trade occurred, or sits between the best bid and best ask. It moves for one reason: the book changes. When a market buy consumes all the resting sell orders at the lowest ask, that price level empties, and the new lowest ask — a higher price — becomes the best available. The quoted price has just risen,

not because of news, but because the cheapest sellers were bought out and the next cheapest are more expensive.

This is *price discovery*, and it is happening continuously as orders arrive and match. It also reveals why a large order moves the price more than a small one: a big market buy consumes several price levels in a single sweep, and each level it eats leaves a higher one exposed. The amount the price moves for a given order size is set entirely by how much depth is stacked at each level — which is precisely what [the plumbing beneath the trade](#) ultimately has to settle. A book with thick depth barely moves; a thin one lurches.

06

Slippage, seen from the book

Everything about slippage becomes obvious once you can see the ledger. Slippage is the gap between the price you expected and the average price you actually got, and it is simply what happens when your market order walks up or down several price levels instead of filling at one.

Picture a market buy larger than the quantity resting at the best ask. It fills the best ask entirely, then takes the next level up, then the next, until it is complete — and your average fill is the blend of all those prices, worse than the quote you saw when you clicked. The thinner the book, the further your order has to reach and the worse that blend becomes. This is not a fee and not a malfunction; it is the direct, visible consequence of the matching engine consuming resting orders in price order. Seeing it on the book is what turns slippage from a mysterious cost into a predictable one you can estimate before you trade, and it is the mechanism underneath everything covered in our note on market liquidity.

07

Reading depth, and reading it sceptically

A depth chart is just the order book drawn as a picture: resting bids stacked on one side, asks on the other, showing how much sits at each price. A steep, thick wall of depth means large orders can be absorbed with little price movement; a shallow one means the price will move easily. Learning to glance at this before trading is one of the highest-value habits a trader can build, because it tells you in advance roughly what your order will do to the price.

But read the book with a sceptic's eye, because not everything on it is sincere. Orders can be placed and cancelled in milliseconds, and a large resting order is a statement of intent that

can be withdrawn the instant before it would fill. *Spoofing* — placing large orders with no intention of executing them, purely to create a false impression of demand or supply, then cancelling — is a manipulative practice the book is vulnerable to, and it is prohibited on regulated venues precisely because it works on people who read depth naively. A wall of buy orders can be genuine support or a bluff designed to be seen. The book shows you intentions; it does not certify that they are honest.

08

Order books and the other kind of market

Not every crypto venue uses an order book. Decentralised exchanges built on automated market makers replace the ledger of orders with a pool of assets and a formula that sets the price from the pool's balance — a genuinely different mechanism with its own behaviour, explained in our note on [automated market makers](#). There are no bids, asks, or matching engine there; the maths of the pool does the job the book does here.

Knowing which kind of market you are in changes how you should trade it, and most centralised exchanges — the venues where the majority of volume still trades — use order books, which is why the model in this report is the one worth learning first. Understanding it also makes you a better trader on any venue, because it is the clearest illustration of the truth underneath all markets: a price is not a fact handed down from above, but an agreement discovered between a buyer and a seller, one order at a time. That understanding underpins how you size and place every trade, from [how much you risk](#) to which exchange, per our note on [choosing a beginner exchange](#), you choose to trade on.

“A just weight and balance are the LORD's: all the weights of the bag are his work.”

PROVERBS 16:11

Methodology & Sources

This report explains a market mechanism; it contains no prices, spreads, depth figures, fee rates, or named venues, all of which vary by exchange and moment — observe them on the venue you use. The structures described are standard: an order book as a price-ranked ledger of resting bids and asks; limit orders that rest and add liquidity versus market orders that execute immediately and remove it; the maker-taker distinction and the fee asymmetry

that commonly accompanies it; and a matching engine operating on price-time priority, the near-universal convention, though some venues use pro-rata or hybrid models not covered here. Price discovery, price impact, and slippage are described as direct consequences of orders consuming resting depth in price order. Spoofing is described as a manipulative practice prohibited on regulated venues; no venue or event is named. The contrast drawn with automated market makers is structural: order books match discrete orders, while AMMs price against a pooled formula. Nothing here is a recommendation regarding any venue, order type, or trade.

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