

Q&A



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WisdomTree Crypto ETPs



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1. Custody & Security

1.1. Who are your custodians?

The custodians for the WisdomTree Digital Assets ETPs (Exchange Traded Products) are Swissquote, a Swiss Bank regulated by the Swiss Financial Market Supervisory Authority (FINMA) and Coinbase Custody Trust Company LLC, a New York limited purpose trust company which is authorised to provide fiduciary custodial services to institutional customers.

1.2. Of all the potential custodians in the place, how and/or why did you choose to work with Swissquote and Coinbase?

Swissquote is a highly reputable Swiss Bank regulated by FINMA. As such, it undergoes financial health reviews, policy and procedure reviews, and must maintain capital reserve requirements as defined by the Swiss Regulator. Swissquote has the largest online trading platform in Switzerland, and is also authorised by FINMA as a digital assets custodian. Swissquote was the first online bank in Europe to offer digital assets trading and has the most complete digital assets platform available to retail and institutional customers. They have developed an industry-leading, institutional-grade approach to digital asset security, which is audited by PricewaterhouseCoopers (PwC) and compliant with SOC¹ – I / II. Additionally, Swissquote has a long history of successfully acting as a custodian for traditional financial assets.

Coinbase Custody is an independent, NYDFS-regulated qualified custodian. They developed best-in-class security and operations to address the security, regulatory, and operational challenges unique to the crypto market. Dedicated on-chain addresses are secured by Coinbase's battle-tested cold storage. Indeed, Coinbase Custody offers clients access to the secure, institutional-grade offline storage solution that has been used by Coinbase's exchange business since 2012. All digital assets are segregated and held in trust for the benefit of our clients. In addition, Coinbase's insurance policy is one of the largest crypto insurance facilities in the industry.

1.3. Why do you have two custodians?

WisdomTree has appointed multiple custodians to safeguard the digital currency held by WisdomTree Issuer X Limited (the "Issuer" of WisdomTree Digital Assets ETPs) on behalf of investors.

1 Service Organization Control

The digital currency may be stored across multiple custodians. We consider the multi-custodian structure to provide the below added benefits:

- + Diversification of assets to mitigate any single point of loss of assets.
- + Ability to take advantage of any one custodian strength and expertise in a particular digital currency.
- + Ability to take advantage of any one custodian's enhanced operational efficiency due to development within that custodian.
- + Ability to utilise new or increased security measures and tools developed by any one custodian.
- + Ability to continue to improve cost efficiency of the products, e.g. custody or transaction fees.

1.4. How do you allocate assets between custodians?

Allocations are reviewed, assessed and agreed by WisdomTree on behalf of our clients. The allocation process will be based on multiple factors such as industry landscape, operational efficiency, technology etc. For more information, please see our [allocation policy](#).

1.5. Are you protected against hacks?

Coinbase and Swissquote both have developed industry-leading, institutional-grade approaches to digital asset security. They combine institutional-grade hardware, software security, operational policies and procedures, to eliminate single points of failure and protect digital assets against attacks.

Cold Storage: Private keys² are fully encrypted and kept offline. For any withdrawal / transaction out of the offline wallet³, human intervention is required.

Geographic Distribution of Redundancies: There is device, geographic, environmental and human redundancy allowing constant access. All locations are highly secure with one of Swissquote's locations being a highly secure former Swiss army bunker in the Swiss Alps.

Robust Approval Process: Coinbase and Swissquote use institutional-grade multi-approval technology, which significantly reduces the risk of losing a single approval key or approver and the effect this may have on accessing the digital assets. Multi-approval technology works by an "M-of-N" system, meaning that M approvers out of N known approvers must approve a transaction in order to sign the transaction. The separation of duties for wallet configuration (e.g. setting and approving policies), client communication, transaction initiation, auditing functions is an inherent component of the custodial offering to provide robustness to the approval process.

² A secret number that allows digital assets to be spent

³ System to store private keys

Furthermore, redemptions can only be initiated to a predefined immutable set of whitelisted addresses.

1.6. What is "cold storage"?

Cold storage refers to holding private keys in an offline environment, not directly connected to the internet. It is opposed to a "hot wallet", where the private keys are stored on hardware directly connected to the internet, and thus more vulnerable to hacks. The trade-off for more security afforded by cold storage is reduced accessibility through and increased time requirements to transact in coins held in this way. For this reason, you typically see hot storage used for transactional coins intended for short term trading whereas cold storage is suitable for stable, longer term holdings.

1.7. Are the keys ever online?

Private keys in cold storage are never directly connected to the internet.

1.8. Can I visit the vaults?

For security reasons, it is not possible to visit the locations where the private keys are held.

2. Legal & Regulation

2.1. Where are the WisdomTree Digital Assets ETPs domiciled?

The WisdomTree Digital Assets ETPs are domiciled in Jersey.

2.2. Why are the ETPs domiciled in Jersey?

1. Jersey is upheld as a jurisdiction that offers excellent, contemporary corporate laws.
2. Jersey has a strong regulatory environment. Jersey is also covered by the Organisation for Economic Co-operation and Development (OECD) Convention, please find the relevant announcement on the OECD website at: <http://www.oecd.org/legal/ukdependenciesterritories.htm>.
3. Jersey has a world-class professional infrastructure. Our legal advisor in Jersey is Mourant Ozannes who have offices in London, Hong Kong and in Jersey amongst other jurisdictions.
4. Jersey companies are subject to the ultimate supervision of the Jersey courts. The Jersey courts are independent, and impartial. Many of the judges sitting in the Jersey courts are English-trained lawyers. Moreover, the final court of appeal from the Jersey Court of Appeal is the English Privy Council.
5. The proximity and interconnectedness of Jersey to the UK is convenient for various operational reasons, for example, the CREST settlement system framework extends to securities issued in Jersey and we can use a Jersey-based Registrar to interact directly with CREST.
6. WisdomTree has a long history of structuring Jersey-domiciled products that provide exposure to physically held assets. As such, products structured in this way have a proven track record (over 10 years) as being a suitable and efficient for investors on a pan European basis.

2.3. Are the products UCITS Eligible?

Clients need to make an assessment of this for themselves however we believe that the treatment here should be the same as for other exchange traded commodities, which are generally considered UCITS eligible. You can find detailed analysis of the products' UCITS eligibility [here](#).

2.4. Are the products regulated?

A prospectus in respect of the Issuer of WisdomTree Digital Assets ETPs, has been approved by the Swedish Financial Supervisory Authority (Sw. Finansinspektionen) (the “SFSA”), as competent authority under Regulation (EU) 2017/1129.

The prospectus permits offers of WisdomTree Digital Assets ETPs to the public and/or an admission to trading of WisdomTree Digital Assets ETPs on a regulated market in Sweden and in the markets to which the prospectus has been passported.

The Issuer has requested the SFSA to notify the approval of the Base Prospectus to Austria, Belgium, Denmark, Finland, France, Germany, Italy, Ireland, Luxembourg, Netherlands, Norway, Poland and Spain.

The Issuer is not supervised by the Jersey Financial Services Commission; however, a copy of the Prospectus will have been delivered to the Registrar of Companies in Jersey in accordance with Article 5 of the Companies (General Provisions) (Jersey) Order 2002 (the CGPO), and the Registrar of Companies in Jersey will have given his consent to its circulation.

Further, the Jersey Financial Services Commission has given its consent under Article 4 of the Control of Borrowing (Jersey) Order 1958 (the COBO) to the issue of securities by the Issuer. The WisdomTree Digital Assets ETPs do not constitute a collective investment fund under the Collective Investment Funds (Jersey) Law 1988 on the basis that they are investment products designed for financially sophisticated investors with specialist knowledge of, and experience in, making such investments and who have an asset base sufficiently substantial as to enable them to sustain any loss that they may suffer as a result of making such investment.

2.5. Who can access these products?

The products are permitted to be offered to the public and/or to be admitted to trading on a regulated market in the following countries:

Austria, Belgium, Denmark, Finland, France, Germany, Italy, Ireland, Luxembourg, Netherlands, Norway, Poland, Spain, Sweden and Switzerland.

The products are currently tradeable on the Swiss Stock Exchange (SIX), Deutsche Börse Xetra, Euronext Paris and Euronext Amsterdam, or via a broker for those clients with the appropriate market access. For further information, please contact WisdomTree.

These products are available for institutional and professional investors in the following countries:

- + United Kingdom
- + Israel
- + Some Latin America countries

This list is not exhaustive. If your region is not in the above list, please contact us.

These products are only available to advanced or expert retail investors in certain circumstances, please speak to your advisor or broker for further information. Furthermore, availability can be restricted in some regions.

2.6. Do you check the coins provenance?

The Issuer has appointed two highly regarded institutional cryptocurrency custodians, Coinbase Custody and Swissquote. Each of the custodians have adopted robust custody controls of the coins received and strictly monitor the transactions within the custody network, adhering to anti-money laundering (AML) regulations.

Coinbase Custody: As part of their AML programme, Coinbase Custody has built a bespoke transaction monitoring system integrated into their proprietary Coinbase Analytics blockchain monitoring solution. This enables Coinbase to analyse crypto asset transactions on the blockchain. This infrastructure allows Coinbase to quickly adapt to emerging threats in the crypto-economy, build scenarios and typologies around specific transaction types, and gives them flexibility to support new products and services.

SwissQuote: Swissquote performs compliance checks and forensic blockchain analysis on all crypto transfers using a non-proprietary system to identify and ensure that the crypto assets do not originate from illegal activities.

3. Structure

3.1. What is meant by "physical" digital assets?

Similarly to a physically-backed gold ETP, which is backed by gold bars held in a bank vault, private keys allowing for the transaction of digital assets are held in highly secured locations, and on highly secured hardware.

This is generally opposed to synthetics replication, by which a financial instrument like an ETP or an Exchange Traded Fund (ETF) does not actually hold the underlying asset which it is supposed to represent, but achieves representation by other means, usually through holding derivative instruments.

Alternatively there are offerings structured as a note or structured product, where the issuing entity essentially guarantees the performance. However, this introduces counterparty risk to the product with investors taking solvency risk to the issuing entity.

3.2. What is "coin entitlement"?

The total coin entitlement refers to the number of digital assets the ETPs are entitled to.

The coin entitlement per share can be calculated by dividing the total coin entitlement by the number of shares outstanding.

The exact coin entitlement is published daily can be found on our website.

3.3. How are fees applied to the products' Net Asset Value (NAV)?

The total coin entitlement for the ETPs is reduced on a daily basis to represent the fee incurred over a day.

3.4. What is indicative NAV?

Since the products are completely physically-backed, the primary way we value the shares is in digital assets terms (bitcoins, ether,...), i.e. the coin entitlement per share. However, in order to provide clients with a cash equivalent valuation, we also publish a per-share indicative USD value ('NAV') which is calculated using the relevant price index, for example the CME CF Bitcoin Reference Rate (BRR) or CME CF Ether Reference Rate (ETHUSD RR). This is obtained daily simply by multiplying the per-share coin entitlement (available on the website) by the reference price for that day.

3.5. Why did you choose these reference prices?

The CME CF reference rates were chosen by WisdomTree after reviewing all the leading methodologies for calculating a reference price for digital assets. They were found to be the most robust calculation and further had the advantage of setting the settlement prices for the most liquid futures, traded on the CME. CME does not currently provide reference rates on Solana, Cardano, and Polkadot assets, as there are no listed futures available referencing these assets.

WisdomTree uses CME CF Reference Rate for the WisdomTree Physical Bitcoin ETP and the WisdomTree Physical Ethereum ETP.

For the three basket products: WisdomTree Physical Crypto Mega Cap Equal Weight ETP, WisdomTree Physical Crypto Market, and WisdomTree Physical Crypto Altcoins, WisdomTree use the CME CF Reference Rate for the Bitcoin and Ethereum components and CF Benchmark Reference Indices for the Solana, Cardano, and Polkadot components.

For the WisdomTree Physical Solana, WisdomTree Physical Cardano, and WisdomTree Physical Polkadot ETPs, WisdomTree use the CF Benchmark Reference Indices.

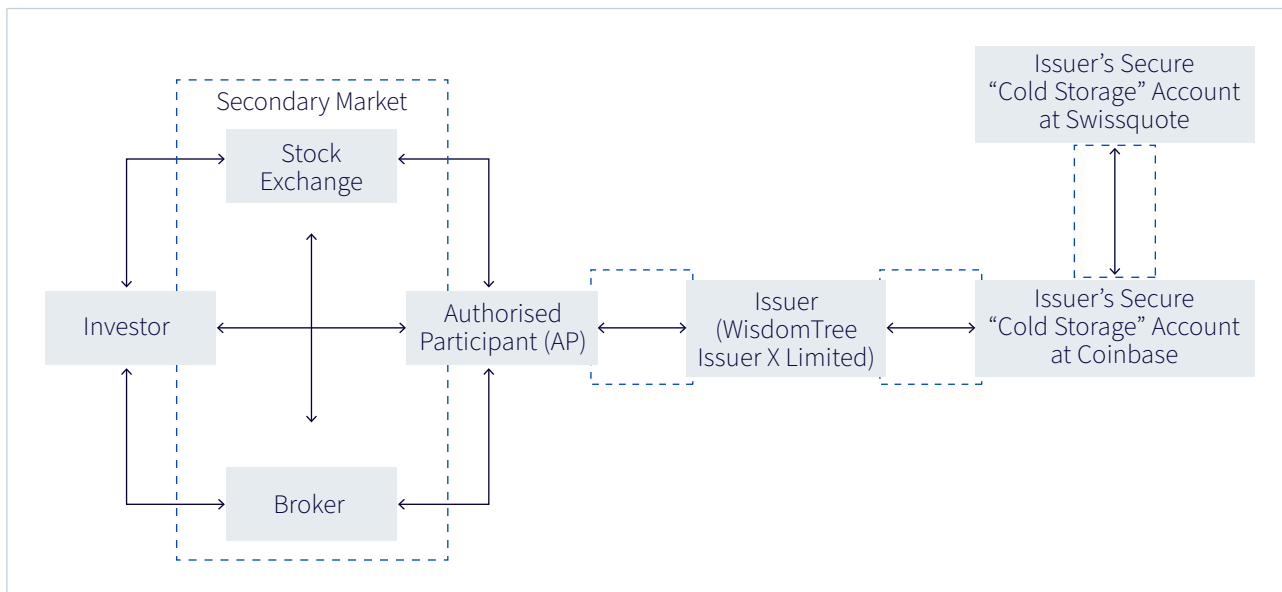
For all the above-mentioned crypto assets, CF Benchmark is the main provider for the underlying data calculation based on the same calculation methodology. This includes Bitcoin and Ethereum, which are co-branded as “CME CF Reference Rates”. CF Benchmarks Ltd. is regulated in the United Kingdom by the Financial Conduct Authority and is one of the industry leaders in providing crypto assets reference rates calculations.

3.6. Who are your Authorised Participants (APs)?

Our current APs are Bluefin, DRW Global Markets, Flow Traders, Goldenberg Hehmeyer, Jane Street Financial Ltd, Virtu Financial.

3.7. What is the creation/redemption process?

The ETPs use “in-kind” redemption/creation process in the primary market between the Issuer and the APs. This means the APs deliver/take delivery of digital assets for shares based on a per-share coin entitlement which is available daily on the website. At launch of the bitcoin ETP, each share was worth approximately 0.01 bitcoins so in order to create 100 shares, the AP needed to deliver approximately 1 bitcoin to the ETP.



The WisdomTree Digital Asset ETPs do not trade digital assets in the creation/redemption process, thus avoiding the use of cash, as well as avoiding transaction costs from being incurred inside the product as part of the creation/redemption process.

The exact coin entitlement can be found on our website on a daily basis. The coin entitlement per share can be calculated by dividing the Total Coin Entitlement by the Shares Outstanding.

3.8. Can investor redeem directly with the Issuer?

No, investors transact in the secondary market, buying or selling shares on an exchange or directly with their broker.

3.9. Are the products insured against hacks?

Assets held with Coinbase are covered by Coinbase's Commercial Crime insurance, protecting assets for asset theft or mysterious disappearance from Hot and Cold Storage, up to \$320million (for all of Coinbase Global customers, subject to change). Swissquote also has an insurance facility of CHF 5 million.

We believe the insurance market for digital assets is not mature enough, and the primary way risks are managed in this space is always going to be predominantly through operationally robust safe keeping procedures. This is the same set-up we see in the metals market – another space requiring robust physical security – with insurance playing a small role in risk mitigation on the edges.

Safekeeping of assets and accessibility are WisdomTree's primary goal in creating digital asset ETPs. In developing the program, we have gone to great lengths to ensure that the direct holdings are secured using industry leading storage solutions taking in to account the

operational and cyber-security considerations, which are of key important to investors entering this asset class. The products offer a simple and cost-efficient way to invest in digital assets with confidence.

The WisdomTree Digital Asset ETPs directly hold the underlying assets in segregated wallets managed through an institutional custody set-up. The custodians we work with are leaders in the field and offer best-in-class storage solutions for digital assets ensuring that we have transparency and control over our holdings in a highly secure, reliable environment. The amount held is monitored and reconciled daily basis between our custodians, the Issuer and the administrator.

3.10. What happens if the digital assets undergo a hard fork?

WisdomTree will adhere to the custodians' fork policy.

In the event that a fork is not supported by the custodians, this will be clearly notified to WisdomTree. There will be no further action required. The existing digital asset will continue to exist with no impact.

If in the event a fork occurs and the custodian is able to support the fork, WisdomTree will likely look to facilitate with the custodian to sell the forked asset and pay the proceeds to the ETP holders, as per the CREST Register and agreed date.

The overall process will be communicated in detail with the Custodian, ETP holders and AP as required.

The forked asset will be transferred in the background to a segregated portfolio linked to the same cold storage account. Swissquote does this to ensure there is no co-mingling with the existing assets, until the WisdomTree advises the course of action (i.e sell or keep).

The forked digital asset will be instructed to the custodian to be transferred to the Issuer trading account. This will take the form of a standard withdrawal request (or Inter Account Transfer one the development is possible for complete).

Once the forked asset hits the trading account this can be sold for USD. Once settled, the USD will be paid to holders as at that date.

3.11. To what extent does the digital assets that you have backing the ETPs guarantee the solvency of the product? In which instances might creditors have claim to these digital assets before investors like me?

The digital assets held in/by the product are solely for the purpose of backing the relevant product. The Issuer is a separate legal entity and creditors of WisdomTree have no claim to the assets held by this or any other WisdomTree product.

4. Trading

4.1. How can I buy these ETPs?

Investors in the WisdomTree Digital Asset ETPs can buy or sell as little as one share on exchange or directly with their broker over the counter (OTC). The products are currently listing on the SIX, Xetra, Euronext Paris and Euronext Amsterdam exchanges.

4.2. Is an iNAV available for the WisdomTree Digital Asset ETPs?

Not currently, but CME CF reference rates have an intraday indicative price.

4.3. At what time is the Net Asset Value (NAV) calculated?

Here is an example for the WisdomTree Physical Bitcoin ETP.

The daily NAV is calculated using per-share coin entitlement and the CME CF Bitcoin Reference Rate (BRR).

The BRR is calculated based on the relevant bitcoin transactions on all constituent exchanges between 3:00 p.m. and 4:00 p.m. London time. The price and size of each relevant transaction is recorded and added to a list which is portioned into 12 equally weighted time intervals of 5 minutes each.

4.4. What is the maximum order size you can take? How large a trade could be facilitated?

The maximum order size that could be facilitated on a given day would be dictated by the available liquidity. This is due to the in-kind creation/redemption process creating a direct link between the WisdomTree Digital Assets ETPs and the underlying digital assets market. In order to create a given size the AP needs to source the equivalent amount of digital assets (based on the coin entitlement).

This means that any cost associated with sourcing the digital assets, including any market impact, will affect the pricing of a given the WisdomTree Digital Assets ETP trade and therefore the efficient max size.

Whilst market conditions vary and must always be considered when trading, the efficient trade size is typically in the 5-10mn USD range, but trades in the 25+mn USD can be accommodated (conditions permitting).

4.5. In order for me to sell units, is a buyer required or will you sell the underlying digital assets to create the daily liquidity where needed?

All investors purchase shares in the secondary market (usually on exchange) with two-way liquidity provided by market makers throughout the trading day. The liquidity that market makers are able to provide is directly linked to the underlying digital assets market as shares in the products can be created or redeemed on a given day in exchange for digital assets.

If we consider a scenario where an investor is looking to sell shares of the WisdomTree Digital Assets ETP, they would do so at the prevailing market price, either on exchange or via their broker, and will end up trading against an Authorised Participant who will in turn redeem the shares with the Issuer in exchange of digital assets. These can then be liquidated to facilitate payment for the shares being sold by the investor.

5. Staking

5.1. What is staking?

Staking is a way of earning rewards by simply holding a specific cryptocurrency and being willing to participate in that blockchain's transaction verification process. In order to secure a Proof-of-Stake blockchain, network validators need to stake the respective network's native cryptocurrency and come to an agreement about the correct order of transactions. This consensus mechanism is an algorithm that is written in the respective network's software code.

5.2. How is 'Proof-of-Stake' different from 'Proof-of-Work'?

Bitcoin and some other digital asset networks use the 'Proof-of-Work' consensus mechanism. Although there is no 'staking' in Proof-of-Work consensus mechanism, we will describe Proof-of-Work just to highlight the differences in the two consensus mechanisms. In the Proof-of-Work consensus mechanism mining computers compete against each other using electricity to solve difficult math problems in order to create new blocks on the network. Nodes⁴ on the network check that this work has been done – that it is correct - then validate the new block. In return for doing this intensive computational work ('Proof-of-Work') the miners are rewarded with newly created ('minted or 'mined') native cryptocurrency of the network. If the work is not correct, the nodes reject the false block and the miner incurs the cost of expended electricity.

By contrast, under 'Proof-of-Stake, there is less computational work being done. Instead, validator nodes on the network (i.e. the nodes with a stake in the network) are chosen at random to create new blocks on the distributed database. The probability of being chosen is usually higher if more cryptocurrency has been staked. When selected to create a new block, the node compiles a set of transactions and signs them with a private key. Other validator nodes on the network check that this is all correct and, if so, the node is rewarded with newly minted cryptocurrency. If the work is not correct – then the node can incur a penalty, a low probability form of which is called slashing, which results in some or all of the staked cryptocurrency being lost. The more common penalty is what is termed 'leaking', which is a very gradual reduction in the amount of staked cryptocurrency so as to eventually remove the poorly performing validator node from the network.

⁴ A node is a computer that runs a cryptocurrency software

5.3. What is a validator node?

A validator node does what the name suggests: validates proposed new entries to the distributed ledger. It does this in an automated way. Depending on the network, the validation might involve checking the digital signature included in the entry is correct, that the transactions conform to the protocol's rules and that the transactions originate from accounts with sufficient balance.

5.4. Why is there a reward for staking?

The validator nodes are doing the verification work required to secure the network. They are also incurring an opportunity cost from staking (i.e. locking up) their cryptocurrency. The staking reward is given to incentivise this work and recompense some of the opportunity cost.

5.5. Where does the staking reward come from?

Different digital asset networks have different monetary policies (i.e. the incentive structure used to encourage or discourage certain behaviour on the network). For most networks, the new cryptocurrency created (i.e. the network inflation) is given to stakers. In some networks, this might be accompanied by the transaction fees paid by those transacting on the network.

5.6. Who decides the reward?

The staking reward is a consequence of the way in which developers wrote the code for the network. This monetary policy is decided when the network is created and can be adjusted over time according to the governance rules of the network, hard forking the network or applying a soft fork upgrade. There may be other factors that lead to the staking reward varying over time, depending on the network, including transaction fees, number of validator nodes, amount of cryptocurrency burnt, etc.

5.7. Does staking differ across digital asset networks? Why?

Yes it does. There are a number of variations of the Proof-of-Stake consensus mechanism, which makes staking different across networks. Staking also differs due to the way in which the monetary policy of the network (i.e. the conditions under which and the rate at which new cryptocurrency is created), which differs across networks. There are also some technical specifications, like the minimum staking amount or leakage/slashing rules, that differ across networks.

5.8. Why does the staking reward differ across digital asset networks?

Different networks have different monetary policies, which in part determines the staking reward. The emission (i.e. inflation) rate follows a curve, which means that over time, as more and more nodes participate in staking, the new cryptocurrency is distributed across more and

more nodes. This tends to reduce the yield for each individual node over time. In some networks the staking reward from inflation might be accompanied by the transaction fees paid by those transacting on the network. This again can vary as demand and willingness to pay for block space on the network, and the network's block capacity, change over time.

5.9. Does the staking reward vary over time?

Yes – though the rate varies across networks. For some networks, the emission (i.e. inflation) rate follows a curve, which means that over time, as more and more nodes participate in staking, the new cryptocurrency is distributed across more and more nodes. This tends to reduce the yield for each individual node over time.

Moreover, in some networks the staking reward from inflation might be accompanied by the transaction fees paid by those transacting on the network. The transaction fees can vary as demand and willingness to pay for block space on the network, and the network's block capacity, change over time.

5.10. How often are staking rewards paid?

This depends on the network rules which vary substantially such as epoch time and so on.

5.11. What are the staking rewards denominated in?

The staking rewards are denominated in the native cryptocurrency of the network in question.

5.12. Does staking involve lending out my digital assets?

No. When running one's own staking infrastructure the cryptocurrency remains with the party possessing the private keys (i.e. the custodian) at all times. Staking involves locking up cryptocurrency in a smart contract, which means that the private keys are still held by the custodian. This is subject to some risks including smart contract risk and the risk of slashing/penalties.

By contrast, lending of digital assets can either be done via a centralised or decentralised entity. When done with centralised lending platforms, control of the private keys is given to the centralised entity, which then lends out those assets in exchange for interest on the loan. This comes with various risks including counterparty risk.⁵

5.13. Do the staking rewards compound over time?

It is completely dependent on the network, for instance Solana staking rewards are compounded over time but not on the Ethereum network.

⁵ <https://www.figment.io/resources/misconceptions-about-staking-protocol-staking-vs-liquidity-lending>

5.14. Are the staking rewards added to my ETP coin entitlement?

Yes. Per gaining visibility on daily reward gains WisdomTree will incorporate the investor's coin-denominated reward into the fund.

Operations

5.15. Where are the digital assets stored when staked?

Both staked and unstaked cryptocurrency will continue to be held in cold storage at our custodian.

5.16. Does staking involve a cold or hot wallet?

WisdomTree may participate in staking rewards without moving assets from custody. This means that all digital assets remain in cold storage (i.e. airgapped and not connected to the internet) while staking. The technical configuration can differ across different networks. Please see below the specificities for each network.

5.17. How soon can I withdraw my staked digital assets?

This will vary depending on the digital asset network in question. Regardless of the unbonding time, the process remains the same. First, WisdomTree needs to unstake and then wait a period of time for the assets to “unbond” from the staking process. Before unstaking can be completed, there is a step involving security key authorization. Once done, we will need to follow the multi-party consensus approval process for the change to process. Before unstaking, WisdomTree will need to follow the standard security process (multi-party consensus approval process etc.).

5.18. What risks am I subject to when staking?

Beyond the risks that require management for all digital asset ETP products, staking presents a few additional risks to manage:

- + **Network outage:** If there is a network outage, this would delay bonding/unbonding as well as the redemption settlement. WisdomTree would proactively communicate the issue if it were to arise.
- + **Liquidity:** the unbonding period could cause a delay of the redemption settlement
- + **Leakage:** For some digital asset networks, if the validator nodes do not respond for a sustained period of time when requested to validate new transactions, a small ‘leakage’ fee is imposed on the node’s stake. This is imposed so that, over time, if some nodes persistently fail to perform their validation role, then the distribution of staked cryptocurrency returns to a threshold required for the network to resist certain classes of attack.
- + **Slashing:** Malicious validator behaviour such as dishonest validations, double signing and inactivity may be subject to a penalty called “slashing” depending on the specific protocol. Slashing is designed to incentivise validator responsibility and network collaboration. Slashing penalties vary depending on the protocol but can cause the reduction of the validator’s stake or in some instances the validator may be removed from the network.

5.19. How does the custodian / validator node operator ensure that my stake is kept safe?

A combination of cold storage and operational security processes are used to manage staked digital assets. The stake/unstake bonding period is done on-chain (need to wait for the custodian batch), which can only be initiated with a multi-party approval process.

5.20. What happens if there is a large redemption and my digital assets are staked (i.e. locked-up)?

WisdomTree splits the total AUM across several wallets. The fund's digital assets will be divided into liquid and staked assets. A WisdomTree working group monitors the staked levels and decides/changes the threshold and the number of required staked wallets as required.

If there is a large redemption on any cryptocurrency ETP, redemption settlement may incur a delay beyond the standard settlement cycle.

Ethereum staking

5.21. What are the risks related to staking Ethereum?

In addition to the general staking risks highlighted above, it is noteworthy to mention that staking requires ether to be locked on the protocol in order to earn staking rewards. It is not possible to trade or transfer the staked ether during this period. Also, the bonding and unbonding periods vary and the time taken depends on the number of validators in the activation and deactivation queue. Bonding is the time taken to lock the staked ether into the validator's smart contract node. Unbonding is the time taken to unlock the staked ether from the validator's smart contract node.

5.22. What yield can be earned by staking ether?

The estimate for Ethereum's annual percentage yield varies between 4-8% and is dependent on many factors, including the way ether is staked, the amount of validators, the amount of transactions on the blockchain and whether maximum extractable value (MEV) technology is used.⁶

5.23. What are the different types of rewards in ether staking?

There are two types of rewards:

- + **Consensus layer rewards:** rewards for participating in the Proof-of-Stake network by proposing or validating blocks
- + **Execution layer rewards:** Ethereum network users can incentivise a validator to process transactions faster by paying an extra transactions fee. To earn this extra fee, a validator must make sure to add those specific transaction(s) to the block they propose. Execution layer rewards fluctuate based on network traffic volume

5.24. What is the inflation rate of the Ethereum network?

Ethereum Improvement Proposal EIP-1559 introduced the concept of 'burning', which means removing some ether permanently from token supply. As a result of this upgrade, at times the protocol can and has turned deflationary such as in November of 2022⁷ (ultrasound.money). After 'the Merge', an upgrade to the Ethereum network implemented in September 2022, more ether was removed from the token supply than the amount of new ether issued that year. This deflationary tendency is built into the software code of the Ethereum network but the amount of 'burned' ether depends on many factors, including the network activity and users' willingness to pay transaction fees, which vary constantly.

⁶ [Ethereum.org; stakingrewards.com](https://ethereum.org/en/staking-rewards/)

⁷ [Ultrasound.money](https://ultrasound.money)

5.25. Is there a minimum ether requirement for staking?

Yes. Each validator must have exactly 32 ether to participate in the validation process.

5.26. How frequently are ether rewards provided?

It usually takes approximately 2-5 days to receive the reward depending on whether the validator has chosen to have its rewards withdrawn at the next epoch.

5.27. What is the unbonding period for the Ethereum network?

The unbonding period varies,, it usually takes more than five days and depends on the number of validators in the activation queue at any given time.

5.28. Does the Ethereum network have slashing?

Yes, slashing detection for double signing and serious downtime is automatic. Slashing is a penalty imposed on malicious nodes that attempt to approve false entries on the distributed ledger.

Solana staking

5.29. Can validator nodes incur a slashing penalty on the Solana network?

For Solana, there is no automatic slashing (i.e., no penalty if the validator behaves maliciously).

5.30. What is the (un)bonding period for the Solana network?

For Solana, an un-bonding (= unlocking/un-staking period) of a staked position can take 2-4 days.

5.31. What is Solana's proof of history consensus mechanism and how does it relate to proof of stake?

There are many different variants of proof of stake consensus mechanisms.

Solana uses a hybrid of proof of stake and what they term a 'proof of history' consensus mechanism. Being a hybrid, the proof of stake consensus mechanism involves the staking of SOL cryptocurrency to validator nodes, which in turn operate the network.

Where the proof of history hybrid element enters is in the way that different nodes keep track of the state (the current order of transactions on the distributed ledger) of the network. Solana adds a hashed timestamp of the prior ledger entry to each new entry on the distributed ledger. Due to some technical constraints around computation of hashes, this hash shows that the block was emitted during its slot and not at any other time, which can be easily and thus quickly verified by any validator. Each block contains the signature of the node (called a 'leader') who emitted it, allowing other validators to quickly prove that the block was indeed emitted by the proper 'leader' for that slot.

For a non-technical explanation of 'proof of history' see: <https://solana.com/news/proof-of-history>

For an extensive, more technical explanation of 'proof of history' and how it relates to proof of stake see: <https://www.shinobi-systems.com/primer.html>

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