

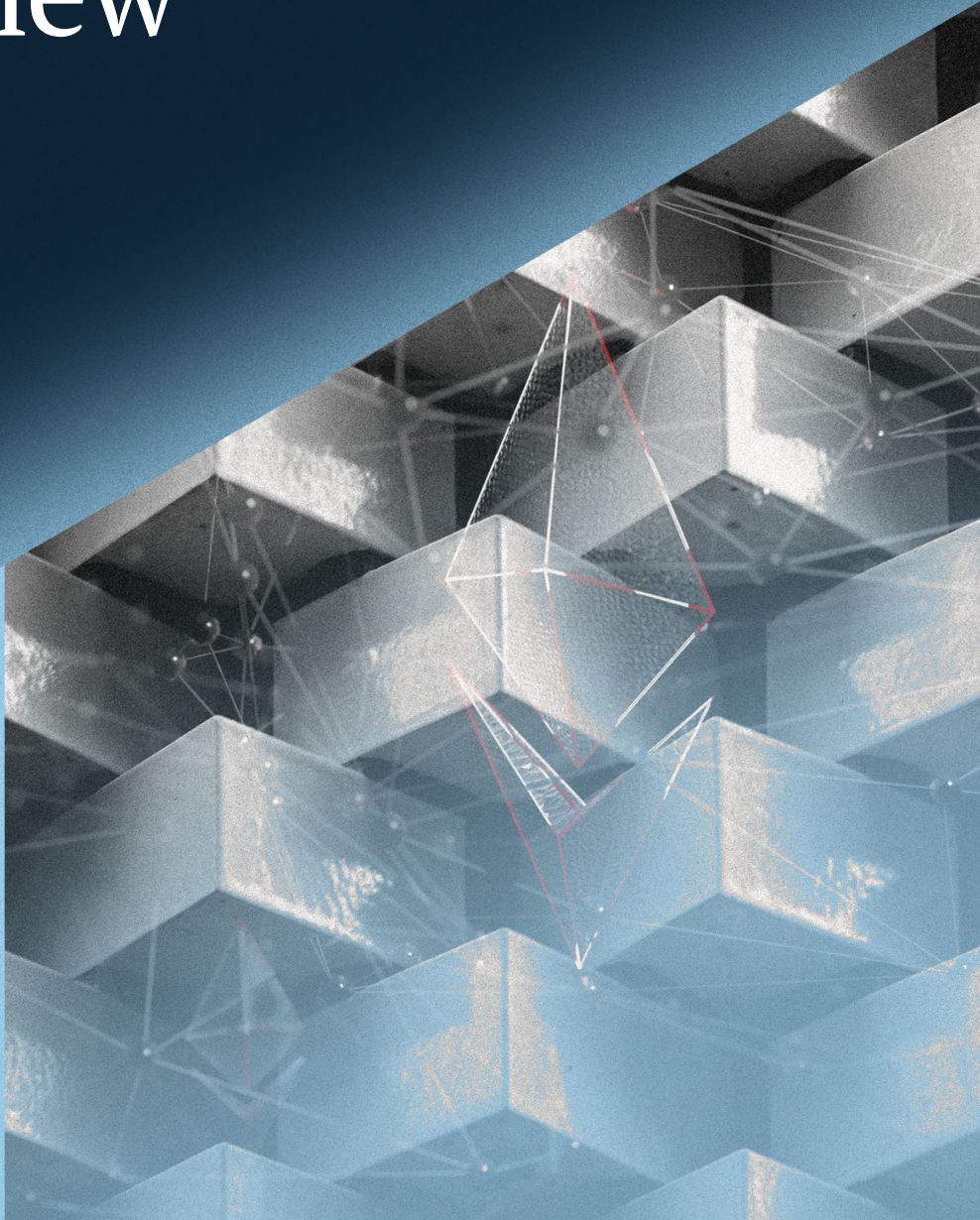


HASHDEX RESEARCH

Staking: An Overview

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What is Staking?

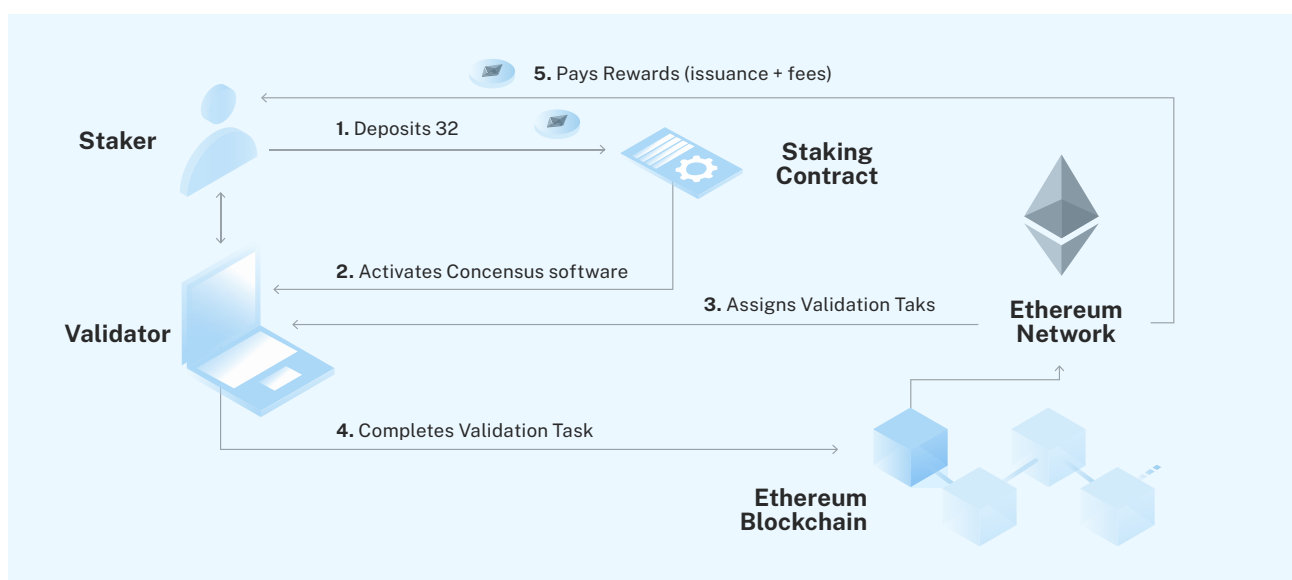
Staking is the process by which holders of the native token of a Proof-of-Stake (PoS) blockchain—such as Ethereum, Solana, or Polkadot—can participate in the network’s consensus¹ by locking up a certain amount of their holdings. This process is key to the security of a PoS blockchain because it ensures that block proposers and attesters, collectively known as validators, have a stake in the network’s integrity and are incentivized to behave with accountability.

In PoS, validators are randomly selected by consensus software to propose and attest the creation of new blocks based on their stake in the network, receiving rewards that usually consist of newly issued native tokens and transaction fees paid by network users (also denominated in the native token). Generally, the more tokens a validator stakes, the more likely they are to be assigned new validation tasks and receive rewards.

Depending on the PoS blockchain, a validator’s stake can be slashed as a penalty for malicious activities—such as double-signing (when a validator simultaneously signs more than one candidate block) and double-attesting (voting in two different blocks proposed by other validators). A slashed validator loses a share of their deposited collateral and, depending on the network, can be forced out of the blockchain’s validation set.

In other words, staking secures the network by reducing the risk of 51% attacks, where a group of validators attempt to collude to control a majority of the network’s validation power and manipulate transactions. With a high enough stake, validators are incentivized to follow the rules of the network and are penalized for any malicious behavior.

Staking has become an increasingly popular way to earn rewards in the crypto ecosystem. Ethereum, which migrated to a PoS consensus mechanism in September 2022, is an important example of a blockchain where staking is available. Ether (ETH) holders are able to activate a PoS validator by locking 32 ETH. The upcoming Shanghai hard fork (taking place on April 12) will activate the unstaking functionality on the Ethereum blockchain, allowing users to unlock ETH (principal deposit and/or validation rewards) they have locked in the new Ethereum consensus layer, the Beacon Chain. This is allowing asset managers such as Hashdex to engage with ETH staking.



¹ A network’s consensus mechanism is the method used to secure and validate blockchain transactions. These include Proof-of-Work (PoW), used for the Bitcoin network, and Proof-of-Stake (PoS), used for Ethereum.

Why should investors stake?

In addition to the potential price appreciation of holding a blockchain’s native token, investors have three primary incentives to engage with staking:

1: Avoid token value dilution: Native token issuance is the economic incentive that allows decentralized blockchains to be built. While this is able to foster network growth from scratch, it comes at the cost of diluting the holdings of every investor through monetary expansion. Since stakers are responsible for validating transactions in a PoS blockchain, they are the ones receiving newly issued native tokens, protecting their holdings from being diluted as time goes by.

2: Earn a real yield: Because validation rewards include transaction fees (that is, tokens that only circulate from the hands of end-users to the hands of validators), stakers effectively earn a real yield on top of their holdings.

3: Contribute to network security: Stakers are the ones providing the security to the PoS blockchain in which they invest. The more decentralization and the higher the staked capital in a network, the more resilient and trustworthy a blockchain is, strengthening its long-term prospects and investment case.

From Hashdex’s perspective as an asset manager, these factors constitute relevant additions to a pure buy-and-hold strategy, reducing net asset value (NAV) dilution, cutting down administration costs of structured products, and promoting responsible investment stewardship.

Token Holder



1: Exposure to the price appreciation of a native token due to growing adoption of a blockchain (more network demand).

Staker



1: Exposure to the price appreciation of a native token due to growing adoption of a blockchain (more network demand).

2: Avoids token value dilution (receives newly issued tokens).

3: Receives a real yield (transaction fees)

4: Contributes to the security of the network in which they invest.

Hashdex's approach

Since our 2018 founding, Hashdex has always maintained the highest standards of compliance, security, and risk controls as a fundamental principle. The collapse of several centralized entities in the crypto asset market throughout 2022 were reminders of the value of these principles, especially in an emerging industry like crypto. And we are proud that our processes and operational controls allowed Hashdex to avoid these crises. These are the same principles that have guided the development of our Staking Program.

Making a thoughtful and disciplined choice regarding the compliance partners who will operationalize the staking activity is crucial. Among the various alternatives available in the market, we chose a small group of companies that, after a strict due diligence process, demonstrated expertise and solidity that meets our high standards. One key requirement is that the staking service provider supports the institutional-grade custodians used by Hashdex, maintaining this high level of security standards for assets in custody. In addition, we evaluated criteria relating to regulatory and tax clarity of the jurisdiction where these companies operate.

A process was designed by Hashdex, the funds administrator, the assets custodians, and the staking service providers in order to minimize the possibility of any losses during the process of bonding and unbonding for staking assets held by custodians. Again, these considerations were based on the strict processes used by Hashdex since 2018 that have prevented bad actors from impacting our investors.

There are two main pillars regarding risk controls. The first is related to liquidity control. Since each asset supporting staking has specific withdrawal rules, it was necessary to develop a methodology that establishes a maximum limit of how much can be placed in staking for each of these assets in any given fund. In this way, it is guaranteed—within very conservative assumptions—that all eventual redemptions can be honored. The second pillar concerns the concentration of assets in different staking service providers. In addition to mitigating potential risks associated with staking operations themselves, a lack of asset concentration ensures that movements can be made without relying solely on one service provider.

Hashdex will enable all products that hold assets supporting staking using this framework, which will contribute to the security of the networks and generate returns for investors. Currently, the only Hashdex products that will not have staking capabilities, directly or indirectly, are the BITH11 ETF and the Hashdex Bitcoin FIC FIM fund.

The Staking Program provides an opportunity for Hashdex investors to contribute to the development and the security of the blockchain networks in which they invest while simultaneously increasing the return on their invested capital. Because this program is supported by the innovative yet conservative principles that have guided Hashdex's actions since inception, we believe investors will benefit without taking on unnecessary risks.

Risks and benefits of staking

Risk:

Slashing risk: A mechanism in blockchain protocols that removes or burns tokens allocated in staking to deter operational errors by validators such as downtime and double signing, resulting in losses to the funds. To reduce the risk of slashing, Hashdex employs professional staking platforms with an excellent track record of operations.

Liquidity risk: Staked crypto assets may be subject to a lock-up period, reducing the liquidity of the funds. To reduce this risk, it is important to keep a portion of the assets unstaked to ensure that the funds can meet redemptions.

Cybersecurity risk: Staking may require the execution of smart contracts, which are exposed to the risk of cyber attacks and can lead to irreversible loss. To reduce this risk, it is important to understand the functioning of the blockchain whose token is staked. The Hashdex research team is dedicated to monitoring these risks.

Benefits:

Income opportunities: Staking allows for additional profitability through passive income similar to earning interest in traditional finance. This profitability varies substantially from one crypto asset to another over time.

Network security: Participation in the security and governance of the network. Allocating assets in staking promotes the security and governance of blockchain networks and thus participates in the development of this new technology.

Avoid token dilution: New tokens might be issued as a reward to those who participate in the validation process through staking. By staking cryptocurrency, individuals can receive a portion of the distributed rewards, thereby avoiding dilution of their holdings.

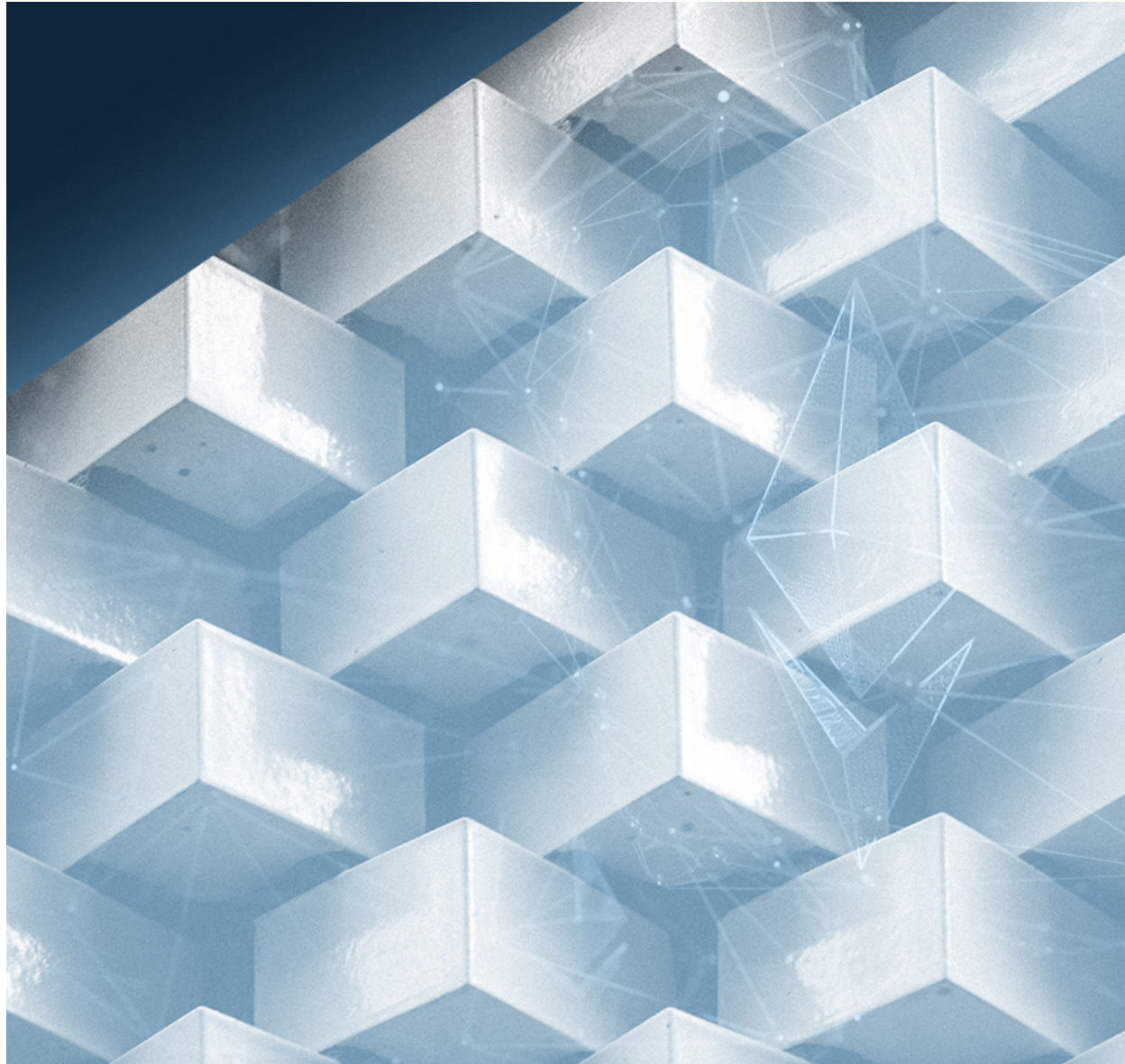
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Past performance is not a guide to future performance and should not be the sole factor of consideration when selecting a product. An investor should consider investment objectives, risks, charges, and expenses of the investment carefully before investing.

Investments in cryptocurrencies are highly speculative and volatile and are subject to many risks. Investors could lose a part or the entirety of their investment. Due to the limited history of cryptocurrencies and the rapidly evolving nature of the cryptocurrency market, it is not possible to know all the risks involved in making an investment in cryptocurrencies, and new risks may emerge at any time. Cryptocurrencies have gained commercial acceptance only within the past decade and, as a result, there is little data on their long-term investment potential.

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