SynFutures - DeFi Derivatives in 2025

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Abstract

SynFutures@v2 is the latest iteration of the decentralized derivatives platform. In comparison to V1, SynFutures@v2 provides a more streamlined, easier-to-navigate user experience for both traders and liquidity providers, as well as more trading products and features designed with increased capital efficiency.

Keywords: decentralized finance, derivatives, crypto trading

1 Mount Everest - Creating Accessible DeFi Derivatives Experiences

As DeFi derivatives have evolved, three factors have emerged as essential for the success of protocols and exchanges in the space:

- Permissionlessness. This is a key differentiator and advantage decentralized protocols have over their traditional and centralized exchange counterparts.
- Liquidity. The extent to which an asset can be bought or sold on the market without having a significant effect on its price remains one of the most crucial components of DeFi.
- User experience. Along with liquidity, user experience is one of the top factors preventing traders from participating in DeFi.

1.1 The value of permissionlessness in DeFi

The blockchain has been deemed "The Internet of Value" , so the early adoption of the internet can shed some light on the current state of blockchain development and the importance of reaching true permissionlessness. During the early days of the internet, the barriers to entry were high. For example, to shop on online marketplaces like Amazon, users had to create digital accounts, set up payment methods, and navigate the platform and its rules. Moreover, they couldn' t physically touch the goods they were buying before making a payment and had to wait days or weeks before the item was delivered. Yet people became hooked on Amazon and digital commerce. Why?

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The answer lies in the openness and availability of products and services offered via the internet. Shoppers can find a wide variety of goods not available at their local convenience store. The internet greatly reduced the entry barriers of being a "merchant" and, thus, the market has become more accessible and attractive to a variety of suppliers. In the same way, the "permissionlessness" of DeFi lowers the barrier to entry to becoming a financial services provider, bringing a new variety of tradable assets to users.

Permissionlessness also drives further innovation in the space. The burgeoning blockchain ecosystem, built on the principle of composability, allows anyone to participate and create new use cases based on the underlying technology. This is a far cry from the way TradFi establishments and CeFi platforms controlled by centralized entities operate.

1.2 Improving on-chain liquidity with innovative new models

The DeFi derivatives market has two advantages over the traditional centralized market: competitive pricing and efficiency. In a centralized order book based crypto exchange, market makers can enjoy up to 100x leverage (though mostly the leverage is limited to 3-10×) for every 100 USDC equivalent notional position, and market makers need to only supply 1 USDC.

The generalized Automated Market Maker (AMM) model in DeFi, as used in Uniswap V2, greatly simplifies the work for the market market and utilizes the idol liquidity from normal users. However, the simplification of this model comes at the cost of lower capital efficiency without any leverage, and thus, leads to larger slippage and higher prices for traders.

To offer users the best prices possible, enabling different players and suppliers to participate, as is done in any free market, is vital. This includes allowing experienced users willing to take extra risk to offer liquidity within their risk tolerance and increasing overall capital efficiency.

To further improve on-chain liquidity as the DeFi space continues to evolve, new AMM models that focus on specific verticals and regional needs are expected to arrive, creating new opportunities for traders, lenders, and other users.

1.3 Making DeFi derivatives more user-friendly

Along with enabling on-chain liquidity, arguably the biggest barrier to DeFi adoption is the user experience. From requiring users to perform an excessive amount of steps to complete a transaction to complex platform interfaces, most DeFi protocols are difficult to navigate—even for seasoned traders.

For DeFi derivatives platforms like SynFutures, there is another barrier to cross, as derivatives has historically been an asset trading class limited to investors with high net worths and significant portfolios. While crypto derivatives trading is on the rise, driving education and making the user experience as seamless and easy-to-navigate as possible is vital.

Furthermore, the evolution of multichain adds a layer of complexity for users, but potential solutions are already in the works. EVM bridges transporting data and liquidity from separate Layer 1 chains could help contribute to and encourage interoperability. Breakthroughs in scalability solutions could also

improve the overall efficiency of the blockchain ecosystem, though some chains may have to set arbitrary lower bounds for transaction fees so that they are economically secure.

While innovation is an iterative process, more DeFi derivatives platforms will evolve and improve their user experiences to meet the ongoing needs of the market.

2 The Ascent So Far: What SynFutures Accomplished with V1

2.1 Overview of SynFutures@v1

SynFutures@v1 fixed margin was released in Closed Alpha on Ethereum Mainnet and Polygon in June 2021, later expanding to BNB Chain (previously Binance Smart Chain) and Arbitrum. Closed Alpha concluded after three months, and Open Beta started in October 2021 on all four networks.

As promised, SynFutures@v1 delivered an open, decentralized and permissionless futures market and proved that a derivatives DEX can be as permissionless as spot DEXs like Uniswap, allowing any user to list arbitrary futures trading pairs with a few clicks and a single digital currency as margin.

By the end of January 2022, more than 155 different underlyings had been permissionlessly listed and traded on Synfutures, which reveals the still unmet demand for long-tail derivatives. Today, more than 57,000 unique addresses have interacted with SynFutures smart contracts, with nearly 34,000 of them having traded on the platform. Cumulative trading volume surpassed $3 billion in mid-January 2022, $4 billion in February 2022, and $5 billion in March 2022.

2.2 Achieving true permissionlessness

SynFutures@v1 was designed to be natively permissionless from the start. Other derivatives DEXs that claim to be permissionless are in fact permissioned by their DAOs to list new trading pairs. Such DAOs serve as a "board" or "committee" to those platforms. They often require days, if not weeks, to discuss, approve, and implement potential listings.

To achieve true permissionlessness, SynFutures@v1 minimized exogenous and trading pair-specific configurations, which lowered the barriers to listing new trading pairs. SynFutures@v1 allows any users to list arbitrary asset pairs, and the market itself can form endogenous pricing and behaviors. This design philosophy has enabled SynFutures@v1 to capture the widest array of trading assets ranging from Bitcoin and Ethereum to long-tail assets and even some NFTs. Only 6 month after beta launch, 185 different underlying asset pairs have been listed on SynFutures@v1, the largest number among all DeFi derivatives platforms.

For long-tail assets to have a healthy derivatives market, especially with limited on-chain liquidity, SynFutures@v1 also introduced the best practices in traditional finance to the decentralized finance world. This included efforts to prevent manipulation of mark price and a hard pegging of derivatives prices to spot prices. These details have been elaborated on in the SynFutures@v1 Technical Paper [1].

[1] https://www.synfutures.com/synfutures-v1-techpaper.pdf

2.3 Building on SynFutures@v1

As the first version of the product, SynFutures@v1 proved that permissionless derivatives were possible. It adopted a simple structure where the futures market for every expiry has its own smart contract to host the accounts and trading activities. But, there is room for improvement.

Traders have to manage margins across multiple expiries and handle rollover of their positions once a futures contract expires. Also, there is no margin or risk offsetting for long and short positions across expiries. Liquidity providers (LPs) have to set separate margins for their hedging position as delta-neutrality is enforced upon adding liquidity while, in theory, their pool shares could be used as collateral. These operational nuisances impose a barrier to entry for users. If we want to achieve true financial democracy, we must do better.

3 The Next Site en Route - SynFutures@v2

With these considerations in mind, SynFutures@v2 was designed to improve on all of these weaknesses. SynFutures@v2 adopts an underlying-based smart contract structure and simplifies users' on-chain interactions, and with shared margining, the capital efficiency and UX pain points have been massively improved.

For traders, SynFutures@v2 introduces Perpetual Futures. Its features can be summarized as a never-ending futures contract with native permissionless listing, guaranteed price convergence to spot index, and a forward-looking funding mechanism. Existing perpetual swaps designs in CEXs and DEXs have soft pegging to underlying spot mechanisms via funding rates. Essentially, their funding rates are just a function of past supply and demand and, thus, could easily be manipulated when liquidity is thin. SynFutures@v2 Perpetual Futures inherited the advantages from SynFutures@v1 term futures, where the futures price settles at the underlying spot price, easing the concern of depegging and price manipulation and, at the same time, avoiding the drawbacks of existing perpetual swaps offered on the market.

For LPs, SynFutures@v2 will be the first AMM-based derivatives protocol to natively incorporate ranged liquidity provision and limit orders, in addition to the vanilla AMM liquidity provision. Capital efficiency is largely improved for advanced liquidity providers while preserving all the advantages from vanilla AMM, allowing for the highest degree of permissionlessness.

SynFutures@v2 upgrades all users' accounts to shared margin mode, allowing the offsetting of margin and profit-and-loss (PnL) of positions, eliminating the need for margin rebalancing between positions. This results in a simplified experience for LPs, obviating separate margin management for their trading positions. This is achieved by including LP shares in the account collateral and using total account value of margin balance plus LP share value to determine margin sufficiency for accounts.

4 Overview of New Features and Products

4.1 Perpetual Futures

SynFutures@v2 implements Perpetual Futures to provide traders with a similar experience to perpetual swaps in centralized exchanges. The design can be viewed as the combination of a series of daily futures. Every day at 8:00 AM UTC, the current daily futures settles at the TWAP spot index price calculated from the SETTLING period following the same methodology as other dated futures. At the same time, the AMM for the new daily futures is initialized to start trading at the TWAP spot index price. Every position and liquidity is automatically rolled to the new daily futures, while the daily settlement behaves similar to the funding events in perpetual swaps.

This design preserves guaranteed price convergence to spot index of dated futures while avoiding the operational overhead involved in managing multiple dated futures positions. Thanks to the simple and conventional settlement logic, this design achieves daily funding without any obscure calculation of funding payments used in existing perpetual swap designs. These features enable SynFutures' Perpetual Futures to support native permissionless listings, even for long-tail assets with dynamic risk profiles.

4.2 DAO Futures

When SynFutures@v1 was launched, only USDC, USDT, DAI and ETH were allowed as margin. Later WBTC, MATIC and BNB were added to the list. Now that SynFutures has fully embraced the multi-chain strategy, native DAO network tokens will be allowed to be used as margin, along with popular USD stablecoins, on each network. In addition, any token on any network that SynFutures is deployed on could be added to the margin token list via the coin-margined futures route once the community approves its use. With the expanded list of margin tokens, LPs could provide liquidity with their preferred store of value while traders could use their preferred token as collateral.

4.3 NFT Futures (aka "NFTures")

With the emergence of fractionalization protocols for NFTs, NFT fractions are now commonly traded in spot DEXs like Uniswap and SushiSwap. Due to the permissionless nature of these fractionalized NFTs, SynFutures is the perfect platform to offer Perpetual Futures on these long tail assets where no other DEX or CEX could.

4.4 Shared margin account

In SynFutures@v2, every underlying is managed by one smart contract, which hosts the accounts and trading activities for all expiry dates. While SynFutures@v1 offers a full range of expiry dates, most trades and liquidity are concentrated on a few key dates, similar to the patterns witnessed across centralized exchanges and traditional financial markets. By limiting the number of live expiry dates, shared margin can be achieved. Overall, this improves the user experience and liquidity for all market participants.

With this structure, all the expiry dates in the same underlying share the insurance fund while potential socialized losses are contained within each expiry.

Every user will have one trading account for an underlying contract. Such balance is shared between positions on all expiry dates. For each account, the margin balance is the account balance plus the unrealized PnL of all expiries.

As mentioned in the overview, account value is used to determine margin sufficiency. For each account, the account value is the margin balance plus the LP share value of all expiries.

In the underlying shared margin setup, margin requirements only need to be imposed on the side of the position with the larger total position value. For example, if Trader Tracy has a LONG position equivalent to $5,000 in BTC-USDC-20220325 (current quarter) and a SHORT position equivalent to $3,000 in BTC-USDC-20220624 (next quarter), only the $5,000 LONG position will be used in the margin requirement calculation. This occurs because only adverse market moves on this side will reduce an account' s margin balance and breach margin requirements (assuming all futures of the same underlying have relatively parallel moves).

For ease of discussion, let' s name the total positions used to calculate margin requirement the Effective Total Position Value, which is the higher of the total position value of either long positions or short positions. Account value is required to meet initial margin requirements after every successful trade, and an account will be subject to liquidation if the account value falls below the maintenance margin requirement.

With this margin mechanism, a trader' s margin efficiency goes up to 200% compared to that in SynFutures@v1 fixed margin model. For example, with the same 10% initial margin ratio, a trader with $1,000 margin in SynFutures@v1 can only take a $10,000 worth of position in either a long or short position. In SynFutures@v2, she can take $10,000 worth of positions in both long and short positions in the same underlying, on different expiry dates.

4.5 A brand new sAMM model

SynFutures@v1 introduced the sAMM model, enabling LPs to list and add liquidity to a trading pair with one single digital token. While the constant-product AMM for each expiry date is kept intact, many upgrades have been implemented in V2 to improve the LP experience.

First, SynFutures@v2 no longer requires LPs to set the initial price for a new expiry date. Instead, initial prices will be bootstrapped from the spot price and maturity. Once the initial price is set and the new expiry date is properly initialized, market forces are back in the driver' s seat in determining the exact pricing for the futures.

Additionally, with the new margin mechanism described in the last section, the LP' s capital efficiency is increased by up to 50% compared to SynFutures@v1. Furthermore, LPs are freed from operational nuisances such as allocating margin to maintain hedge position and periodically rebalancing margin to meet margin requirements.

But there' s more.

SynFutures@v2 introduces new methods of liquidity provision to further enhance capital efficiency and

flexibility for advanced LPs. The new sAMM model was developed to include the best of two worlds: 1) a generalized sAMM where normal users can add liquidity in just two clicks and 2) a range and order book type of market making where advanced users can provide liquidity with traditional market making algorithms. Details of the model will be elaborated on in a separate technical paper.

5 The Incomplete Roadmap - Cross-Chain Mechanisms

As we move toward an interoperable blockchain ecosystem, liquidity within the DeFi ecosystem could benefit from a multi-chain approach, ultimately contributing to a much better user experience for traders and liquidity providers.

5.1 Cross margin

With the implementation of shared margin mechanisms in SynFutures@v2, SynFutures is now halfway through cross margin development. In theory, to achieve true cross-margining, an AMM that is capable of pricing every instrument that shares the same margin account is needed. With that in mind, the focus is now on developing an AMM model and a margin mechanism that can limit the account position in a reasonable and natively permissionless way.

The future SynFutures@v3 cross margin user experience will be similar to that of V2 shared margin. The main differences between V3 and V2 will be 1) support for more expiry dates at the same time, 2) better pricing for cross expiry date trades, 3) higher margin efficiency for traders, and 4) better capital efficiency for LPs.

5.2 Native multichain

5.2.1 Cross chain and permissionless asset listing

Similar to the global stock markets where companies can be listed and traded in multiple countries, SynFutures is working with cross-chain messaging systems to enable permissionless listing of crypto futures across different chains.

5.2.2 Cross-chain margining and liquidity

SynFutures is also working on cross-chain margining and cross-chain liquidity solutions with SynFutures' partners. This would enable chain-agnostic trading and liquidity provision. Futures liquidity could be pooled from multiple chains into a few networks with the highest trading fee generation ROI, in turn, attracting more routing possibilities for optimal price discovery or even arbitrage trades.

6 Conclusion

While there are many issues still hindering the mass adoption of DeFi derivatives, the future looks bright as these issues are in the process of being addressed. The native permissionless market, innovative liquidity

models, and vastly improved derivatives trading and LP user experiences offered through SynFutures will help alleviate many of these pain points and lead to growth on a larger scale.

But the growth is not limited to SynFutures or the crypto derivatives sector. The blockchain industry continues to evolve to meet market demands, with multiple Layer 2 and public chains offering higher speeds and throughput and regulation guidance becoming more clearly defined in many jurisdictions.

Together, as ecosystems and communities, we' re part of a new era of accessible financial products and services working together to create a better, more inclusive global financial system.

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