

DIGITAL ASSETS  
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# How the Yen Carry Trade Unwind Supercharged Ethereum Staking Rewards

Analyzing the STKR Index and the Ripple Effects of Traditional Finance on Ethereum Staking in Times of Market Volatility

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## Introduction: Bridging Traditional Finance and Crypto Assets

While very different in terms of structure and legal classification, in some scenarios, traditional finance and crypto assets do intersect and can have an impact on one another. For example, when strategies like the Japanese Yen carry trade unwind, which is a common trade in traditional currency markets, digital assets such as Ethereum are also impacted. These cross-market connections mean that macro-level events in traditional finance can cause significant shifts in crypto, making it crucial for investors to understand how both worlds interconnect.

## The Yen Carry Trade: A Brief Overview

At its core, the Yen carry trade involves borrowing money in a currency with low interest rates (historically the Japanese Yen) and investing it in assets denominated in a currency with higher interest rates, like the US dollar. This strategy exploits the difference in interest rates between two economies. Since Japan has maintained very low interest rates, while the US has seen relatively high rates, the carry trade has become attractive.

When traders engage in this strategy, they essentially go long on the USD/JPY currency pair. The forward rate of this pair, due to interest rate differentials, is often lower than the spot rate, meaning that as time progresses, the trade rolls up towards the spot rate, generating a positive carry. This is why the Yen carry trade has been a popular strategy among traders looking for steady returns.

## The Connection Between the Yen Carry Trade and Ethereum

The connection between the Yen carry trade and broader market movements, including AI stocks and volatility indexes like the VIX, is intricate. Many traders and institutions who were long on the Yen carry trade also held positions in other risk assets like AI stocks and were short on volatility. These positions are often correlated because they are funded by the same source—the carry trade profits.

When market conditions shift, such as a reversal in the carry trade due to a sudden appreciation of the Yen or increased volatility, these positions can unwind rapidly. The sell-off across various markets can trigger a chain reaction, as seen in the recent turmoil. As the Yen strengthened, partly due to changes in the Bank of Japan's yield curve control, the carry trade became less profitable, leading to a rapid unwinding of positions, which amplified the sell-off across different asset classes, including crypto. Ethereum (ETH) was particularly impacted, experiencing a 26% sell-off. This sell-off was exacerbated by several factors:

- **Open Interest (OI) Decline:** Around the Yen Carry crash, Ethereum's futures contracts dropped by USD 3 billion, marking the largest delta in over a year. This decline in OI signifies a reduction in active contracts, indicating a loss of confidence among traders.
- **Jump Trading's Sell-off:** Between July 24 and August 4, Jump Trading unwound their crypto market-making business and sold USD 370 million worth of ETH. This significant sell-off added further downward pressure on the market.

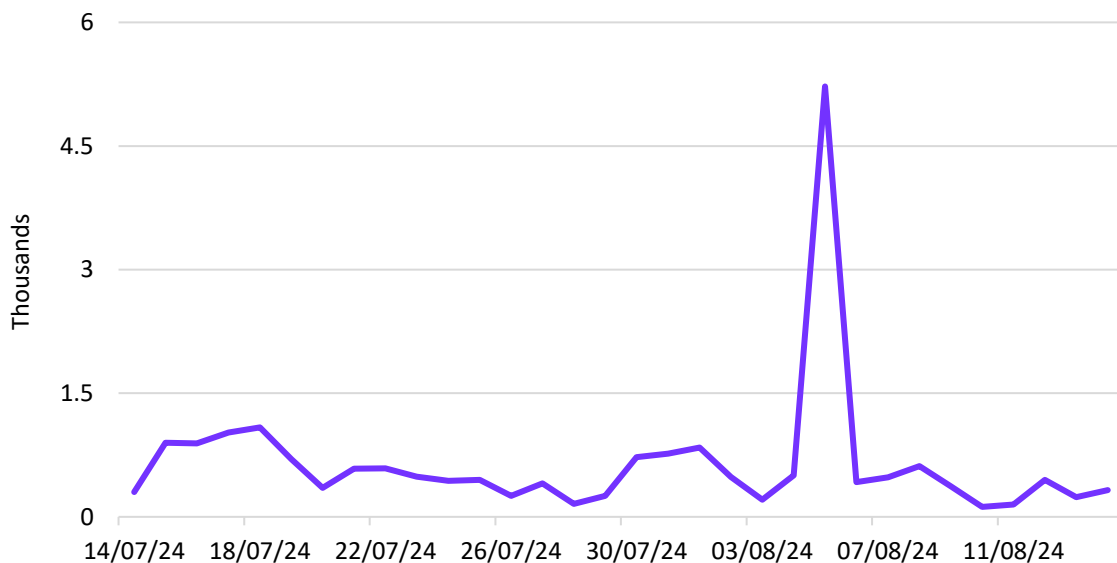
- **ETHE Liquidations:** Following the approval of US ETH ETFs in July, over USD 2.3 billion of Grayscale’s Ethereum Trust (ETHE) was liquidated due to its higher cost structure compared to ETFs.

## How the Yen Carry Trade Panic Increased Block Space Demand on Ethereum

The panic caused by the unwinding of the Yen carry trade led to a surge in demand for block space on the Ethereum network, as traders scrambled to close positions and manage their risk exposure, particularly on levered positions. The increase in demand to transact on Ethereum had two direct consequences:

- **Higher Gas Fees:** Users competed for fast transaction processing, driving gas fees up and increasing execution layer rewards for validators. Ethereum’s EIP-1559, which burns a portion of transaction fees paid to transact on the network, spiked on August 5, reflecting the surge in transaction demand (**Exhibit 1**).
- **Increased MEV Opportunities:** The chaos created more Maximal Extractable Value (MEV) opportunities.

**Exhibit 1: Burned ETH after EIP-1559 (Daily)**



Source: The Block.

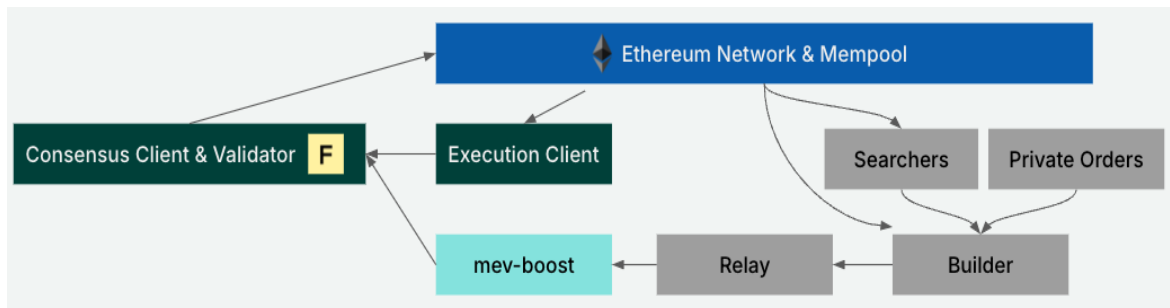
## How do Ethereum validators earn rewards from MEV?

Pending transactions in the mempool are not processed in chronological order, but rather according to their potential "maximal extractable value" or "MEV." MEV is the maximum value that can be obtained by including, reordering, or excluding transactions when publishing a new block to the blockchain. Validators who propose blocks containing these transactions earn a portion of these higher fees. Without coordinated block-building protocols, competition among validators for MEV opportunities often causes network congestion and instability.

The process of how MEV rewards are earned by validators is complex and decentralized, purposely designed to separate the block-building and block-proposing functions.

Here's how it works (**Exhibit 2**):

### Exhibit 2: MEV Value-Chain



Source: Figment.

## The Block Building Process

As of August 2024, roughly 92% of blocks on Ethereum are built using mev-boost (source: [mevboost.pics](https://mevboost.pics)), which is open-source software run by validators to participate in the MEV marketplace. Using MEV-Boost, Ethereum validators outsource the block-building process to a network of "searchers," "builders," and "relays." These participants operate pursuant to privacy and commitment protocols designed to ensure that each network participant -- the searcher, the builder, and the validator -- interacts in an ordered manner that maximizes value and network efficiency. Running mev-boost is considered the standard for Ethereum validators.

Pending transactions on Ethereum sit in the mempool (memory pool) until they are grouped by block builders, along with transaction bundles from searchers and private order flow. Block builders, independent entities in the Ethereum ecosystem, create fully prepared blocks. These blocks optimize for both fairness and profit, including MEV.



Once a block is built, it's sent to a relay, which aggregates blocks from different builders. After the relay receives the proposed block from the builder, it initially only submits the "block header" to the validator, which contains information about, among other things, the payment the validator will receive for validating the proposed block as structured by the builder. It is only after the validator makes this commitment through a digital signature that the relay releases the full content of the proposed block (i.e. the complete ordered transaction list) to the validator.

## How Validators Earn Rewards

Once the validator, such as those operated by Figment, is selected to propose a block, it submits that block to the Ethereum network for attestation and inclusion in the blockchain. In this process, the validator earns rewards in two ways:

1. **Consensus Rewards:** Validators earn rewards in the form of newly minted ETH for helping to secure the blockchain, known as network issuance. This is the regular, protocol-defined reward issued for validating and attesting to blocks.
2. **Execution Rewards:** As mentioned above, validators also earn execution layer rewards in the form of "gas fees," which include the fees generated from MEV.

## MEV: A Fair Opportunity for All Validators

It's important to understand that while validators are selected to propose blocks through a randomized process on the Ethereum network, the opportunity to earn MEV rewards is accessible to all. Over 90% of validators now use MEV Boost, a tool that enables them to capture additional value from block-building, ensuring a level playing field across the network.

The frequency with which a validator is chosen to propose a block is determined by the protocol itself and can vary and the amount of MEV rewards depends on market conditions at the time, but the key point is that all validators have access to the same tools and opportunities. Validators don't directly control the block-building process; instead, they rely on block builders to maximize the value of the block through strategic transaction ordering.

## Two Main Sources of MEV: Arbitrage and Liquidation

On August 5, the day the Yen carry trade began to unwind, a total of 6,000 ETH was distributed in execution rewards across the Ethereum network. The MEV activities contributing to these rewards are roughly split fifty-fifty between liquidation and arbitrage activities, with each category contributing significantly to the overall MEV earnings. Sandwich attacks, on the other hand, played a minor role in the MEV landscape on this particular day.

### Arbitrage MEV:

One of the most straightforward forms of MEV comes from arbitrage, which took center stage during the broader unwind. As the price of ETH fell, the difference in exchange rates between Wrapped Ether (WETH) and stablecoins like USDC and USDT across decentralized exchanges (DEXs) created profitable opportunities for arbitrage bots. These bots were buying WETH at a discount on one DEX, such as Uniswap, and nearly instantaneously selling it at a premium on another. Arbitrage bots use their speed and efficiency to take advantage of price discrepancies between different exchanges. By paying higher fees to block builders, they ensure their transactions are prioritized, often securing a profit before other market participants can react. In this case, the market crash intensified the spread between prices, enabling bots to execute profitable arbitrage trades at scale.

### Liquidation MEV:

Alongside arbitrage opportunities, liquidation opportunities can provide significant MEV rewards. For example, the crash triggered massive liquidations across decentralized lending protocols like Aave. Liquidation bots are programmed to detect positions that fall below their collateralization thresholds. When the price of the underlying asset (in this case, ETH) crashes, these bots step in, repay the debt, seize the collateral, and immediately sell it for a profit.

Liquidation bots, like their arbitrage counterparts, pay higher fees to prioritize their transactions, ensuring they can claim collateral and exit positions before others.

In both cases, searchers looking to benefit from these opportunities are willing to pay a large amount to execute their transaction on-chain - an amount up to the value of the potential profit they could make. On August 4 alone, over USD 400 million in leveraged ETH positions were liquidated, with Aave processing USD 250 million in liquidations. These large-scale liquidations became prime targets for MEV searchers, leading to an unprecedented spike in ETH MEV.

## The Importance of a Comprehensive Staking Reward Rate: STKR

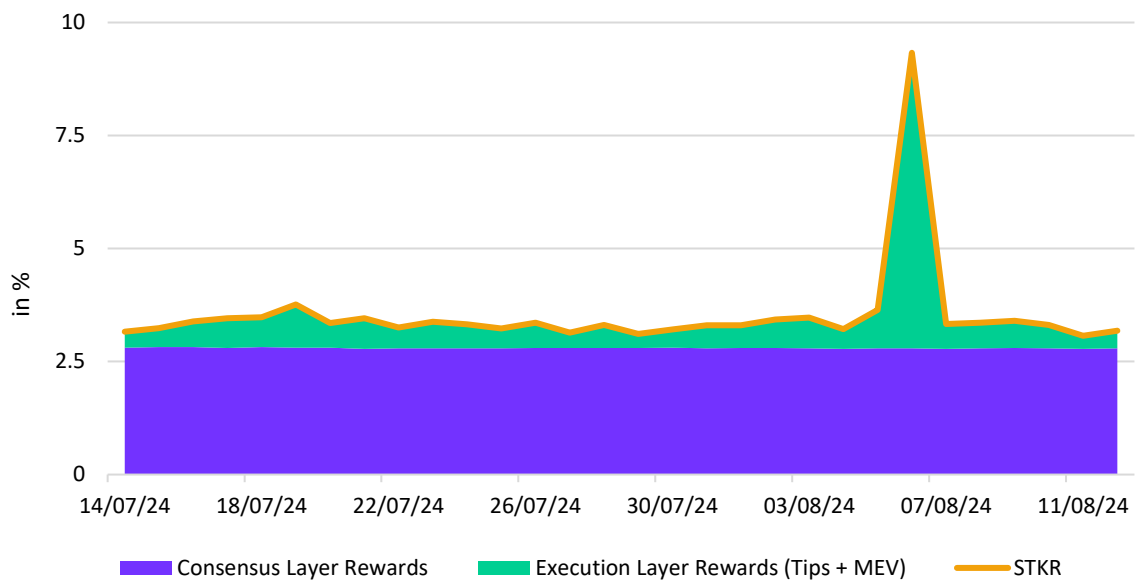
The MarketVector™ Figment Ethereum Staking Reward Reference Rate (STKR) offers a comprehensive view of Ethereum staking rewards by accounting for both consensus rewards and execution layer rewards, including MEV<sup>1</sup>. During volatile times like the Yen carry trade unwind, this comprehensive approach provides a clearer picture of staking rewards versus other benchmarks that either smooth an average of or do not include MEV.

The STKR Index stood out during the market turbulence by offering more accurate staking reward rates than other indices. This outperformance reflects STKR’s complete capture of validator rewards across the entire network, including fees earned as MEV, giving stakers a more accurate view of their earned/potential rewards.

By incorporating all possible earned rewards for a validator, the STKR Index is a reliable tool for assessing staking rewards during times of heightened market activity, ensuring validators and stakers get the full picture of the market conditions, and thus their rewards earning potential on Ethereum.

**Exhibit 3** below shows the components of STKR and the significant impact the events of the Yen carry unwind had on the staking rewards rates.

**Exhibit 3: Development of the STKR Index**



Source: MarketVector, Figment.

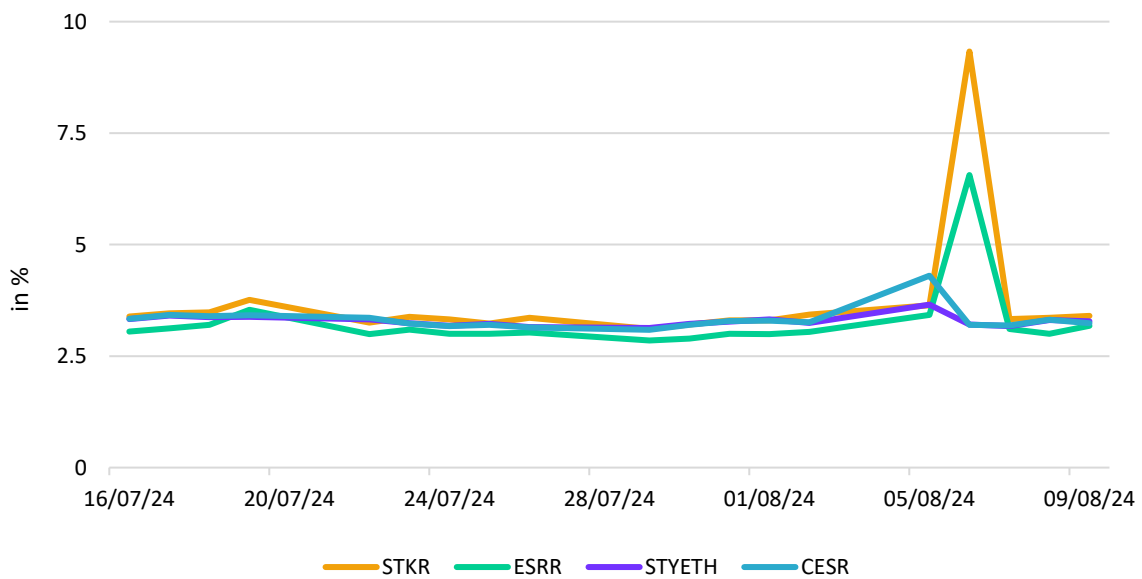
<sup>1</sup> STKR indexes the entire Ethereum chain, not just Figment validators.



## STKR Index: Outperforming Amid Market Turmoil

During the recent market turbulence, the STKR Index distinguished itself by offering a more accurate staking reward rate compared to other benchmarks. This outperformance is due to the STKR Index's comprehensive approach to calculating staking rewards, which includes consensus rewards and execution layer rewards, including MEV. For stakers and investors, understanding the complete dynamics of Ethereum is essential. While some benchmarks may not fully account for MEV or may focus on select validators, the STKR Index provides a holistic view, covering 100% of the Ethereum chain. **Exhibit 4** illustrates how the STKR Index offers comprehensive insights, reflecting the true reward-earning potential across the entire network. It is our view that excluding execution layer rewards – including MEV – from benchmarks would ignore a critical component of the competitive landscape and misrepresent the true performance of validators.

**Exhibit 4: Comparative Analysis Of Major Staking Benchmarks**



Source: Bloomberg.

## Conclusion

The recent events surrounding the Yen carry trade unwind highlight the intricate connections between global financial strategies and the Ethereum network. As market dynamics evolve, the importance of a comprehensive staking reward rate that includes both consensus layer rewards and execution layer rewards, including MEV, becomes increasingly clear. The STKR Index's ability to capture these elements has proven invaluable, particularly during times of heightened market activity, ensuring that validators and stakeholders have an accurate understanding of their reward-earning potential in the ever-changing world of crypto assets.

To find out more about [MarketVector™ Figment Ethereum Staking Reward Reference Rate \(STKR\)](#), contact: [sales@marketvector.com](mailto:sales@marketvector.com).

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## IMPORTANT DEFINITIONS AND DISCLOSURES

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