21SHARES

Research Report

Tezos Investment Thesis

This research report presents 21Shares' investment thesis for the Tezos (XTZ) crypto asset. In this analysis, we begin with an overview of the crypto asset and its parent exchange before discussing the market opportunity of Tezos. Next, we delve into the key value proposition of Tezos and outline the crypto asset's primary value drivers. Finally, we touch on the impact of various allocations of Tezos on an institutional investor's portfolio and highlight the asset's main risks.

DATA AS OF DECEMBER 2019

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Introduction

Tezos is a blockchain for smart contracts which aims to improve on other competing smart contract platforms by utilising a consensus mechanism called Liquid Proof of Stake in order for nodes within the Tezos network to come to agreement. It also validates blocks and uses on-chain governance where holders of the Tezos (XTZ) crypto asset are able to vote of key development decisions for the blockchain. In order to understand the Tezos blockchain and the XTZ crypto asset, it is crucial that one first has a good understanding of certain foundational concepts which we define below.

- **Smart Contracts:** A piece of code which exists on a distributed blockchain network and enforces the business logic of an arrangement between different users or addresses on the network.

- **Proof of Work:** A consensus mechanism within a blockchain network which deters unwanted behaviour on the network by requiring nodes or miners, who wish to create new blocks in the blockchain, to execute an algorithm which is computationally expensive to solve in order to ensure the economic security of the blockchain. Miners are rewarded with newly created units of the crypto asset native to the blockchain.

- **Proof of Stake:** An alternative consensus mechanism to Proof of Work where instead of a miner being required to expend computational power in order to solve the required algorithm to create a new block, validators/miners must place down a deposit of the blockchain's native crypto asset which could be slashed (where funds are forfeited due to a violation of the protocol's role) if the validator breaks the rules of the network. Miners are rewarded with newly created units of the crypto asset native to the blockchain.

- **Liquid Proof of Stake:** A variant of Proof of Stake where users are able to delegate their own holdings of their crypto asset to validators who, in turn, are involved in the process to validate blocks. This ensures that all users do not see the real value of their holdings reduce over time due to inflation.

- **Consensus Mechanism:** The means by which nodes within a given blockchain network come to agreement on the current state of the blockchain and its blocks.

- **On-chain Governance:** A system wherein decisions about the future of development for a given blockchain network are made by those who hold the crypto asset.

Figure 1: XTZ Key Metrics

Tezos Key Metrics	As of December 10, 2019
Ticker	XTZ
Price (USD)	$1.44
Circulating Supply (XTZ)	660,373,612 XTZ
Market Capitalization (USD)	$952,043,633
Nominal Staking Yield (%)	6.77%

This report presents 21Shares' investment thesis for the Tezos crypto asset[1]. The Tezos blockchain and XTZ were created to solve some of the major issues its founders, Arthur and Kathleen Breitman, had with existing crypto assets — namely Bitcoin and Ethereum. The key issues, as pointed out in the 2014 Tezos white paper[2], were the problem of forks due to governance disagreements, the various shortcomings of Proof of Work, and security concerns about smart contracts. Tezos was marketed as a solution to these problems and managed to raise $232 million during a token sale in the summer of 2017. In Fig. 2 we show the most prominent token sales[3] and highlight the amount raised by Tezos in comparison — which is the third largest token sale to date.

In order to properly understand the value of Tezos and the XTZ crypto asset, one must first understand the value of Tezos' unique selling points when contrasted with that of its largest competitor, Ethereum. The crypto asset's ability to accrue value and capture an increasingly large segment of the smart contract market will be determined by the market's judgement of the importance of on-chain governance, (Liquid) Proof of Stake, and formal verification — the process of proving that a given algorithm or smart contract runs exactly as it has been specified to run. The latter factor should help reduce the prevalence of bugs in smart contract code.

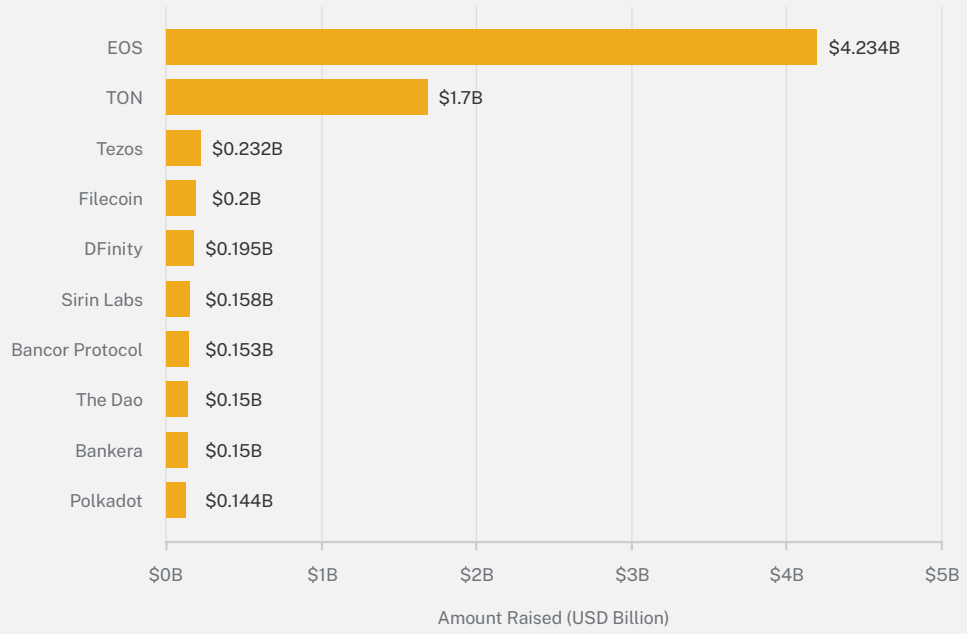

Figure 2: List of Prominent Token Sales by Amount Raised (USD)

The smart contract market is extremely competitive, with a slew of crypto assets and blockchain networks constantly being launched to compete with Ethereum's market share. The chart[4] below (Fig. 3) compares the market share of Ethereum (ETH) and Tezos (XTZ) to the rest of the smart contract market as of December 10, 2019.

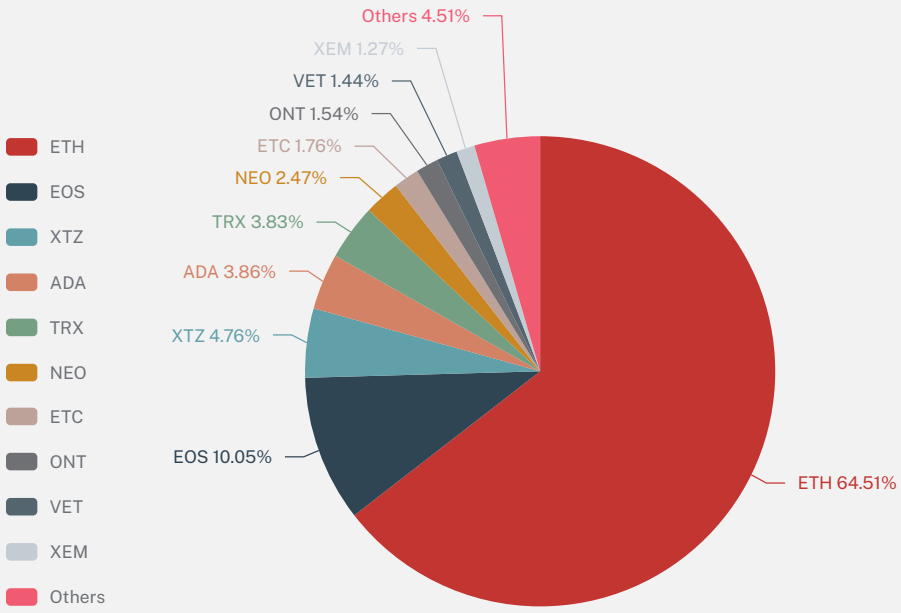

Figure 3: Breakdown of Smart Contract Platforms' Market Share

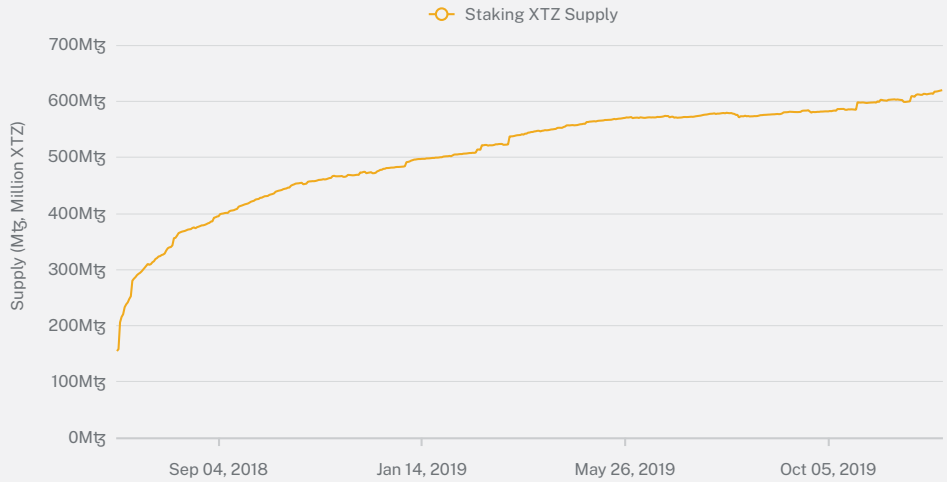

Figure 4: XTZ Supply Over Time

Tezos Investment Thesis

Background

Baking

Baking (typically called 'staking') is the process on Tezos which is analogous to mining on the Bitcoin network where new blocks are published and validated by entities in the Tezos network before being appended to the blockchain. The key difference is that instead of miners using computational power to solve Proofs of Work to mine blocks, here validators of blocks are chosen pseudo-randomly based on the size of the XTZ deposit. There are three important types of users involved in the baking process in Tezos:

- **Bakers:** Entities that are chosen randomly every 4,096 blocks (≈ 3 days) to publish blocks. Bakers earn a block reward of 16 XTZ per block and also, if they hold at least 8,000 XTZ (called a 'roll'), can qualify as a 'delegate' wherein other users are able to delegate their XTZ to be baked on their behalf by the baker — allowing the baker to take a fee at their discretion. Bakers who receive the delegated XTZ of other users must place down an additional bond to ensure that 8.25% of total circulating XTZ is slashable at all times.

- **Endorsers:** Every block, 32 bakers are randomly selected to verify the last block which was published by a baker. Priority 1 endorsers receive 2 XTZ for each block they endorse and priority 2 endorsers receive 1 XTZ for each block they endorse.

- **Delegators:** Refers to an XTZ holder who created a delegation of their XTZ and appointed a given baker's address. The delegator maintains custody of their funds, yet their funds are counted towards the baker's staking balance.

Under common circumstances, the delegator expects to receive a slice of the baking and endorsing block rewards that the baker produces. The baker, on the other hand, normally charges a service fee, a percentage of the rewards, in return. What the actual service terms are (i.e. fees charged, reward payout schedule, etc) varies from baker to baker. Both bakers and endorsers are rewarded through monetary inflation in XTZ where the inflation rate is set such that the monetary base of XTZ tokens grows at a fixed rate of around 5.51% every year. This means that if 100% of XTZ tokens are staked then annual yield for bakers would be around 5.51%; conversely, if only 50% of circulating XTZ tokens were staked then the yield would be around 11%. The chart (Fig. 4) to the left shows XTZ circulating supply over time since its Genesis block, the percentage of said supply which is staked, and the percentage of said supply which is delegated.

Governance

As previously mentioned, a key feature of Tezos is its on-chain governance wherein XTZ holders are able to make decisions on the future of protocol development on Tezos. On May 29 2019, Tezos carried the first amendment process of its protocol based on its on-chain governance feature; in this case, one of the amendments led to the size of a 'roll' being reduced from 10,000 XTZ to 8,000 XTZ[5]. The governance or amendment process can be broken down into four discrete stages[6] which each last eight baking cycles (i.e. 32,768 or 22 days, 18 hours), meaning the entire governance process lasts around three months (Fig. 5 shows the voter turnout on Tezos over the year):

- **Proposal Period:** Bakers submit amendment proposals on-chain and each baker is allowed to submit 20 proposals in each period. Other bakers can then vote on existing proposals and also have the chance to vote on 20 unique proposals. At the end of the period, the network counts the number of votes for each proposal and the ones with the most votes move to the next stage. A baker's vote is weighted by the amount of rolls in its staking balance at the start of the period.

- **Exploration Period:** Bakers vote on the smaller set of the top-ranked proposals from the previous round. In a similar fashion to the proposal period voting, a baker's vote is weighted by the number of rolls in its staking balance at the start of the exploration period. At the end of the period , the network counts the number of votes and if it passes the quorum[7] and an 80% supermajority of non-abstaining bakers vote for a given proposal, it moves to the next period.

- **Testing Period:** If a proposal receives a supermajority in the Exploration Period then the Testing Period initiates a fork on the Tezos testnet chain for 48 hours. The idea behind the Testing Period is to ensure that the proposed upgrade does not lead to unintended consequences in the Tezos network.

- **Promotion Vote Period:** In this period, the network decides whether to implement the governance decision. Bakers submit their votes and their votes are once again weighted proportionally to the number of rolls they had in their staking balance at the beginning of the Promotion Vote period. Each baker can only send one ballot operation during this period. If the participation rate hits the quorum and an 80% supermajority of non-abstaining bakers vote positively then the proposal is activated on the Tezos mainnet.

Major Stakeholders

In addition to Tezos' on-chain governance process, there are a number of other stakeholders who are involved in the development and maintenance of Tezos projects. These include entities such as the **Tezos Foundation**, **Dynamic Ledger Solutions (DLS)**, **Nomadic Labs**, the **Tezos Commons Foundation**, and **Cryptium Labs**. There are several notable individuals who could be argued to have played a significant role in the development of Tezos since its inception:

Arthur Breitman

Co-founder of Tezos and CTO of Dynamic Ledger Solutions

Kathleen Breitman

Co-founder of Tezos and CEO of Dynamic Ledger Solutions

Ryan Jesperson

President of Tezos Foundation

Tezos was first conceived of by Kathleen and Arthur Breitman in August 2014 through a paper which outlined the vision behind the project[8], with a more detailed white paper in September 2014. Following the release of these papers, the Breitmans came together with a early-stage developers to help build the first version of the Tezos protocol. In August 2015, the Breitmans founded Dynamic Ledger Solutions (DLS) to lead the development of the Tezos project and, 13 months later, in September 2016, the source code for the Tezos project was published on GitHub. In addition, the Tezos Foundation was chartered in Zug, Switzerland in April 2017 and was allocated the 65,000 BTC and 360,000 ETH contributed to the Tezos Foundation. DLS owns all intellectual property associated with Tezos but has pledged to transfer these rights to the Tezos foundation; in addition, 10% of the 763,306,930 XTZ issued at launch were allocated to both the Tezos foundation and DLS. Moreover, 8.5% of the funds raised in the token sale were allocated to DLS with the rest allocated to the Tezos Foundation.

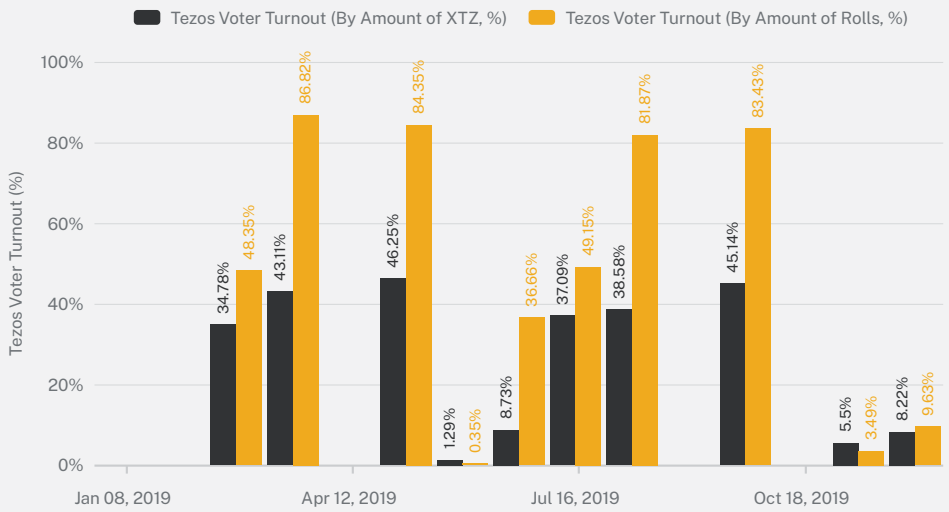

Figure 5: Tezos Voter Turnout

Smart Contracts

In a similar fashion to Ethereum, Tezos' core use case is as a facilitator of decentralized smart contracts and transactions (see Fig. 6). Therefore, in order to develop an investment thesis for Tezos it is important to understand the current state of the blockchain's smart contract ecosystem. Whilst still in its nascent stages, the Tezos ecosystem for smart contracts is undoubtedly growing. For example, the chart (Fig. 7) shows the deployed smart contracts on the Tezos network since its launch in 2018 — one can see the steady growth especially since the start of 2019.

As expected, the ecosystem for decentralized applications (which use smart contracts to power the backend business logic of web applications) is in its nascent stages and barebones when compared to smart contract platforms like Ethereum or EOS. However, there are a handful of notable decentralized applications being built on the Tezos network:

- **tZERO** and the Tezos Foundation partnered on a project to tokenize $643 million in planned real estate development[9].
- **Clause** was issued a grant by the Tezos Foundation to develop a smart legal contract layer on top of the Tezos blockchain.

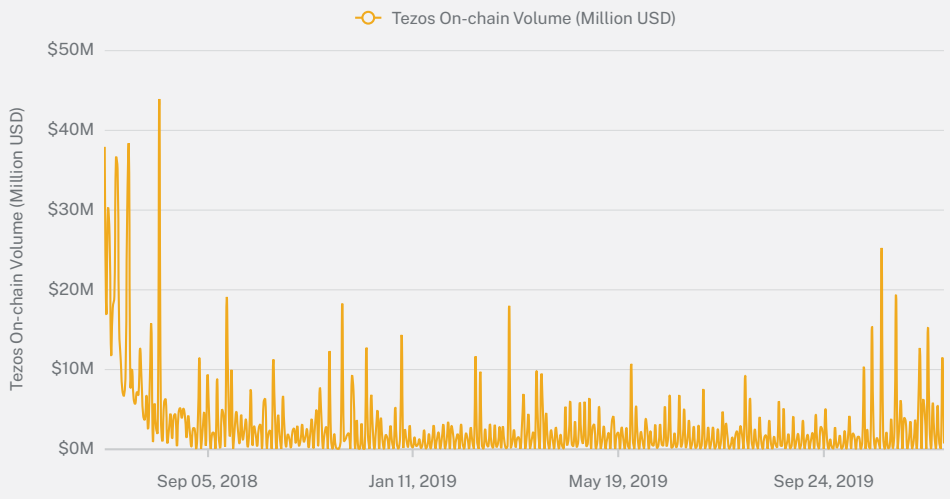

Figure 6: Tezos On-chain Transaction Volume (Million USD)

Tezos Baking Services

This report has already stressed how important a role bakers and delegators play within the Tezos ecosystem, naturally therefore there have been various baking services which have arisen in the last couple of years which compete for XTZ delegation. Figure 8 below shows the nominal staking yield and fees for the top baking service providers for Tezos as ordered by efficiency as measured by Mytezosbaker.com[10].

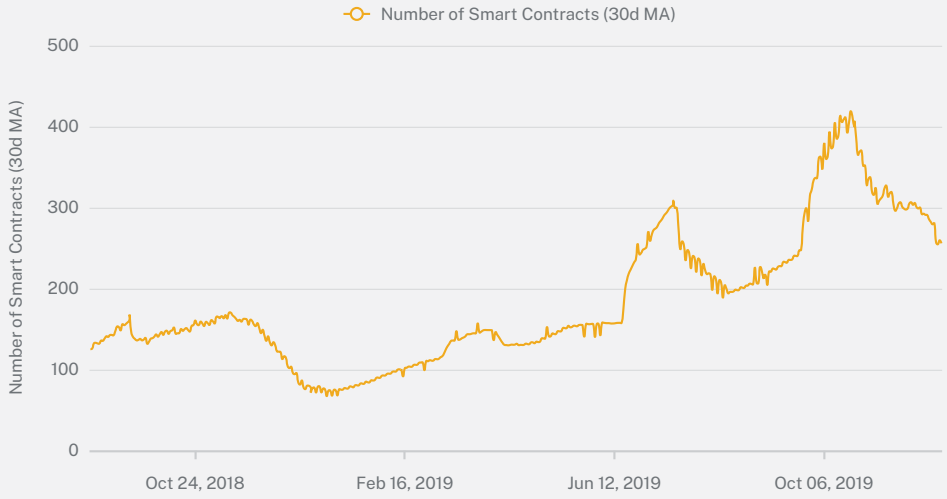

Figure 7: Number of Deployed Smart Contracts (30d MA)

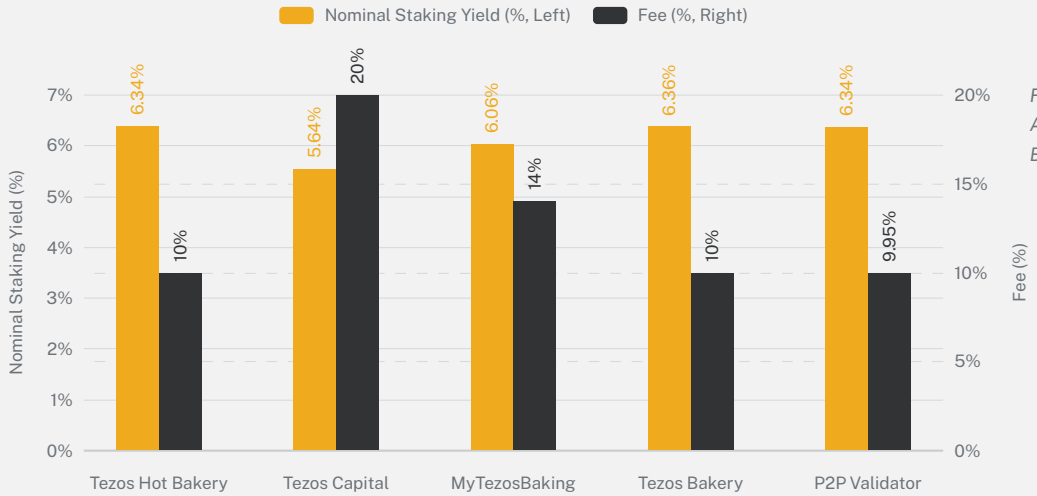

Figure 8: A Selection of Tezos Baking Services

Tezos Investment Thesis

Market Opportunity

On-Chain Governance

Tezos' key value proposition comes from the ability it gives to XTZ holders — in the form of bakers submitting governance proposals — to issue amendments to its blockchain. Therefore, in order to appreciate Tezos' value proposition from an investment perspective, it is important to understand the added value of on-chain governance. Tezos, through the launch of its white paper in 2017, rose to prominence in the midst of the fork of Bitcoin Cash from Bitcoin due to disagreements within the community over a push to increase Bitcoin's block-size limit[11].

Some have argued that having a formal procedure built into a given blockchain protocol for initiating backwards-incompatible changes, like the push for an increase in Bitcoin's block-size limit, could help solve governance issues for crypto assets. The graphic below from Bitcoin Magazine[12] shows the variety of crypto assets which have hardforked from Bitcoin, several being the result of governance disputes.

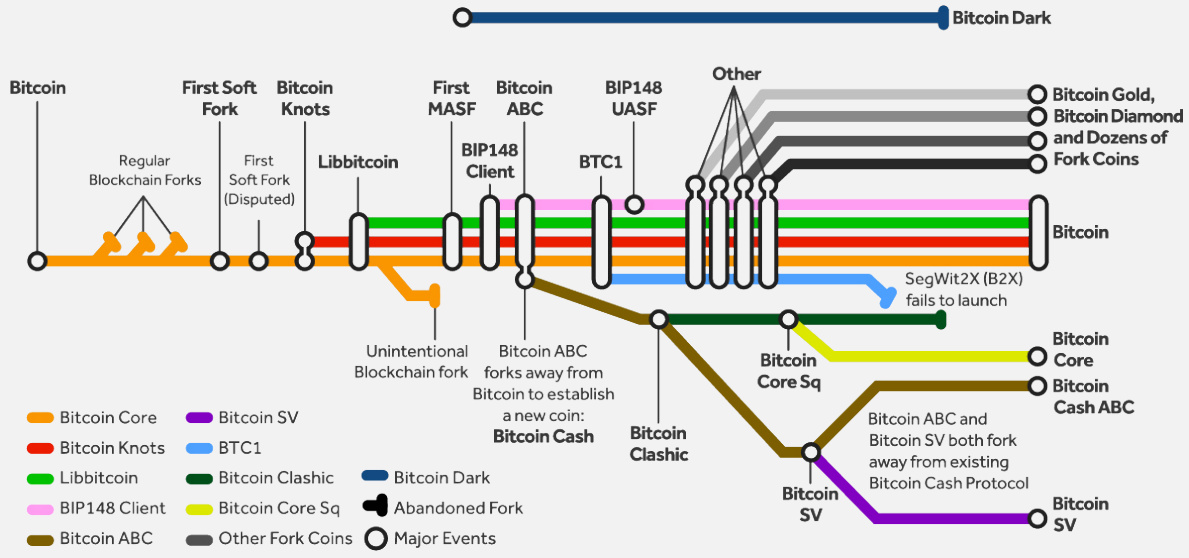

Figure 9: A Map of Bitcoin Forks

Having a formal governance procedure for proposed amendments to a blockchain could theoretically reduce the amount of hard forks which occur, thus ensuring that such governance disputes do not lead to a split in the crypto asset's community. As mentioned, a roll of XTZ (8,000 XTZ) is the basic unit which allows one to engage in the various voting procedures which make up Tezos' on-chain governance process. A number of commentators have argued that crypto assets which give their holders a right to govern the network are valuable solely for that reason alone[13]. Governance rights entitle a crypto asset's holder to decide how the various resources within the network are provisioned — such as by influencing how much XTZ is required in a roll, for example.

As Placeholder Capital[13] has argued, as the value of a crypto asset network's underlying resource increases — in this case the resource of censorship-resistant computation in the form of smart contracts — then the value of the asset which grants access to and governs said resource also increases. There has been research[14] which has valued governance-based crypto assets as a function of the cost incurred by a network fork. Thus, the usefulness of Tezos as a smart contracting platform increases then one can expect a similar increase in its valuation (on a cost-to-fork basis) to increase as well.

The Value Proposition of Baking

Assuming that not all XTZ is being used to be staked within the network, baking (or staking) has been shown to be an integral part of Tezos' value proposition as a way for investors to generate yields. As the chart below (Fig. 10) shows, as of December 10 Tezos offers yields (in real terms) which are less than that of many other crypto assets which offer staking rewards. However, when compared to crypto assets with a similar market cap such as TRX, ATOM, or NEO, Tezos' real staking yield is comparable to the aformentioned assets' mean real staking yield — 1.15% compared to 1.26%.

It is important to note that, from a valuation perspective, staking is not necessarily a value accretive mechanism in of itself if there is not an independent and exogenous source of demand for the crypto asset in question. At its core, the function of staking is to help properly incentivize the various actors within a given crypto asset network to properly fulfil their function — in Tezos' case, this means using staking as a means to ensure the blockchain maintains resistance to censorship or subversion.

Interestingly, it is easy to see — from the perspective of an individual investor who stakes — what the benefit of staking will be: It helps prevent them from losing the value of their investment in real terms to inflation. Moreover, in cases where not all users are staking their assets then staking can still provide yields in real terms — as is the case currently for the Tezos network. The chart below (Fig. 11) shows how the real staking yield of Tezos has evolved over time. It is expected that real staking yields will tend to zero as more of the total XTZ in the network is staked.

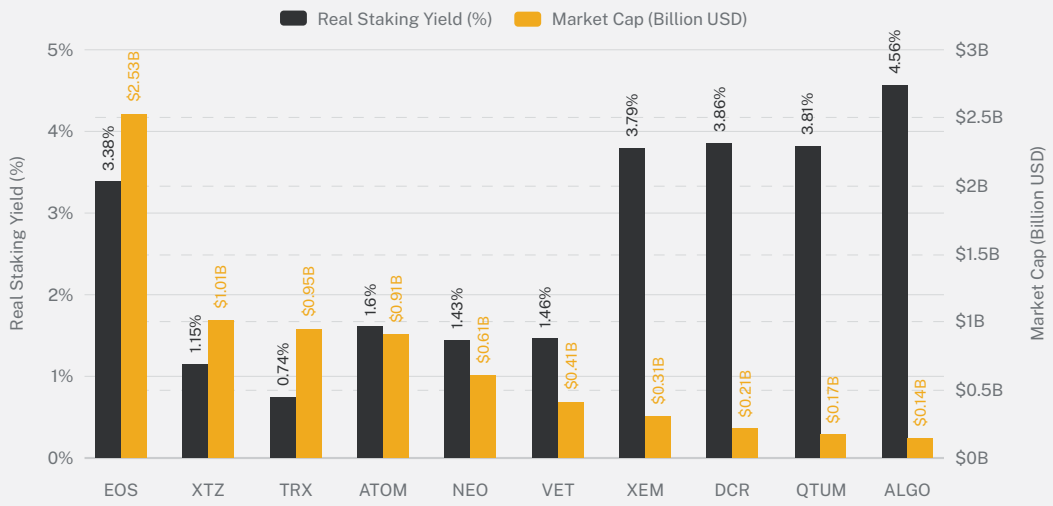

Figure 10: A Comparison of Crypto Staking Yields and Market Cap (as of Dec. 10, 2019)

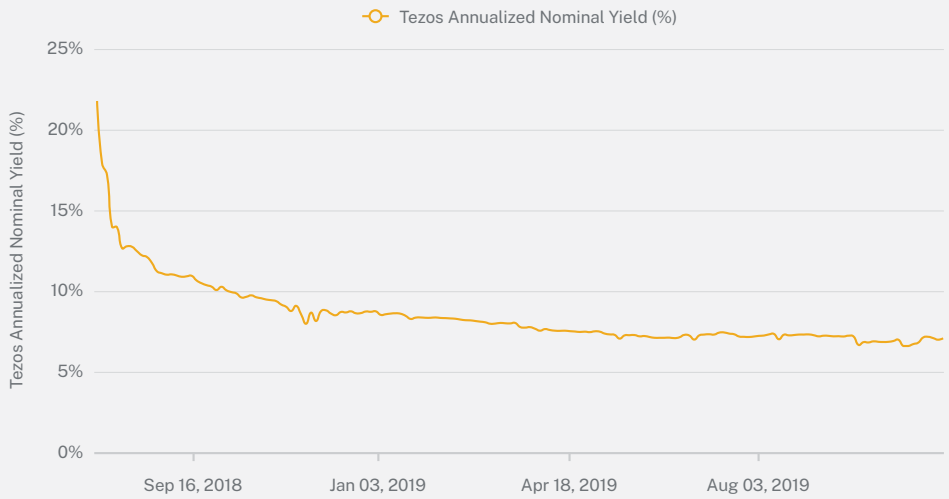

Figure 11: Tezos Nominal Staking Yield Over Time

Formal Verification

Smart contracts offer a way for financial instruments to be represented as pieces of code and, furthermore, create the opportunity for the internal logic of institutions and businesses to be defined as a set of smart contracts. However, with this comes a great number of security risks where millions of dollars of value and capital can be represented, owned, or managed by programs which could contain vulnerabilities or bugs. This issue has been prevalent on Ethereum, the most popular of the smart contract platforms. As shown by the graph below (Fig. 12), there have been numerous examples of occasions where millions of dollars worth of crypto assets have been lost or stolen due to vulnerabilities in smart contracts — for example, ETH worth $60M was initially stolen during the DAO hack in 2016.

Another unique feature of Tezos is its explicit focus on what is called formal verification — methods to prove or disprove that an algorithm or piece of code runs as expected with respect to a given formal specification. Michelson, the primary programming language used to develop smart contracts on Tezos[15], is a language aimed at facilitating formal verification.

It should be noted that formal verification does not necessarily ensure that a piece of code is error free, rather than the code will simply adhere to its formal specification. If the formal specification for a code does not offer an exhaustive account of its behaviour then there is still the possibility of errant behaviour. In any case, the fact that Tezos' smart contracting language is being optimized for formal verification is a positive signal for the network's potential future use in applications which require guarantees of a smart contract's security — such as financial applications. The formal verification ecosystem around Tezos is continuing to grow and the Tezos Foundation has been actively promoting efforts[16] by researchers within the space.

It should also be noted that Tezos is not the only project where efforts into formal verification by smart contract researchers are thriving; there has been some promising work on Ethereum in this field as well. It can be expected in the long-term that synergies will be found between various projects which are making inroads into smart contract formal verification — something that both Tezos and Ethereum will benefit from.

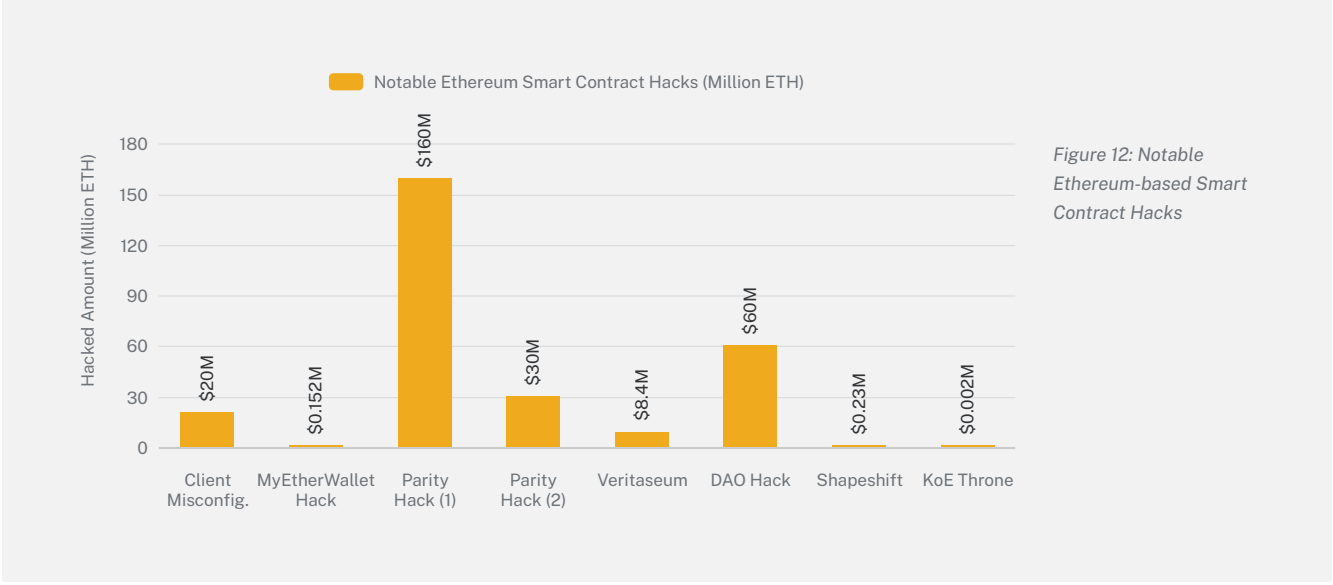

Figure 12: Notable Ethereum-based Smart Contract Hacks

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Portfolio Allocation

Similar to Bitcoin, an investment in XTZ could permit an investor to diversify their portfolio and maximize risk-adjusted returns. In the tables below, we show the correlation of the returns of XTZ compared to Bitcoin (BTC) and several exchange-traded products: SPDR S&P 500 ETF Trust (SPY), iShares 20+ Year Treasury Bond ETF (TLT), and SPDR Gold Trust (GLD)[18]. Figure 13 shows the correlation of XTZ's returns to the other assets and Figure 14 shows the cumulative returns of assets since the start of 2019. As shown by Fig. 13, XTZ generally exhibits an extremely low level of correlation with traditional financial assets like SPY, TLT, and GLD — 0.08, 0.07, and 0.04. XTZ's correlation with the aforementioned assets has even been lower than BTC in 2019 — -0.12, 0.06, and 0.23 for SPY, TLT, and GLD respectively. While this fact does not necessarily mean that XTZ is likely to maintain these same low levels of correlation with the assets in the long-term, it does demonstrate that XTZ's valuation drivers over 2019 have been extremely decoupled from the traditional finance sector and even Bitcoin (correlation –0.42).

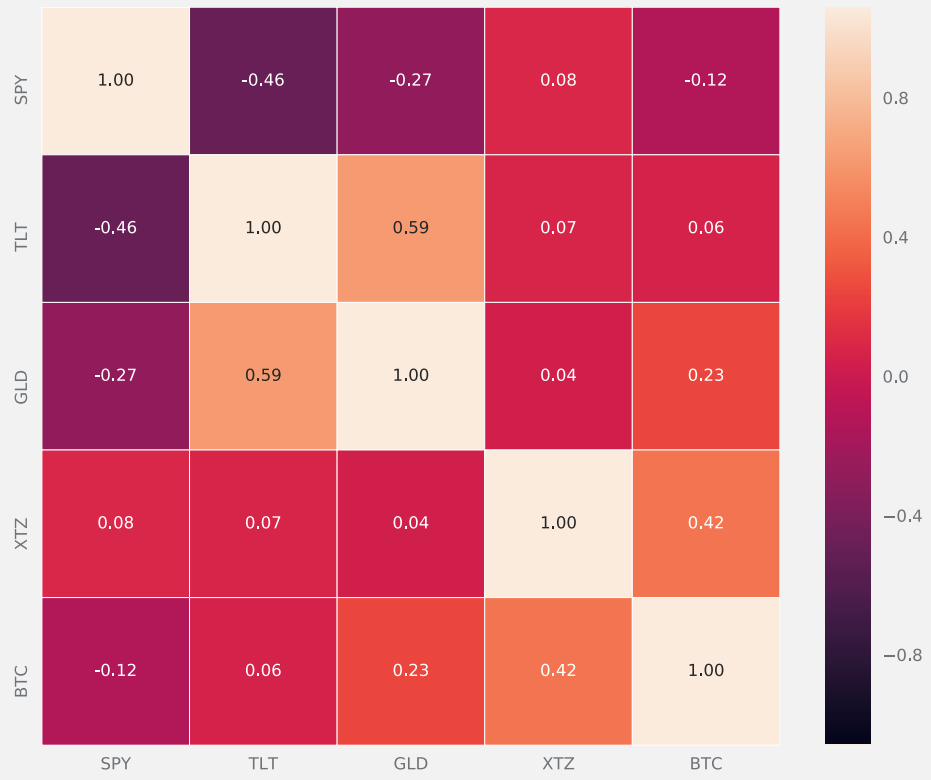

Figure 13: Correlation of Asset Returns

In addition, XTZ's cumulative returns (as shown by Fig. 14) from the start of the year to December 10, 2019 have been 242.97% compared to 99.07% for BTC, 27.34% for SPY, 16.60% for TLT, and just 13.47% for GLD — making XTZ perhaps the best performing large cap crypto asset this year. However, due to the additional volatility that a small allocation of XTZ adds to an investor's portfolio, small allocations of BTC still provide better risk-adjusted returns than that of XTZ as shown by Figure 15.

Portfolio A	SPY 60%	TLT 40%	
Portfolio B	SPY 58.5%	TLT 39%	GLD 2.5%
Portfolio C	SPY 58.5%	TLT 39%	BTC 2.5%
Portfolio D	SPY 58.5%	TLT 39%	XTZ 2.5%
Portfolio E	SPY 57%	TLT 38%	BTC 5%
Portfolio F	SPY 57%	TLT 38%	XTZ 5%

Figure 15: Portfolio Tearsheet

	Portfolio A	Portfolio B	Portfolio C	Portfolio D	Portfolio E	Portfolio F
Annualized Returns	22.74%	22.53%	24.64%	26.85%	26.53%	30.96%
Annualized Volatility	6.93%	6.80%	6.83%	7.62%	7.20%	9.07%
Sharpe Ratio	3.06	3.09	3.38	3.32	3.47	3.24

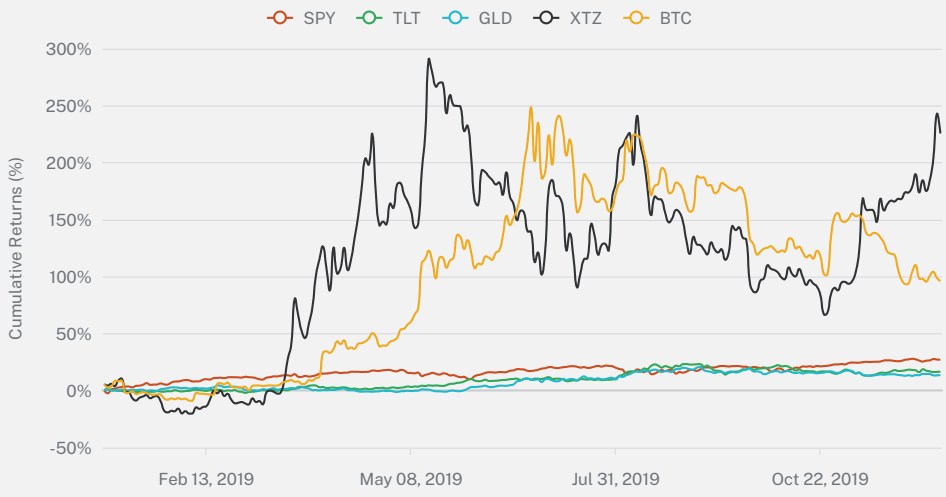

Figure 14: Asset Cumulative Returns

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Risks

Regulation and Governance

Since Tezos' fundraiser in the summer of 2017, the Tezos project has been hit with several governance and regulatory-related issues, the most prominent of these being the governance dispute[19] with the former President of the Tezos Foundation, Johann Gevers. Gevers had battled with Tezos founders Arthur and Kathleen Breitman over a contract dispute regarding his compensation, which left the funds raised during the Tezos fundraiser inaccessible to the foundation and the Tezos development team. While Gevers eventually reached a resolution[20] with the Breitmans and stepped down from his position, the fallout from the lawsuit exposed the project to several further class-action lawsuits[21]. As of the summer 2019, there was at least one ongoing lawsuit against Dynamic Ledger Solutions regarding the Tezos fundraiser. While the outcome of the case is uncertain and may not necessarily have significant consequences, it does highlight the fact that the means through which Tezos was launched and its fundraiser — as well as its past issues with governance of the Tezos Foundation — exposes the project to regulatory risk in the long term.

Proof of Stake Security

Tezos is notable for being one of highest profile Proof of Stake-based crypto assets. There have been some concerns over whether Proof of Stake can provide the necessary level of economic security due to potential issues with centralization risk, low participation rates[22], novel attack vectors[23], and bribery[24], to name a few. Tezos has been built with its own ways to mitigate these types of issues — for example, the ability that XTZ holders have to delegate their holdings to baking services massively helps to improve Tezos' staking participation rate. For example, the chart (Fig. 16) to the right shows Tezos' staking participation rate over time since its launch; the protocol is designed to incentivize a high level of staking, which explains the upwards trend in staking, one that we can expect to continue. It has been argued that Proof of Stake systems — especially the kind of model which Tezos employs — may be subject to some amount of centralization risk, greater than that of Proof of Work systems. This is because the system is such that those who have the largest holdings of a given crypto asset are the ones who benefit the most from their staking reward. The pie chart (Fig. 17) compares the distribution in rewards for staking thus far; as we can see, almost half of all rewards have been distributed to either Polychain Labs (an initiative set up by Polychain Capital, a Tezos investor), Gate.io (a popular crypto asset exchange), or the Tezos Foundation. Given that the staking rewards system seems to consolidate XTZ tokens in the hands of a few entities who already have a strong vested interest in the crypto asset, this could lead to Tezos' governance becoming increasingly plutocratic over time.

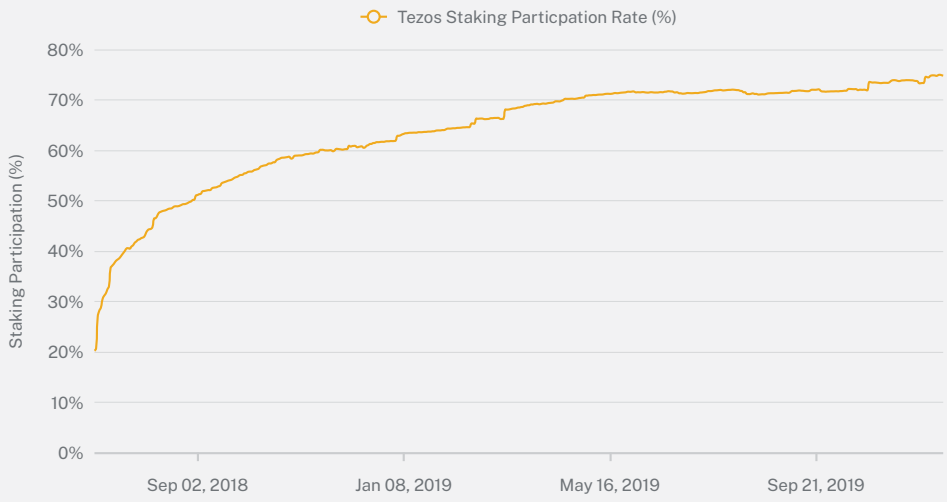

Figure 16: Tezos' Historical Staking Participation Rate

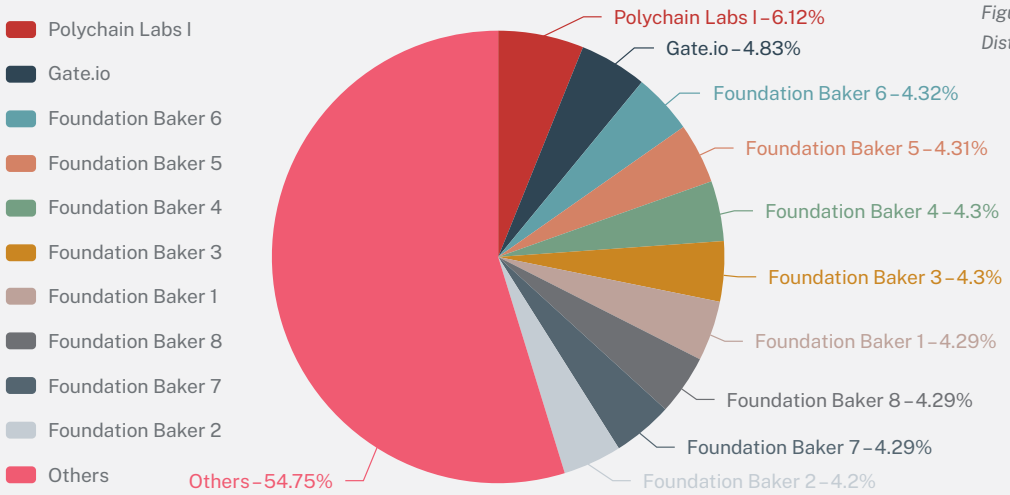

Figure 17: Tezos Rewards Distribution

Second-Mover Disadvantage

As we've argued the biggest competitor at present for Tezos is Ethereum which has a large first-mover advantage within the smart contracts space, as we've argued. The smart contracts ecosystem is likely to be a winner-takes-all where the top smart contract blockchain vastly outweighs its competitors in overall market capitalization and value — given that smart contracts and decentralized applications will likely exhibit strong network effects due to their high degree of composability. Given this fact, the delta in potential value between Tezos overtaking Ethereum in usage (or not) is significant and Tezos currently faces an uphill battle — due to the vibrant ecosystem already developed on Ethereum especially in the decentralized finance ("DeFi") segment.

However, it is important to note that Ethereum — the oldest smart contract platform — is only five years old and the battle for the dominant smart contracts platform is likely to be waged well into the next decade. The key deciding points likely to influence which smart contract platform dominates in the long term will be regulation and economic security trade-offs between different Proof of Stake algorithms. Developments in the range of smart contract platforms — such as Ethereum, Tezos, EOS, Dfinity, and others — continue to progress and need to be monitored in order to understand Tezos' viability as the dominant smart contracts platform in the long term.

Tezos Investment Thesis

Conclusion

In this analysis of the investment thesis for Tezos, we have argued that Tezos' key features are its on-chain governance, Proof of Stake 'baking' model, and its emphasis on formal verification for smart contracts. These features introduce a number of dynamics into the crypto asset industry which have not been tested thus far. From an investor's perspective, the addition of staking rewards creates an interesting value proposition for XTZ but it is important to note that the staking rewards can only be argued to be value accretive if there is an exogenous reason for market demand for XTZ. In addition, on-chain governance creates the potential for holders of the XTZ token to be much more closely involved in governance of Tezos' protocol development, a process that seems to have worked well to date. As we have shown, these features — on-chain governance and Proof of Stake — also create the potential of wealth distribution centralization.

The greatest risk factors to Tezos are potential issues related to regulation and governance, given the crypto asset's soured history of issues associated with the Tezos Foundation. Moreover, the crypto asset faces an uphill battle to compete with the dominant smart contract plaform, Ethereum. Nevertheless, Tezos represents a novel take on developing its on-chain governance and itsa censorship-resistant smart contract platform due to its lack of reliance on an energy-intensive Proof of Work. The crypto asset currently presents an extremely viable investment option for those who understand and believe in the value of on-chain governance and alternatives to Proof of Work mining.

Endnotes

1) All data is sourced from Coin Metrics unless stated otherwise and all Tezos blockchain data is sourced from TzStats – 2) https://tezos.com/static/position_paper-841a0a56b573afb28da16f6650152fb4.pdf – 3) https://www.tokendata.io – 4) https://Messari.io – 5) https://www.coindesk.com/welcome-to-athens-tezos-complete-historic-first-blockchain-vote – 6) https://medium.com/tezos/amending-tezos-b77949d97e1e – 7) http://tezos.gitlab.io/whitedoc/voting.html#super-majority-and-quorum – 8) https://tezos.foundation/history – 9) https://www.coindesk.com/tzero-tezos-foundation-to-tokenize-500-million-in-uk-real-estate – 10) https://mytezosbaker.com – 11) https://bit.ly/37uGtQ9 – 12) https://bitcoinmagazine.com/articles/infographic-map-bitcoin-forks#1554736128 – 13) https://www.placeholder.vc – 14) https://hackernoon.com/a-framework-for-valuing-governance-tokens-0x-49d2cf2ef5bc – 15) https://tezos.gitlab.io/whitedoc/michelson.html – 16) https://tezos.foundation/news/tezos-foundation-issues-grants-for-tezos-smart-contract-projects – 17) https://github.com/leonardoalt/ethereum_formal_verification_overview – 18) Yahoo Finance and Coin Metrics – 19) https://www.wired.com/story/tezos-blockchain-love-story-horror-story – 20) https://www.coindesk.com/tezos-board-reshuffled-johann-gevers-steps – 21) https://www.coindesk.com/new-class-action-suit-filed-tezos-founders – 22) https://medium.com/@petkanics/inflation-and-participation-in-stake-based-token-protocols-1593688612bf – 23) https://www.coindesk.com/validators-create-new-attack-vectors-for-decentralized-systems – 24) https://en.longhash.com/news/how-centralized-are-proof-of-work-and-proof-of-stake-cryptocurrencies – 25) https://bit.ly/2LbrzFd

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