Market Talks
EDUCATION CENTER

CRYPTO · BEGINNER · LESSON 9 OF 15

Where Crypto Trades: Centralized vs Decentralized Exchanges

How exchanges like Binance and Coinbase work, how a decentralized exchange swaps tokens with no company in the middle, what slippage is, and what history teaches about exchange risk

10 min read 8 quiz questions with answer key

CRYPTO · BEGINNER · LESSON 9 OF 15

Where Crypto Trades: Centralized vs Decentralized Exchanges

IN ONE SENTENCE

Centralized exchanges match buyers and sellers in an order book while holding your funds, and decentralized exchanges let you swap directly from your own wallet, so each trades convenience against a different kind of risk.

Two ways to trade crypto

Almost every crypto trade happens in one of two places:

- A **centralized exchange (CEX)** is a company, such as Binance, Coinbase, OKX, Bybit or Korea's Upbit. You open an account, deposit money or crypto, and the company holds it for you while you trade.
- A **decentralized exchange (DEX)** is a set of smart contracts, such as Uniswap on Ethereum or Jupiter on Solana. There is no account. You connect your own wallet and trade directly from it.

Centralized exchanges still handle most trading, but decentralized exchanges are growing fast. In July 2026, spot trading on DEXs reached a record **24%** of the volume on centralized exchanges, up from 17% a year earlier, according to The Block.

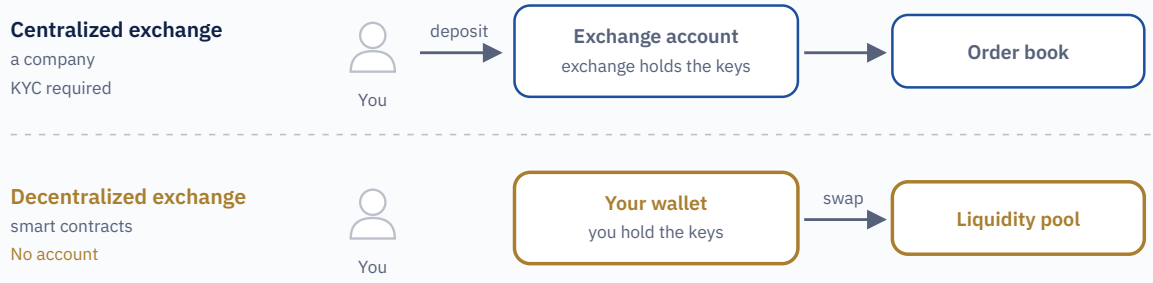


Figure 1. On a centralized exchange your funds sit in an account the company controls. On a decentralized exchange you swap directly from your own wallet.

How a centralized exchange works

When you sign up with a CEX, you go through identity checks, known as **KYC** (know your customer), required by law in most countries. After that you can deposit bank money or crypto.

Inside the exchange, trades are matched in an **order book**: a live list of everyone who wants to buy, called **bids**, and everyone who wants to sell, called **asks**, at each price. The gap between the highest bid and the lowest ask is the **spread**.

You usually place one of two order types:

- A **market order** buys or sells immediately at the best price available.
- A **limit order** waits in the book at a price you choose until someone takes it.

Exchanges charge small fees. Orders that wait in the book add liquidity and are called **maker** orders. Orders that trade immediately take liquidity and are called **taker** orders, which usually pay a slightly higher fee.

Here is the key point: while your coins sit on the exchange, the exchange holds the keys. As you saw in Blockchain Lesson 10, you own a claim on the exchange, not the coins themselves.

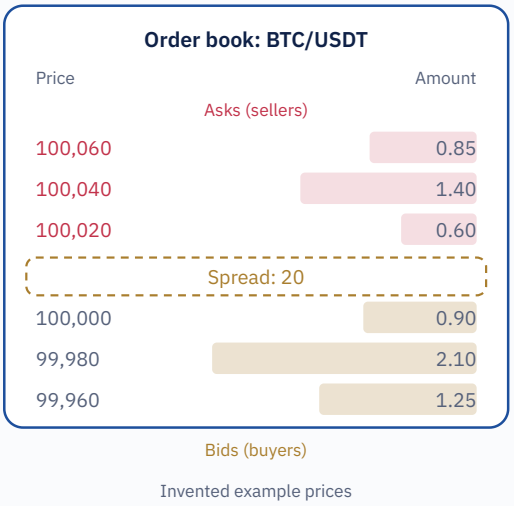


Figure 2. An order book lists sellers (asks) above and buyers (bids) below. The gap between the best ask and the best bid is the spread. Prices are invented for the example.

How a decentralized exchange works

A DEX usually has no order book. Instead, most DEXs use **liquidity pools**: smart contracts holding two tokens, for example ETH and USDC, supplied by users who earn a share of the trading fees. When you swap, you add one token to the pool and take out the other, and a formula sets the price based on how much of each token the pool holds. This design is called an **automated market maker (AMM)**, and the Intermediate level explains it in depth.

To trade on a DEX you need:

- your own wallet, such as MetaMask or Phantom,
- the tokens you want to swap, on the right network,

- a little of that network's native coin for gas, as Lesson 4 explained.

No identity checks are needed, you keep control of your coins until the moment of the swap, and almost any token can be listed. That last point cuts both ways: DEXs list countless tokens that no centralized exchange would accept, including many scams.

Slippage: the price you see is not always the price you get

When you place a large order, it can use up the best prices and then fill at worse ones. The difference between the price you expected and the average price you actually get is called **slippage**.

On a CEX, a market order works through the order book level by level. On a DEX, your swap changes the balance of the pool, which moves the price against you; this is called **price impact**. Both are small in busy markets such as BTC or ETH and can be large in small, thinly traded tokens.

DEX apps let you set a **slippage tolerance**, such as 0.5%. If the price moves more than that before your swap goes through, it is cancelled instead of filling at a bad price.



Figure 3. A large market order uses up the cheapest offers first and then fills at higher prices, so the average price paid is worse than the price shown.

EXAMPLE: BUYING IN A THIN MARKET

A small token's order book has 1,000 tokens for sale at $1.00, 1,000 at $1.05 and 1,000 at $1.15. Emma places a market order for 3,000 tokens. She pays $1,000 + $1,050 + $1,150 = $3,200, an average of about $1.067 per token. That is almost 7% more than the $1.00 shown on screen.

What history teaches about exchange risk

Centralized exchanges are convenient, but they concentrate huge amounts of other people's money in one place. Three events are worth knowing:

- **Mt. Gox, 2014.** Once handling about 70% of all bitcoin trading, the Tokyo exchange collapsed in February 2014 with about 850,000 bitcoins missing. Customers waited around a decade for partial repayment.
- **FTX, November 2022.** One of the world's largest exchanges filed for bankruptcy on 11 November 2022 with a hole of about $8 billion in customer funds, which had been used by its sister trading firm. Its founder was convicted of fraud in 2023.
- **Bybit, February 2025.** Hackers linked to North Korea's Lazarus Group stole over 400,000 ETH, worth more than $1.5 billion, from the exchange's cold wallet on 21 February 2025, the largest crypto theft on record. Bybit covered the loss, and customer funds stayed backed.

After FTX, many exchanges began publishing **proof of reserves**: reports showing that they hold at least as much crypto as their customers' balances. These help, but they are snapshots and may not show an exchange's debts in full.

DEXs carry different risks: bugs in smart contracts, fake tokens, and mistakes you make yourself, since there is no customer support to call.

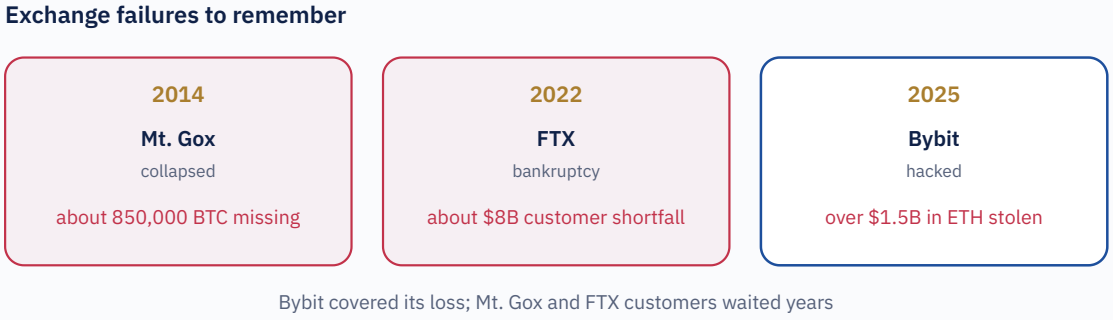


Figure 4. Three of the best known exchange failures. Funds held on an exchange depend on that exchange's honesty and security.

CEX and DEX side by side

	Centralized exchange (CEX)	Decentralized exchange (DEX)
Who holds your coins	The exchange	You, in your own wallet
Sign-up	Account and identity checks (KYC)	None, connect a wallet
How trades are matched	Order book	Mostly liquidity pools (AMM)
Bank deposits and withdrawals	Yes	No, crypto only
Tokens available	Selected and reviewed	Almost anything, including scams
Fees	Trading fee, withdrawal fee	Pool fee plus network gas
Help if something goes wrong	Customer support	Usually none
Main risks	Exchange failure, hacks, frozen accounts	Contract bugs, fake tokens, user mistakes

Many people use both: a CEX to move money in and out of their bank, and a DEX to reach tokens or apps that live on-chain. Lesson 15 walks through setting up each one.

Why this matters for traders

- **The order book shows real supply and demand.** Large walls of bids or asks, and how thin the book is, tell you how easily price can move. Many traders read the order book alongside the chart.
- **Fees and spread add up.** For frequent traders, the gap between maker and taker fees and the spread on each trade can matter as much as entry timing.
- **Slippage hits hardest in fast markets.** In a sharp move, books thin out and market orders can fill well away from the last price.
- **Exchange problems move the whole market.** The FTX collapse and other exchange failures triggered sharp sell-offs and frozen withdrawals. Funds on a single exchange are exposed to that exchange's problems.

Key terms

Centralized exchange (CEX)	A company that holds customers' funds and matches their trades, such as Binance or Coinbase.
Decentralized exchange (DEX)	Smart contracts that let users swap tokens directly from their own wallets, such as Uniswap.
KYC	Know your customer: identity checks that regulated exchanges must perform.
Order book	A live list of all buy orders (bids) and sell orders (asks) at each price.
Spread	The gap between the highest bid and the lowest ask.
Market and limit orders	A market order trades immediately at the best available price; a limit order waits at a price you set.
Liquidity pool	A smart contract holding two tokens that traders swap against, used by most DEXs.
Slippage	The difference between the expected price of a trade and the price actually received.
Proof of reserves	A report showing that an exchange holds at least as much crypto as its customers' balances.

Key takeaways

1. A CEX is a company that holds your funds and matches trades in an order book. A DEX lets you swap from your own wallet using smart contracts.
2. DEX spot volume reached a record 24% of CEX volume in July 2026.
3. Market orders fill at once, limit orders wait at your price. Makers usually pay lower fees than takers.
4. Slippage and price impact mean large orders in thin markets fill at worse prices than shown.
5. Mt. Gox, FTX and the $1.5 billion Bybit hack show the risks of leaving funds with an exchange.
6. A CEX offers convenience and support; a DEX offers control and access to more tokens, but with more ways to make costly mistakes.

Test yourself

Circle one answer for each question. The answer key with explanations is on the next page. You can also take this quiz online at markettalks.info and see your score instantly.

1. What is the main difference between a CEX and a DEX?

- A) A CEX only trades bitcoin
- B) A CEX holds your funds as a company; on a DEX you trade from your own wallet
- C) A DEX is always cheaper
- D) A DEX requires identity checks

2. In an order book, what is the spread?

- A) The total number of orders
- B) The gap between the highest bid and the lowest ask
- C) The exchange's fee
- D) The difference between two exchanges' prices

3. What does a limit order do?

- A) Buys immediately at any price
- B) Waits in the order book at a price you choose
- C) Limits how much you can trade per day
- D) Cancels all other orders

4. How do most DEXs set prices?

- A) A staff member sets them
- B) With liquidity pools and a formula based on how much of each token the pool holds
- C) By copying Binance's price every minute
- D) Prices are fixed at launch

5. Emma buys 3,000 tokens with a market order: 1,000 at $1.00, 1,000 at $1.05 and 1,000 at $1.15. What is her average price?

A $1.00
B About $1.067
C $1.15
D $1.05 exactly

6. What happened at FTX in November 2022?

A It was hacked for $1.5 billion
B It filed for bankruptcy with about $8 billion missing from customer funds
C It became a decentralized exchange
D It launched proof of reserves

7. What is the largest crypto theft on record, as of 2026?

A Mt. Gox in 2014
B The Bybit hack of February 2025, over $1.5 billion in ETH
C The Ronin bridge hack
D The FTX collapse

8. What can a proof of reserves report not fully show?

A Which coins the exchange holds
B The exchange's debts and what happens between snapshots
C The exchange's website address
D The number of customers

Answer key

1 B

A CEX holds your funds as a company; on a DEX you trade from your own wallet

On a CEX you deposit funds and the company holds the keys. On a DEX you keep your coins in your wallet until the swap.

2 B

The gap between the highest bid and the lowest ask

The spread is the gap between what buyers bid and what sellers ask. A narrow spread usually means a busy, liquid market.

3 B

Waits in the order book at a price you choose

A limit order only fills at your price or better. A market order fills immediately at the best available price.

4 B

With liquidity pools and a formula based on how much of each token the pool holds

Most DEXs are automated market makers. Each swap changes the pool's balance, and the formula adjusts the price.

5 B

About $1.067

She pays $3,200 for 3,000 tokens, about $1.067 each. That gap from the $1.00 on screen is slippage.

6 B

It filed for bankruptcy with about $8 billion missing from customer funds

Customer funds had been used by its sister trading firm. Its founder was later convicted of fraud.

7 B

The Bybit hack of February 2025, over $1.5 billion in ETH

Hackers linked to North Korea's Lazarus Group took over 400,000 ETH. Bybit covered the loss for its customers.

8 B

The exchange's debts and what happens between snapshots

Proof of reserves shows assets at one moment. It may not reveal all liabilities or changes after the snapshot.

SOURCES

- The Block, DEXs capture record 24% of spot crypto trading: https://www.theblock.co/post/410476
- Learn Bitcoin, Mt. Gox: https://www.learnbitcoin.com/glossary/mt-gox
- Wikiwand, FTX scandal: https://www.wikiwand.com/en/articles/FTX_scandal
- Security Affairs, Lazarus stole $1.5B from Bybit: https://securityaffairs.com/174514/cyber-crime/lazarus-stole-1-5b-from-bybit-cryptocurrency-heist.html

Market Talks

CONTINUE LEARNING

Up next: Lesson 10 Sending and Receiving Safely: Networks, Addresses and Memo Tags

This lesson is part of the Crypto course at the MARKET TALKS Education Center.
Beginner lessons are free, each with a quiz and a downloadable PDF.
Intermediate and Advanced lessons are for members.

Education Center
Lessons from first principles to advanced topics

Markets Analysis
Technical and fundamental analysis on major markets

Reports
Bitcoin, Gold, Silver, SPX and more

markettalks.info

Telegram @MARKET_TALKS

For education only. Nothing in this document is financial advice. © 2026 MARKET TALKS. You are welcome to share this PDF unchanged.