



Centralized and Decentralized Exchanges

What's the difference?

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Key Takeaways

- ❖ One of the key defining features of centralized exchanges (CEX) is that they are custodial. Consequently, when you want to trade on a CEX, you keep your funds in a wallet tied to the exchange itself instead of in your own wallet. Not managing your own private keys can significantly reduce the risk of being hacked, as well as offer potentially superior security exposure. However, while safely managing your private keys is one of the most significant concerns for crypto holders, trust in the exchange becomes imperative. In this report, we're diving into the key characteristics of centralized exchanges, their advantages, and their drawbacks.
- ❖ While Decentralized Exchanges have been around since 2012, utilizing hashed time-locked contracts ("HTLCs"), it wasn't until the start and growth of Ethereum that they off. To get a better understanding of decentralized exchanges, we will look at order book DEXs and automated market makers, while also covering their advantages and disadvantages.
- ❖ To help enhance understanding, we compare centralized and decentralized exchanges. The most important thing is no matter whether you opt for a centralized or decentralized exchange, you must "do your own research."

Introduction

Crypto constantly evolves and adapts to technology and exogenous changes. Although Crypto Exchanges have been around for a long time, they have come a long way ever since their first iteration. Know your Client (“KYC”), growth in Compliance, improvements in execution, as well as the building of stronger risk management have been recent trends on the centralized side of exchanges. However, following the bull market of 2017, we have also seen innovations in the space that led to the growth of so-called decentralized exchanges.

Currently, we can differentiate between these two types of exchanges (centralized and decentralized), though some hybrid options exist.

Just as traditional stock exchanges allow retail and institutional investors to buy, sell, and hold stocks, crypto exchanges allow you to buy, sell, and hold cryptocurrencies. Exactly how your transaction works – and the possibilities for you on each platform – depends on the type of exchange you’re using.

In order to get a better understanding of the space, let us look at both centralized and decentralized exchanges in more detail, to understand their benefits, downsides, and key characteristics.

Centralized Exchange

Centralized exchanges (also sometimes referred to as CEX) are well-known entry points to the crypto ecosystem. Binance, Coinbase, and Kraken are just a few of the examples of centralized exchanges. Centralized exchanges oftentimes have their own order book, which records and authenticates all cryptocurrency-related transactions.

Before diving deeper into the space of centralized exchanges, let us first define what a centralized exchange is:

A centralized exchange is a platform that enables traders to buy, sell, and exchange cryptocurrencies against fiat currencies or other cryptocurrencies.

They are marketplaces for tokens and are essential to the ecosystem since many of them enable payments with fiat currencies (non-crypto holders are able to buy crypto using USD, EUR, and other currencies). This generally offers an easy entry point to the crypto ecosystem, and the recent trend of strong KYC requirements allows for minimizing the number of bad actors.

Centralized exchanges are often trusted intermediaries since they monitor and facilitate crypto trades. A trustworthy crypto exchange should also allow you to securely store tokens and fiat currencies, thus functioning as a custodian.

Looking at the order book of centralized exchanges, the information is passed internally through an efficient network and is protected by consolidated security mechanisms. Right now, the leading centralized exchanges have an [extensive built-in] know-your-customer policy. Furthermore, to avoid financial fraud, some centralized exchanges have built strong compliance and investigative teams over the years, which are working closely with regulators around the world on crime prevention. This offers a clear advantage over decentralized exchanges.

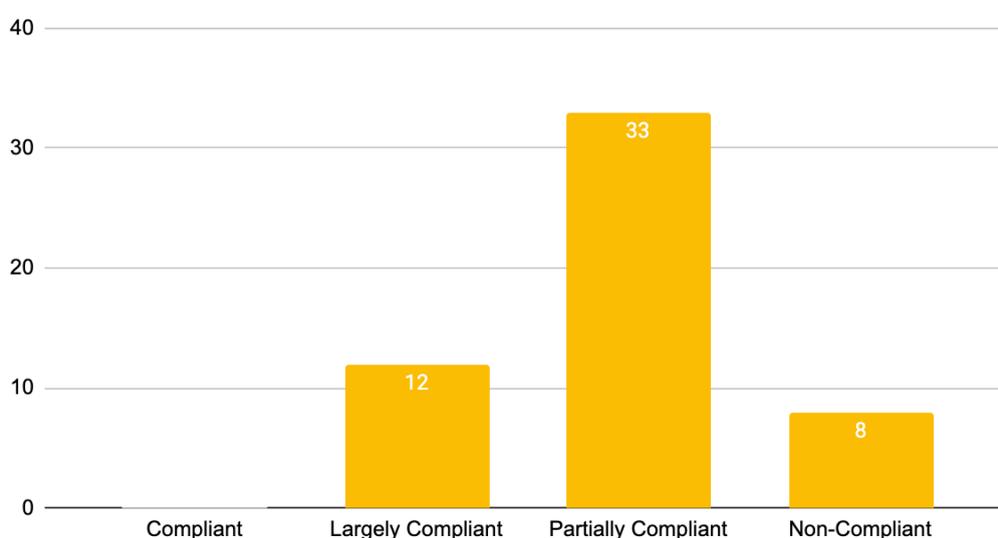
Some key challenges exist for centralized exchanges, and big exchanges are most effective in addressing them. This does not only include a lack of resources from smaller exchanges to tackle security and crime prevention but also overall characteristics of how crypto behaves. Funds oftentimes move quickly, include multiple players, and know no borders. Bad actors can be in different countries than the victims, with some in jurisdictions beyond the reach of most law enforcement. Having a centralized exchange that is operating in a

majority of countries with a strong crime prevention team is essential for building a safe environment in which crime prevention can be done effectively.

Similar to stock exchanges and commercial banks, a centralized exchange is one that routes trades through a centralized entity. A decentralized exchange, on the other hand, is a peer-to-peer marketplace that allows trades to occur directly between traders. Centralized exchanges are often managed and owned by a single authority, in which traders must place their confidence. As such, a centralized exchange functions very similarly to a stock exchange, except instead of stocks, it permits the purchase, sale, and exchange of cryptocurrencies.

To be a user of a centralized exchange, you must undergo KYC verification, provide ID evidence, and (in some cases) biometrics verification to become a registered user. While KYC verification is required by almost all regulators, [implementation of the requirements remains inconsistent](#) (Figure 1). Most jurisdictions have not yet fully implemented Financial Action Task Force's¹ ("FATF") requirements (which set the global AML/CFT Standards for VAs and VASPs). The 5th Directive in the European Union greatly strengthened the existing provisions on AML / CFT. The 6th Anti-Money Laundering Directive aims to give financial institutions and authorities the means to do more in the fight against money laundering and the financing of terrorism by widening the scope of existing legislation, clarifying certain regulatory details, and tightening criminal sanctions across the EU.

Figure 1: Implementation of KYC verification requirements



Source: FATF

¹ The FATF is the global money laundering and terrorist financing watchdog. The inter-governmental body sets international standards that aim to prevent these illegal activities and the harm they cause to society.

KYC is an effective tool in helping to protect users against hackers, market manipulators, and money launderers. As a crypto user, you should be wary of platforms with poor KYC measures. If you do not complete the [KYC verification process](#), you may not be able to access all the features of a cryptocurrency exchange.

Know Your Customer (KYC) regulations are mandatory for major cryptocurrency exchanges because it ensures they comply with regulatory rules and laws such as FATF's AMLD5 and AMLD6, as outlined above.

As mentioned above, the goal of KYC is to curb illicit activities and highlight suspicious behavior as early as possible. Without KYC verification, a cryptocurrency exchange may be held liable when a user gets away with committing a crime because they failed to do due diligence. Henceforth, major exchanges prefer to remain anti-money laundering (AML) compliant.

Requiring identity verification is the first checkpoint against money launderers, who often try to obscure their source of money through small quantities spread across various accounts.

Another key aspect we should look at when talking about centralized exchanges is custody. Instead of having direct custody, similar to stock exchanges, the centralized exchange assumes custody of assets deposited by users.

Best practices to safeguard assets under custody include platform and user-level security. Currently, Binance is following the “NIST Cybersecurity Framework” and has received ISO, PCI, and SOC security certifications.

From a security perspective, it’s crucial to safeguard a customer's digital assets in ways that eliminate risks associated with a single vulnerable point that can compromise your funds.

Unlike conventional crypto wallets, multi-signature (multisig) wallets require more than one private key to authorize a transaction. A classic example used to explain the concept of multisig wallets is a bank vault that requires two or more keys to open. While multisig is considered a security system requiring multiple independent keys to unlock a vault, there are also obstacles that it cannot overcome. Multisig requires generating a larger private key for the multiple locks on the vault. This is not ideal because participants will leave traces showing who signed, and multiple parties must be online simultaneously.

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However, the distributed nature of multi-party computation (MPC) is more flexible compared to multisig. MPC eliminates the concept of using a single private key, meaning a key is never gathered on a single device at any point. Even if a subset of keys is available, you can still unlock the vault. To eliminate centralized risks, one solution is multilayer technology, and MPC cryptography to manage users' funds in a more secure way.

Key Features and Functions

Looking at other main functions of exchanges, providing liquidity within a secure and organized trading environment, and acting as an intermediary for traders to easily buy and sell their assets while being less susceptible to financial risks. Offering deep liquidity is important to allow a safe execution environment. A large liquidity pool is one of the best consumer protection mechanisms. It protects against market manipulation, volatility, and reduces liquidations. Global liquidity means higher liquidity, and high liquidity indicates a vibrant and stable market where participants can trade quickly, easily, and at fair prices.

We can summarize the key features of centralized exchanges as follows:

- ❖ **Custodial** - One of the key defining features of centralized exchanges is that they are custodial. It means that when you want to trade on a CEX, you keep your funds in a wallet tied to the exchange itself, instead of in your own wallet. What's important is that the exchange keeps the private keys to the wallet, not you – instead, you get login details for the platform. This has some benefits, especially for new users who are just getting the hang of the complexities of crypto: safely managing your private keys is one of the most significant concerns for crypto holders. As such, keeping your crypto in a centralized exchange can be a good solution for most people, since leading exchanges follow best practices to safeguard assets under custody, including platform and user-level security. However, you need to be able to trust the exchange you're using
- ❖ **Liquidity** - Centralized exchanges are designed to have liquidity due to their order book design. A key element to ensure this high liquidity is a global liquidity pool. Global liquidity means higher liquidity, and high liquidity indicates a vibrant and stable market where participants can trade quickly, easily, and at fair prices. The order books of centralized exchanges facilitate trades by matching “buy” and “sell” orders from users, otherwise known as an “order book” system. This means liquidity is a function of the number of buy and sell orders on the books and, with most people's first steps into crypto taking place on a centralized exchange, their order volumes are necessarily higher than their decentralized counterparts
- ❖ **Ease of Use** - Centralized exchanges tend to be associated with ease of use. They oftentimes offer a clear, user-friendly interface, with less complexity that comes with decentralized exchanges
- ❖ **KYC** - Exchanges have made efforts to ensure their platforms are not used to facilitate financial crime (e.g. AML/CTF) by KYC'ing users. So before you begin trading on a centralized exchange, you'll need to produce documents confirming your ID and sometimes your address to coordinate with these measures.

Advantages of Centralized Exchanges

The above-mentioned section made some of the advantages clear already. The user interfaces are simple to grasp and easy to use. Access to the various cryptocurrency trading platforms is easy and straightforward, with an overall high degree of functionality and a

variety of trading choices available. In addition to that, centralized exchanges are key for establishing strong AML and KYC within the crypto ecosystem.

Furthermore, the structure of centralized exchanges supported by a centralized and individual infrastructure enables rapid real-time transactions. Thus they are algorithmically capable of processing several orders per second. As a result, participants in the market can make quick decisions and respond swiftly to changing market conditions.

The biggest traditional exchanges provide a wide range of virtual currencies and trading pairs. Simultaneously, the option for withdrawals and deposits in fiat currency is also available, making them key building blocks for further crypto adoption. Since (in theory) centralized exchanges are owned and managed by a centralized and regulated entity, users and regulators can contact and deal with it. As such, centralized exchanges offer key benefits to regulators.

Disadvantages of Centralized Exchanges

While bringing multiple advantages, some disadvantages come with centralized exchanges. Because exchanges own private keys, there is a danger of loss if the exchanges show vulnerabilities. While such instances are uncommon, they have happened before, again underlying the strength and need for good cyber security practices.

Remember, to securely hold crypto yourself, you need to:

- ❖ Prevent others from obtaining your private keys; prevent hackers, securing your computers from viruses, the internet, etc.
- ❖ Prevent yourself from losing your private keys; have backups to prevent loss or damaged devices, and securing those backups
- ❖ Have a way to pass your private keys to your loved ones in the event of a death. It's not a pleasant scenario to consider, but as responsible adults to our loved ones, we must manage that risk

To keep your funds safe, big exchanges invest heavily in security infrastructure. Security touches so many different areas, from equipment, networks, procedures, personnel, risk monitoring, big data, AI, training, research, testing, 3rd party partners, and even global law enforcement relationships. **It takes a significant amount of money, people, and effort to do security properly. Smaller exchanges often don't have the scale or financial means**

to do this. To learn more about security and about how to keep your funds safe, you can read CZ's post on "[How to keep your funds SAFU](#)"

While centralized exchanges oftentimes have fewer options and coins available, this usually creates a safer environment compared to DeFi. This is due to extensive research being done before listing tokens which can help to decrease the probability of having bad projects on the platform.

Decentralized Exchange

While Decentralized Exchanges have been around since 2012, utilizing hashed time-locked contracts (“HTLCs”), it wasn’t until the start and growth of Ethereum that we saw them take off. The introduction of Ethereum smart contracts fueled a new generation of exchanges and introduced prolific improvements over HTLC-based exchanges. In 2016 Vitalik Buterin [proposed](#) what would become the key foundation for today’s decentralized exchanges (“DEX”). Uniswap, launched by Hayden Adams, was one of the first projects that implemented Vitalik’s idea to employ an on-chain automated market maker (“AMM”) with certain unique characteristics. Today, DEXs have become a pivotal element in the crypto world and a key building block of DeFi applications by enabling trading with considerable improvements in crypto volume. While some DEXs were already up and running using classic order books, it really was the introduction of automated market makers that have broad popularity to DEXs due to their simplicity and increased liquidity.

Today’s decentralized exchange lets you transfer various digital assets on an open market with no middlemen. As such, they have almost all of the capabilities of a centralized exchange, but stand out for making it easier to exchange all of the currencies that are accessible online. While [Uniswap](#) is a common DEX on Ethereum, [PancakeSwap](#) is the leading DEX on BNB Chain in terms of TVL.

To operate on a decentralized exchange, users usually simply need a public address (which could be linked to wallets such as TrustWallet or MetaMask). In addition, running on smart contracts, there are no external third parties overseeing or enforcing rules on the exchange.

There are two main types of DEX to be aware of: order-book-based, and automated market makers.

Order Book DEXs

An order book is generally made up of buy-and-sell limit orders from market participants. The market price for an asset is the lowest asking price (*sell order*) or the highest bidding price (*buy order*). Placing a market order means a trader would buy or sell at the market price instantly, taking away liquidity from the order book, hence they also often pay a taker fee. This order book matching mechanism essentially matches active buyers and sellers at a specified price, providing more control to traders.

Some popular order book DEXs include [LoopRing](#) and [Gnosis Protocol](#), which both use an algorithm to find trades between individual users, and smart contracts record the

exchanges on the blockchain to reflect the coins and tokens that are moving between buyers and sellers. Another popular example is [dYdX](#).

❖ On-chain vs. off-chain order books

Order books can be on-chain or off-chain. On-chain order books have their order placement, matching, and settlement engine done on-chain, with transactions verified by validators. For on-chain order books, index prices are often determined by validators who would act as price oracles, submitting last traded prices from various exchanges to the chain.

Off-chain order books, on the other hand, use off-chain logic² to handle trades, transactions, liquidations, index prices, and so on.

Generally speaking, order books are most suitable for an exchange where the liquidity is high. That's because they help maintain low slippage irrespective of the trading volume. Conversely, in illiquid markets, traders must wait for long times, which results in more exposure to market volatility and large spreads.

Automated Market Maker DEXs

Decentralized exchanges such as Uniswap utilize what is known as an “automated market maker” model. The key reason for their existence is the poor performance of order books in illiquid markets.

The advantages of this model are straightforward. From an efficiency perspective, AMMs offer very low spreads, but at the same time, they only require a blockchain transaction for actual trades, not placing or canceling orders. Furthermore, this is an overall simple design in terms of implementation, which can lead to increased efficiency and transactions per second.

Automated market maker-based DEX replace the order book with a liquidity pool. This liquidity pool is basically pre-funded by the users who are known as liquidity providers (“LPs”). Thus, instead of matching buyers and sellers, the trades on AMM DEXs are carried out using liquidity pools managed by a smart contract. Liquidity is “sourced” from users who essentially give their tokens (in trading pairs). Every AMM-based DEX incentivizes the LPs in a different way. That being said, for all, the LPs effectively become the market

² Off-chain logic handles trades, liquidations, transfers and deleverages, as well as updating the oracle prices. It stores the entire balance of all the users, and periodically submits proofs, attesting the validity of the balances change, given the user's transactions.

makers. Considering that literally, any pair of tokens can form a liquidity pool, liquidity pools can support trading activities for tokens not yet listed on centralized exchanges. To get a better understanding of the AMM model, let us look at Uniswap in more detail.

❖ Uniswap

Long before Uniswap, EtherDelta was probably the most used decentralized exchange. This changed, however, in November 2018, when Uniswap v1 was launched on the Ethereum Mainnet. In Uniswap v1, trades were made against liquidity pools, and a mathematical formula determined the price of assets, with liquidity providers adding liquidity to the pools that help to make a market. Uniswap v1 actually only supported the swapping of ETH-ERC 20 pairs, making trading a bit more complicated than it is today. Uniswap v1 also facilitates the concept of LP tokens. The simple idea behind this is that LPs add liquidity to any pool, and they receive LP tokens representing the added liquidity.

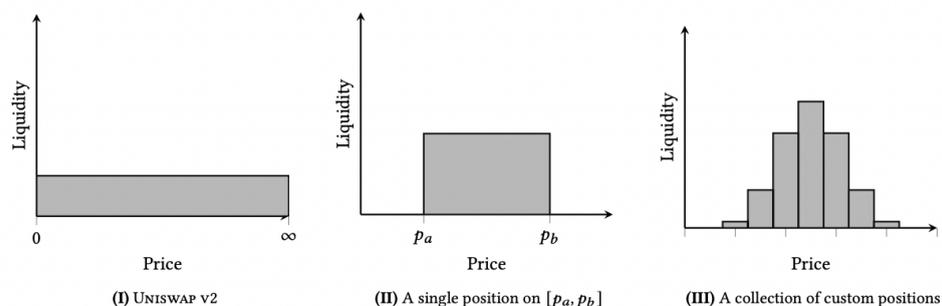
Uniswap v2 launched in May 2020 and, you guessed it, got rid of the painful ETH bridging, that made v1 less user-friendly. With v2, we finally had ERC20-ERC20 pools that boosted a lot of growth in the DeFi space. Some other innovations that came with Uniswap v2 included the concept of flash swaps, which allows users to withdraw any amount of ERC20 tokens without having to pay upfront. Users could either pay for the tokens withdrawn or pay for a portion and return the rest or return all the withdrawn tokens. Another noteworthy innovation was that of protocol fees. A protocol fee of 0.05% of the total 0.3% trading fee was now reserved for the development of the Uniswap platform.

Uniswap v3, when compared to v1 and v2, provides better capital efficiency and accuracy. Instead of just picking an equal value of two tokens, you can now select your preferred fee tier in any liquidity pool. By default, Uniswap provides three fee tiers you can choose from. Uniswap v3 also introduced liquidity concentration, which means that you can set a certain price range where you provide liquidity. This is a way of decreasing your impermanent losses. To understand this better, let us look closely at Uniswap v2 worked. Within the prior version of Uniswap, liquidity was distributed evenly along an $x*y=k$ price curve, with assets reserved for all prices between 0 and infinity. This means that most of the liquidity is sitting unused instead of rewarding LPs for taking the risk of impermanent loss.

The idea that Uniswap v3 introduced is that a position only needs to maintain enough reserves to support trading within its range, and, therefore, can act like a constant product pool with larger reserves (virtual reserves) within that range. Liquidity providers can create as many positions as they see fit, each in its own price range. In this way, LPs can approximate any desired distribution of liquidity in the price space. Moreover, this serves as a mechanism to let the market decide where liquidity should be allocated. Rational LPs can

reduce their capital costs by concentrating their liquidity in a narrow band around the current price, and adding or removing tokens as the price moves to keep their liquidity active.

Figure 2: Example Liquidity Distribution



Source: Uniswap

Since LPs can provide liquidity in custom price ranges, their liquidity positions in Uniswap v3 aren't fungible anymore. Another key improvement that Uniswap introduces in v3 relates to Oracles. Uniswap v3 introduced significant improvements to the time-weighted average price ("TWAP") oracles³. It's storing an array of cumulative sums instead of just one like Uniswap v2 did, thus making it possible to calculate any recent TWAP within the past nine days in a single on-chain call. This improvement makes it easier to create more advanced oracles easier and cheaper. Uniswap claims this will reduce the gas costs for keeping oracles up to date by 50%.

There are many other benefits that v3 brought to Uniswap, but at this point, you might be better off reading the [Uniswap v3 whitepaper](#) directly.

³ WAP on Uniswap v3 calculates the geometric mean of relative prices of the two assets in a pool. The TWAP oracle feed is used by protocols as a reference price for on-chain assets.

Advantages of a DEX

❖ Custody

DEXs do not exist as a central entity, there is no platform to put funds into. So unlike a CEX, using a DEX might not necessarily relieve users from the burden of self-custody. Connecting the DEX to your existing wallet exposes you to smart-contract risk, as there is always some risk of a decentralized exchange that utilizes the smart contract being hacked.

❖ Variety

Since the selection of coins and tokens on a DEX is not limited, users are more or less free to find the projects they're interested in and start getting involved. This, however, exposes you to risks and scams, as many CEXs have clearer criteria for the projects they bring onto their platform to help mitigate these risks.

❖ Governance

Many AMM-based DEXs are offering their users governance tokens, both to further democratize the control of the platform and as a reward for providing liquidity. This allows users to participate in the decision-making processes and the future of the exchange. This is an increasingly relevant consideration as more and more DEXs choose to fully distribute their management to users.

Figure 3: Key differences between AMMs and Order Books

Automated Market Makers (AMMs)	On-chain Order Books
Usually market orders only, but other order types are slowly getting popular	Many types of orders, such as limit, stop loss, trailing, buy-stop, etc.
Can have high slippage if liquidity is low	Can have high slippage if liquidity is low, but reduces the risk of slippage by setting limit orders.
More ideal for illiquid markets as liquidity is present at any price and trades will always be filled	More ideal for liquid markets and not for illiquid markets as a trader's limit order may not always be filled
Risk of front-running via MEV or sandwich attacks	Lower risk of front-running if measures are taken
Liquidity providers risk impermanent loss	Off-chain liquidity providers do not risk impermanent loss
Do not require oracles to determine price	Prices are usually determined by external market makers

Source: Binance Research

Disadvantages of a DEX

❖ Execution

Trading on a decentralized exchange is typically much slower than trading on a controlled exchange. This is because miners must validate each transaction. As a result, decentralized exchanges are unsuitable as trading venues when it is important to react to changing market conditions quickly. Centralized order books often offer better execution environments for these cases based on the underlying technology.

❖ Liquidity

A successful exchange requires high liquidity. Therefore, the widely traded platforms are always the ones with the exchanges having the highest liquidity. Due to the newness of the idea of decentralized exchanges, there are much fewer traders than on CEX. As a result, liquidity is severely reduced.

❖ **Complexity**

DEXs are currently complex and lack a smooth user interface which may act as a barrier to entry to new users. Moreover, many traders do not have access to limit orders, margin transactions, or stop losses. Though, most decentralized exchanges are focused on implementing new functionality. Unlike their centralized counterparts, decentralized exchanges do not accept payment in fiat – in other words, they are unlikely to be anyone’s first step into crypto.

❖ **Responsibility**

Self-custody may well put you in the driver’s seat but remember – it also leaves you to deal with the storage and security of your exchange assets. You can’t simply leave them on the exchange once you’re done, so making sure your crypto wallet is both compatible with the service and immune to risks will be key to your experience.

❖ **Blind Signing**

DEXs utilize smart contracts. Their details are often not displayed when you sign, leaving you exposed to scams and smart contract risks. As such, we recommend you: **Always do your own research**. Although DEXs allow users to trade freely, the downside is that such a lot of freedom necessarily brings extra user responsibility. Since any coin can be listed on a decentralized exchange, it is even more important to do your own research to ensure the authenticity of the project you’re buying into.

Comparison CEX vs. DEX

DEXs are one of the key pillars of DeFi and crypto, as a decentralized network needs a decentralized exchange to trade assets. AMM DEXs have thus far been the most popular and widely used dApps, offering spot trades with a cumulative volume higher than limit order DEXs.

DeFi Spotlight

Get a better understanding of decentralized exchanges and DeFi as a whole by checking out our reports on [Ethereum's DeFi Ecosystem](#) and [DeFi on BNB Chain](#).

However, centralized and decentralized exchanges both offer their own benefits and downsides. Centralized exchanges are highly liquid. They offer useful trade environments with an easy-to-use interface, and the leading players in the field come with strong KYC practices. With centralized exchanges, you minimize a lot of risks due to the exchange taking custody of your assets.

In contrast, decentralized exchanges bring the freedom that many seek in the crypto community and often (despite sacrificing liquidity and user-friendliness) give you access to more projects and the opportunity to directly provide liquidity to liquidity pools.

Figure 4: Key Differences between Centralized and Decentralized Exchanges

	CEX	DEX
Control	A single entity authorizes and regulates the centralized exchange	It works upon smart contract technology with no control of any centralized entity
Verification	Personal verification is needed to become an authorized member, done through KYC	No identity verification is required
Security	Security measures at CEXs can be high, with leading exchanging employing a high number of security experts	DEX can provide high security due to validators cross verifying every trade. However, exposure to smart contract risk exists
Popularity	Common places to enter the crypto ecosystem	Increasingly popular amongst crypto native users
Risk Factor	The exchange is responsible for security so you need to be able to trust the exchange	Smart contract risks requires you to be able to trust the DEX, while users are also accountable for security
Fees	Oftentimes CEX offer the best execution due to deep liquidity	Can be expensive due to gas fees, though the commissions might be low
Customer Service	Available	Not provided, though there are community forums

Source: *Binance Research*

Conclusion

There are benefits and drawbacks to both - centralized and decentralized exchanges. At the end of the day, there is a need and use case for both, and we welcome the recent innovation in the space. Decentralized exchanges have become a lot more efficient and user-friendly, while centralized exchanges have improved in terms of KYC and security.

Looking at centralized exchanges, it is important that the industry becomes much more transparent, in particular so the markets understand the levels of crypto held in custody are higher than what the exchange owes to its clients. Furthermore, we should continue to support regulators around the world by engaging and sharing knowledge and expertise.

Going forward, we expect increased adoption of decentralized exchanges and hope to see further innovation in the space. That being said, centralized exchanges are crucial building blocks of the current crypto infrastructure and are likely to stay.

About Binance Research

Binance Research is the research arm of Binance, the world's leading cryptocurrency exchange. The team is committed to delivering objective, independent, and comprehensive analysis and aims to be the thought leader in the crypto space. Our analysts publish insightful thought pieces regularly on topics related but not limited to, the crypto ecosystem, blockchain technologies, and the latest market themes.



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