Eisen V2: A Reliable High-Yield Trading Solution Powered by Ce-DeFi Synergies

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Abstract

Ce-DeFi protocols are transforming the financial landscape by blending the trustless infrastructure of decentralized exchanges (DEXs) with the liquidity depth and compliance frameworks of centralized exchanges (CEXs). This paper surveys three leading Ce-DeFi platforms—Ethena.Fi[1], Avalon Finance[2], and BounceBit[3]—to show how basis trading, permissioned collateralized stablecoins, and structured products can offer both risk-adjusted yields and user-centric flexibility. We also highlight recent launch pool case studies on CEXs such as Binance[4], Bitget[5], and Bybit[6], demonstrating how these mechanisms facilitate early token distribution and attractive APRs for participants. Furthermore, we examine emerging real-time derivatives DEXs, exemplified by the innovative protocol Hyperliquid[7], which enables cross-market arbitrage via perpetual contracts and funding rate discrepancies. Finally, active liquidity management protocols such as Gamma[8] and Arrakis[9] are introduced to highlight the potential for optimizing on-chain market making and mitigating impermanent loss. Across these strategies, the central theme is sustainable, scalable arbitrage and yield generation under a Ce-DeFi framework that integrates deep liquidity, user-friendly design, and robust risk management. Our empirical findings focus on base asset pairs using USDT as the quote asset across both CEXs and DEXs, demonstrating how arbitrage strategies can be scaled for substantial, sustained returns.

1 Introduction

1.1 Ce-DeFi Yield-Generating Players

The integration of centralized and decentralized finance has led to the emergence of *Ce-DeFi* platforms harnessing the strengths of both paradigms. We examine three prominent examples below.

1.1.1 Ethena.Fi

Ethena.Fi[1] provides a comprehensive suite of decentralized financial services, enabling users to mint the USDE stablecoin, trade digital assets securely, and manage portfolios. The platform supports Liquid Staking Derivatives (LSDs), such as stETH, alongside ETH, BTC, SOL, and various stablecoins. This cross-chain, LSD-centric collateral strategy underpins the stable peg of USDE. By early 2025, Ethena.Fi attained a total value locked (TVL) of $5.76 billion, with over 404,430 active users and a mean annual percentage yield (APY) of 13%.

Throughout 2024, Ethena.Fi generated $276.47 million in total revenue, peaking at $7.21 million in November. By late December 2024, the circulating supply of USDE surpassed 6 billion tokens. Much of Ethena.Fi's yield comes from *basis trading*, where traders hold or short an asset while taking the opposite position in a futures contract to capture the price difference (the "basis") between spot and futures markets. As futures near expiration, their price converges with spot, creating a profit opportunity. Ethena.Fi also incorporates staking for users who wish to delegate their assets to validators or staking pools, adding a further yield layer.

[1] https://ethena.fi
[2] https://www.avalonfinance.xyz
[3] https://www.bouncebit.io
[4] https://binance.com
[5] https://bitget.com
[6] https://bybit.com
[7] https://hyperliquid.com
[8] https://www.gamma.xyz
[9] https://arrakis.finance

1.1.2 Avalon Finance

Launched in early 2024, Avalon Finance[2] distinguishes itself through *permissioned* yield strategies that combine institutional compliance and DeFi adaptability. Its core product is the USDA stablecoin, a Ce-DeFi over-collateralized asset emphasizing regulatory alignment. Users can mint USDA against approved collateral—currently FBTC and USDT—through the protocol's Ce-DeFi lending and Collateralized Debt Position (CDP) services.

As of Q1 2025, Avalon Finance had reached approximately $2 billion in TVL and 200,000 users. Unlike purely permissionless protocols, Avalon requires KYC for large deposits, striking a balance between regulatory compliance and DeFi accessibility. Revenue streams include minting and liquidation fees that support a sustainable ecosystem. Avalon also offers predictable interest rates secured by top-tier CeFi institutions, shielding users from drastic rate swings. USDA is integrated into broader yield farming, liquidity pools, and other DeFi services, enabling efficient capital deployment. Optional KYC is available for high-volume participants, appealing to institutional investors seeking a regulated yet flexible DeFi environment.

1.1.3 BounceBit

BounceBit[3] focuses on user-centric structured Ce-DeFi products with intuitive yield aggregation interfaces. Since its mid-2024 launch, BounceBit's TVL has grown to $423.9 million, attracting over 3,480,000 users and generating $6.49 million in total earnings.[10] The platform offers both fixed- and variable-yield vaults tailored to different risk profiles, and supports fiat on/off-ramps for more traditional market participants. Multi-chain support is provided for BTC, ETH, USDT, BNB, SOL, and Real World Assets (RWAs) via tokens such as USDY.

A key innovation is *funding rate arbitrage*,[11] which monetizes the difference in perpetual swap funding rates across various exchanges. BounceBit automates this through delta-neutral positions that collect recurring funding fees:

- **Positive Arbitrage:** When funding rates are positive, the trader buys spot and shorts perpetuals.
- **Negative Arbitrage:** When funding rates are negative, the trader borrows tokens for spot selling and goes long perpetuals.

These strategies earn the funding rate spread while mitigating directional price risk. BounceBit also earns revenue from transaction fees, aggregation charges, and interest spreads on its structured products. Partnerships with CeFi institutions bolster liquidity and reduce platform-wide risk. Like Avalon, BounceBit includes an optional KYC component to accommodate institutional clients seeking regulatory compliance.

Table 1 summarizes the key metrics for Ethena.Fi, Avalon Finance, and BounceBit.

Protocol	TVL (USD)	Users	Yield	Ce-DeFi Approach
Ethena.Fi	$5.76B[1]	404.4K[1]	13% APY[1]	Decentralized stablecoin issuance alongside centralized liquidity partners.
Avalon Finance	$2B[2]	200K[2]	7–10% APR[2]	Combines KYC-based compliance with DeFi lending for USDA.
BounceBit	$423.9M[10]	3.48M[10]	9–12% APY[10]	Offers funding rate arbitrage and structured yield products with optional KYC.

Table 1: Comparison of Ce-DeFi Platforms

1.2 Real-Time Derivatives DEX with an Order Book Mechanism

In parallel with these Ce-DeFi platforms, new decentralized exchanges specializing in perpetual contracts have appeared. These DEXs serve users unable to access derivatives markets on centralized platforms due to regulatory or geographical restrictions. One notable example is Hyperliquid,[7] which has gained traction in part by offering robust order-book-based perpetual trading.

[10] `https://bbscan.io/statistics`
[11] `https://medium.com/@bouncebit/what-is-cedefi-bouncebit-9dded2e0e962`

1.2.1 Hyperliquid

By December 2024, Hyperliquid recorded a cumulative perpetual trading volume exceeding $500 billion, including an impressive $22 billion in daily ETH perpetuals.[12] The platform had 300,000 users by January 2025[13] and produced $9.5 million in protocol revenue. This underscores the growing popularity of decentralized perpetuals.

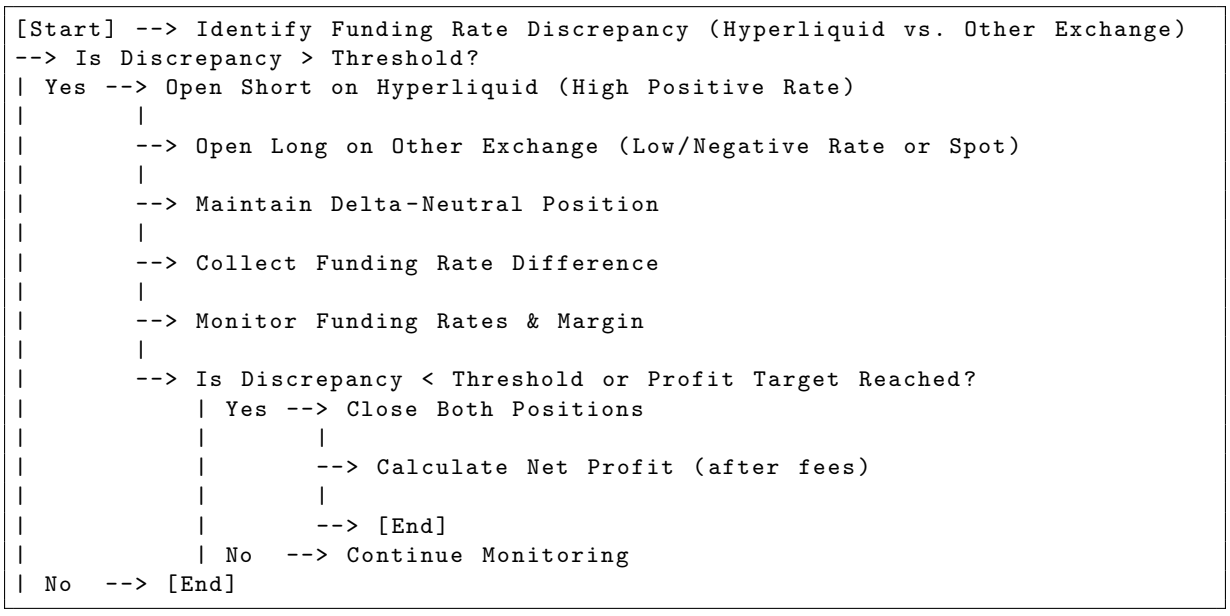
1.2.2 Funding Rate Arbitrage on Hyperliquid

Hyperliquid[14] displays real-time funding rates for various perpetual contracts, often diverging from those on other exchanges, thus creating *funding rate arbitrage* opportunities. In a typical scenario, the trader aims to earn more in funding fees than they pay, while maintaining a delta-neutral position to minimize exposure to price swings.

Example Scenario. Suppose the ETH-PERP funding rate on Hyperliquid is +0.05% every 8 hours, whereas on Binance it is +0.01% for the same period.

1. **Identify Discrepancies:** Spot a substantial difference in ETH-PERP funding rates between Hyperliquid and Binance.
2. **Construct a Delta-Neutral Position:**
   - **On Hyperliquid:** Open a short ETH-PERP for 1 ETH notional. Earn 0.05% funding every 8 hours.
   - **On Binance:** Open a long ETH-PERP of 1 ETH notional, paying 0.01%.
3. **Collect the Funding Spread:** Net profit is 0.04% (0.05% - 0.01%) every 8 hours, excluding fees.
4. **Risk Management:** Traders must watch positions and manage margin levels.
5. **Closing Positions:** If funding rates converge or become unfavorable, close both positions and realize the accumulated profit.

Visual Representation (Flowchart):



[12] https://www.coinspeaker.com/hyperliquid-shatters-records-22b-trade-volume-24-day
[13] https://cryptonews.com/news/hyperliquid-reports-2024-milestones-achieves-2-1b-tvl
[14] https://app.hyperliquid.xyz/fundingComparison

1.3 CEX Launchpool

As Ce-DeFi expands, centralized exchanges offer new channels for token distribution, user engagement, and liquidity provision. One prominent example is the **CEX Launchpool**, where participants stake assets (often stablecoins or exchange-native tokens) to earn newly issued project tokens. Leading exchanges like Binance, Bybit, and Bitget utilize Launchpools to streamline project funding and foster growth.

Launchpool Objectives. Launchpools serve a mutually beneficial purpose: they allow exchanges to attract user deposits and incentivize native token holding, while giving new projects a structured means of distributing tokens and establishing an early user base. Participants often enjoy elevated yields during the reward phase.

Yield Dynamics. Launchpools allocate a fixed reward pool to participants, offering high initial APRs that generally taper as more users enter. Early adopters typically benefit from higher returns, while projects use their tokens to bootstrap liquidity and community engagement.

Exchange-Specific Approaches.

1.3.1 Binance Launchpool

Binance Launchpool involves staking BNB or FDUSD to earn new project tokens. Participants must pass KYC checks, but staking or unstaking is generally flexible. Because BNB holders are automatically eligible, these pools often attract a large number of participants, influencing APR levels.

1.3.2 Bybit Launchpool

Bybit Launchpool lets users stake multiple assets (e.g., MNT, USDT) to earn daily distributions of newly listed tokens. Reward tiers depend on the participant's VIP status. Similar to Binance, APR can begin high and then normalize as the pool grows.

1.3.3 Bitget Launchpool

Bitget Launchpool allows staking of tokens like BGB or USDT, sometimes featuring elevated APRs for newly registered users as an acquisition incentive. Although participant counts are less transparent, the structure resembles that of Binance and Bybit, including KYC requirements.

Volatile APRs. Launchpool yields fluctuate based on market conditions, reward pool size, staking competition, and participant growth. While early stakeholders may lock in disproportionately higher APYs, these levels often diminish once adoption broadens.

Win-Win Mechanism. Launchpools align the goals of project creators, exchanges, and users: *creators* secure immediate liquidity and visibility, *exchanges* foster deposits and trading activity, and *participants* access high APRs in a relatively streamlined environment. Despite yield volatility, Launchpools remain a popular mechanism for token distribution and community building in the Ce-DeFi space.

2 Background

2.1 Payback Structure and Brokerage Rebate Fees

Many centralized exchanges operate affiliate and referral programs that grant trading fee rebates to institutional and corporate brokers, who may then share these rebates with end users.

2.1.1 Payback

"Payback" redistributes part of the affiliate/referral earnings to the end customer. Typically, the user pays the exchange's trading fees, and a portion of those fees is returned by the exchange to an affiliate. With Payback, some of the affiliate commission flows back to the trader, effectively lowering their net transaction costs.

2.1.2 Binance Link Program

Under the Binance Link Program,[15] enterprise clients use Binance's liquidity and infrastructure while earning commissions on trading fees. With monthly trading volumes around $111 billion, the Link Program supports more than 1,000 brokers, collectively earning $400,000 in monthly brokerage profit. A Futures Bonus up to $72,000 is also available for qualified brokers.

Each broker has a unique ID. Users who register with it generate trading commissions, part of which can be rebated to them. Table 2 outlines the tier structure.[16]

Tier	**Avg. Monthly Trading Volume in a Quarter (USD)**	**Avg. Number of Monthly Trading Users**	**Spot Rebate**	**Futures Rebate**
Bronze	Spot $\geq$ 40,000 or Futures $\geq$ 80,000	Spot Users $\geq$ 10 or Futures Users $\geq$ 5	40%	30%
Silver	Spot $\geq$ 40,000,000 or Futures $\geq$ 200,000,000	Spot Users $\geq$ 40 or Futures Users $\geq$ 20	45%	30%
Gold	Spot $\geq$ 200,000,000 or Futures $\geq$ 1,000,000,000	Spot Users $\geq$ 200 or Futures Users $\geq$ 100	50%	30%

Table 2: Binance Link Tier Structure and Benefits

2.1.3 Bybit Broker & Affiliates Program

Bybit's API broker program[17] starts with a 20% commission rate, which can rise to 25% upon recruiting at least five qualified users, and further to 30% for higher thresholds (e.g., 100 referees or $15 million in quarterly derivatives volume). Top-tier API brokers achieving $250–500 million in monthly volume can earn around $870,000 in monthly profits.[18]

Tier	**Avg. Monthly Trading Volume in a Quarter (USD)**	**Non-Affiliated Rebate**	**Affiliated Rebate (Bybit Affiliate Commission up to 50%)**[19]
Level 1	Spot $\geq$ 2,000,000 or Futures $\geq$ 10,000,000	30%	3%
Level 2	Spot $\geq$ 5,000,000 or Futures $\geq$ 100,000,000	40%	5%
Level 3	Spot $\geq$ 10,000,000 or Futures $\geq$ 500,000,000	50%	10%

Table 3: Bybit API Broker Program

Bitget does not currently provide a publicly documented brokerage program and is therefore excluded here.

2.2 Active DEX LP Management Solutions

Beyond passive liquidity provision, **active liquidity management** protocols have emerged to optimize capital efficiency and reduce impermanent loss. Two prominent platforms are **Gamma**[20] (previously Visor Finance) and **Arrakis**[9] (formerly G-UNI under Gelato). Both dynamically manage liquidity positions on AMMs such as Uniswap (especially v3) and Algebra.

2.2.1 Gamma

Gamma features *smart vaults* that proactively rebalance liquidity ranges in response to price changes, aiming to outpace passive strategies while mitigating impermanent loss. As of this writing, Gamma's TVL is $52.47 million[8], with a 30-day annualized revenue of $3.13 million in trading fees (a roughly 71.58% APR). Gamma charges a 10% performance fee on fees generated, paid to GAMMA token stakers, while the remaining 90% goes to liquidity providers. Although no explicit maintenance fee is charged, frequent rebalancing can incur nontrivial gas costs.

[15] https://www.binance.com/en/link
[16] https://www.binance.com/en-IN/support/announcement/binance-link-tier-structure-benefit-system-upgrade-c7154e8282b8499ea
[17] https://www.bybit.com/en/help-center/article/FAQ-API-Brokers-Program
[18] https://www.bybit.com/en/broker
[19] https://affiliates.bybit.com/v2/en/
[20] https://app.gamma.xyz/discover

2.2.2 Arrakis

Arrakis aggregates Uniswap v3 positions into ERC-20 tokens ("Arrakis vaults"), automatically rebalancing around specific price ranges. Formerly G-UNI under Gelato, Arrakis V1 once held $1.8 billion in TVL (representing 25% of Uniswap v3's TVL at its peak in 2022). By December 2024, Arrakis V2 managed $130.39 million,[21] and had accumulated $1.05 million in protocol revenue (approx. 19.32% APR). Fees vary, but managers commonly charge around 1% annually plus a performance fee up to 50%.

Notable adopters include DAOs and large DeFi players (e.g., MakerDAO, Aave, Frax). Like Gamma, Arrakis tries to curb Impermanent Loss(IL) by narrowing price ranges and frequently rebalancing to capture fees more efficiently. But, IR, Loss versus Rebalancing(LVR) is hard to achieve when we set only on DeFi landscape in high volatile market due to inherent risk of Blockchains.

Comparisons to Passive LPs.

- **Efficiency vs. Simplicity:** Passive LP strategies are low-maintenance but are more exposed to IL. Active management seeks higher fee capture within tighter price ranges, at the cost of higher complexity and rebalancing overhead.
- **Volatility Adaptation:** Passive liquidity strategies may struggle in volatile markets, whereas active vaults frequently reposition capital to optimize fees and mitigate risk.
- **Market Demand:** Both Gamma and Arrakis maintain substantial TVL, demonstrating significant user demand for professional-grade liquidity management solutions.

Overall, Gamma and Arrakis exemplify the growing market for automated active LP solutions in DeFi, enabling LPs to pursue higher yields with lower IL exposure.

2.3 CEX LaunchPool Analysis

This section delves into CEX Launchpool data, examining APR distributions, participant engagement, and staking values across different asset types.

2.3.1 APR Distribution and Pool Capacity

Figures 1 and 2 depict the relationship between APR, asset type, and total staking value. As seen in Figure 3a, *Other* asset pools often show higher mean APR than stablecoins, particularly on certain exchanges.

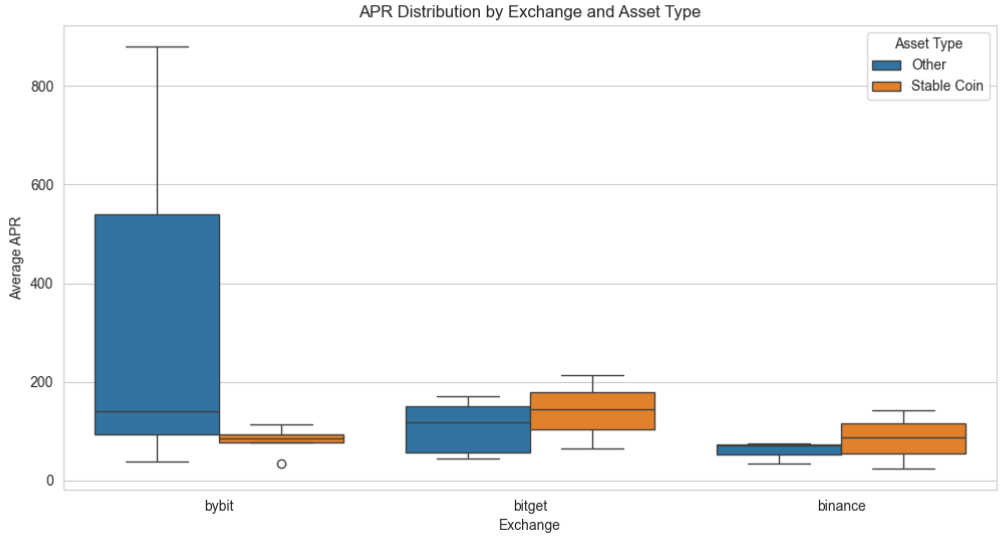


Figure 1: APR Distribution by Exchange and Asset Type

[21] https://defillama.com/protocol/arrakis-finance



Figure 2: APR and Total Staking Value for Each Launchpool

A general inverse correlation appears between APR and the total staking value: higher APRs typically coincide with smaller staking pools, possibly due to strategic incentives to attract participants with elevated yields. By contrast, as participation and staked funds grow, APRs often revert to more moderate levels, raising questions about the long-term sustainability of exceptionally high yields if the underlying token lacks sufficient liquidity.

Exchange-specific tactics further shape observed patterns. Bybit, for instance, consistently offers higher APRs for *Other* assets compared to stablecoins, in contrast to Bitget and Binance (see Figure 1). Binance's automatic enrollment of BNB holders into Launchpools inflates the staking value for BNB pools, potentially skewing the APR-to-pool-size relationship. Meanwhile, Bitget sometimes restricts high-yield stablecoin pools (e.g., USDT) to new users, explaining the sometimes higher staked value of *Other* asset pools.

Although stablecoin pools often have larger participant counts and lower APRs, Figure 2 indicates that APRs above 100% are sometimes achievable with total staking beyond $100M. This finding underlines opportunities for participants to boost yields by leveraging Ce-DeFi tools. For example, one can supply BTC as collateral via a lending protocol and borrow stablecoins to participate in Launchpools, potentially benefiting from both Ce-DeFi and Launchpool yields when the CEX borrow rate is higher than that of the lending protocol considering the yields.

2.3.2 Launchpool Participation Patterns

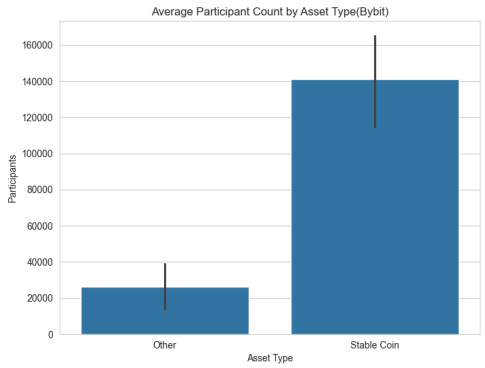
Figure 3b indicates that stablecoin pools generally attract more participants than *Other* asset pools (when excluding Binance). In particular, Bybit's data suggests significant untapped potential for *Other* asset pools, implying that broader availability of simple hedging tools might substantially boost user participation in these pools.

2.3.3 APR and Participation Analysis by Asset Type

Table 4 reveals significant differences in average staking values and average participants across exchanges. Binance features notably higher mean staking figures for both *Other* and stablecoin pools than Bybit or Bitget. At Bybit, stablecoin pools show a greater mean staking value compared to *Other* assets.



(a) Mean APR by Asset Type Across Exchanges



(b) Average Participant Count by Asset Type (Excl. Binance)

Figure 3: Comparison of APR and Participation by Asset Type

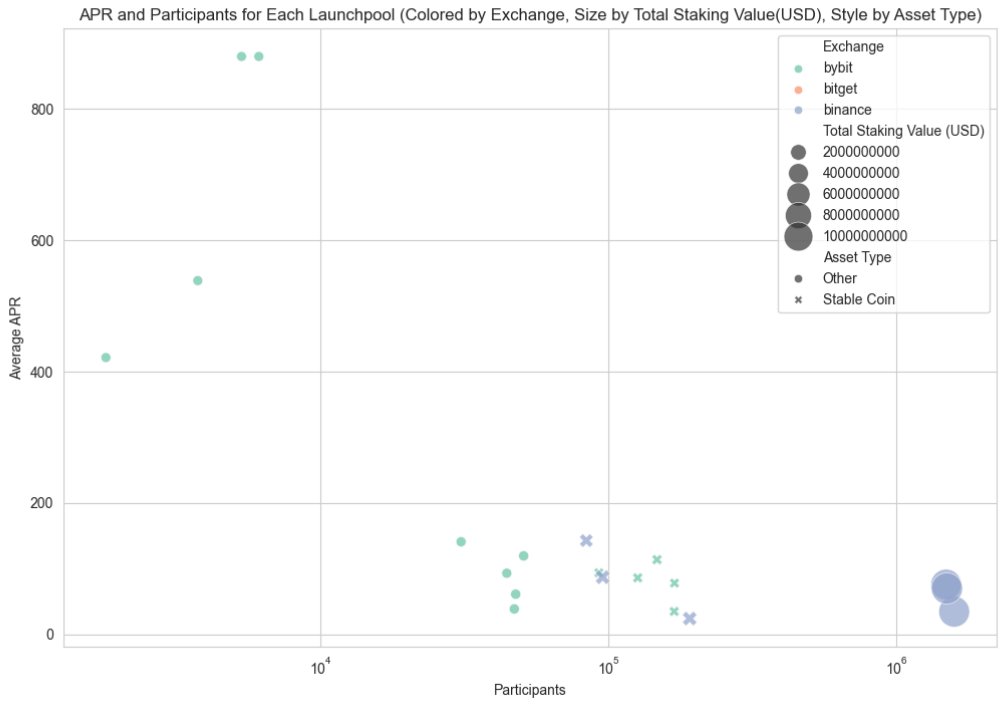


Figure 4: APR vs. Participants (Colored by Asset Type, Marker Size by Duration)

Exchange	Asset Type	Mean Staking Value (USD)	Mean Participants
Binance	*Other*	$11.568B	1.52M
	Stable Coin	$1.492B	123.68K
Bitget	*Other*	$389.242M	–
	Stable Coin	$10.576M	–
Bybit	*Other*	$41.364M	26.43K
	Stable Coin	$146.340M	141.15K

Table 4: Mean Staking Value and Mean Participants by Exchange and Asset Type

Hypothesis Testing. We tested two hypotheses:

- **H1:** Stablecoin pools have higher participant counts than *Other* asset pools (excluding Binance).
- **H2:** *Other* asset pools offer higher APRs than stablecoin pools across all exchanges.

For each hypothesis, we assessed data normality using the Shapiro-Wilk test. When normality was violated, we used the Mann-Whitney U test; otherwise, an independent-samples t-test was applied.

Results:

- *H1 (Participant Counts):* Data were non-normal, so a Mann-Whitney U test was conducted, showing a statistically significant difference in participant counts between stablecoin and *Other* asset pools ($p = 0.0004995$). Stablecoin pools had substantially more participants.
- *H2 (APR):* Data were abnormally distributed, so we used a Mann-Whitney U test. Results indicated no statistically significant APR difference between *Other* asset and stablecoin pools ($p = 0.259$). Thus, the hypothesis of significantly higher APRs for *Other* assets was not supported by our dataset.

Overall, stablecoins generally attract larger participant numbers, but *Other* asset pools can have comparable or higher APR, suggesting diverse strategies across CEX launchpools.

3 Methods

This study examines arbitrage opportunities within and between DEXs and CEXs under a Ce-DeFi framework, emphasizing real-time data for asset pairs. We evaluate profit margins, gas efficiency, and scalability across various scenarios, providing actionable insights for optimizing yield strategies. Future sections will delve into the technical specifications of bridging, collateral management, and risk mitigation practices essential to scaling Ce-DeFi arbitrage operations. We implemented a Ce-DeFi arbitrage strategy designed to leverage price discrepancies between CEXs and DEXs. In order to minimize costs, we focused on either Layer-2 (L2) chains or Layer-1 (L1) networks that feature relatively low gas fees.

On the CEX side, depositing, withdrawing, or bridging assets introduces time delays during which arbitrage opportunities may vanish and exposes traders to price volatility. To mitigate these drawbacks, we selected perpetual (perp) markets on CEXs due to their higher liquidity, availability of leverage, and generally lower fees compared to spot markets (assuming diligent monitoring of funding rates). On the DEX side, we employed Eisen's Sherpa engine to minimize price impact. Specifically, the engine splits the input amount into multiple smaller orders to maximize output.

These features are integrated into a bot that continuously monitors price differentials between a designated CEX and DEX for each target asset pair. Once a profitable discrepancy is detected, the bot executes trades on both platforms. On the DEX side, trades occur at discrete timestamps aligned with block genesis intervals, and the atomic nature of transactions can limit minimum output amount. By contrast, the CEX allows continuous, real-time order placement without such composability so we've set heuristic gap thresholds to trigger trades. As soon as the DEX order is confirmed, the bot immediately triggers the corresponding CEX order. For simplicity, all stablecoins (e.g., USDT, USDC) are treated as maintaining a constant value of 1,USD. Preliminary tests across multiple asset pairs suggest that this strategy can produce consistently positive returns under a range of market conditions.

3.1 Asset Pair Selection Criteria

- **Market Gap and Volatility:** Monitor CEX-DEX price gaps and volatility using Eisen's Sherpa engine. The Eisen Chart comparison feature helps identify discrepancies across tokens.
- **Perpetual Availability:** Choose an arbitrage pair for which perp markets exist on the targeted CEX and a corresponding spot market on the DEX.
- **CEX features:** Choose CEXs with lower fees and higher trading volume.
- **Capacity Assessment:** Evaluate the CEX's perp market volume to ensure sufficient liquidity for the selected pair.
- **Gas Cost Analysis:** Determine the most cost-effective chain on which to execute the DEX leg. Select base-quote assets with minimal swap "hops" to reduce additional fees.

Asset	CEX-DEX gap (bps) (weighted avg / avg / median)	Avg PnL (bps)	Weighted Avg PnL (bps)	APR (%)	Trade Freq.	Trade Freq (per month)	Annualized Sharpe Ratio
BINANCE-LINEA	42.22 / 30.39 / 13.65	18.62	21.40	-6.52	43	28.86	-3.90
BYBIT-CORE	46.14 / 38.65 / 23.75	27.37	29.39	-1.60	50	30.14	-1.37
BYBIT-MANTLE	68.28 / 59.60 / 25.51	30.27	33.63	76.18	151	92.43	8.02
BYBIT-TAIKO	43.05 / 34.17 / 25.19	27.36	31.08	298.95	387	391.14	4.05
BYBIT-BLAST	30.54 / 25.53 / 18.25	21.53	24.03	397.84	612	592.75	4.30
BYBIT-ZIRCUIT	36.94 / 28.35 / 20.56	28.68	37.06	1087.25	968	577.82	6.07
BINANCE-SONEIUM	35.15 / 35.12 / 16.89	34.33	34.35	99.97	87	323.20	3.49
BINANCE-SCROLL	36.63 / 33.79 / 30.06	31.13	31.08	186.92	254	136.19	3.80

Table 5: CEX-DEX Arbitrage Results

- **Dynamic Gas Price Forecasting:** Monitor gas price fluctuations and empirically estimate transaction costs to inform real-time execution decisions.

3.2 Data Analysis

- **Profitability:** Calculated as the difference between CEX and DEX prices, net of gas costs.
- **Risk-Adjusted Returns:** Measured via Sharpe ratios to account for volatility in returns.
- **Time-Series Visualization:** Utilized to illustrate profit-and-loss (PnL) trajectories and value changes over time.

From December 2024 to January 2025, we conducted live tests of this arbitrage bot on multiple chains and asset pairs.

4 Results

Table 5 provides an overview of arbitrage opportunities executed between CEXs and DEXs for several asset pairs. The "CEX-DEX gap" is measured in basis points (bps) and indicates the magnitude of the price discrepancy between the two exchange types. We report three gap values—weighted average, simple average, and median—to capture the effects of trade size and outliers on overall profitability.

A key performance indicator is the weighted average PnL (profit and loss), which is calculated according to the total swap amount. This approach assigns greater weight to larger trades, highlighting their market impact. In most cases, the weighted average PnL surpasses the simple average PnL, suggesting that size and execution efficiency considerably influence results. For instance, BYBIT-ZIRCUIT exhibits the highest weighted average PnL at 37.06bps, followed by BINANCE-SONEIUM at 34.35bps, demonstrating that increased trade size can amplify returns.

Annual Percentage Rate (APR) also varies widely across pairs. BYBIT-ZIRCUIT leads with an APR of 1087.25%, while BYBIT-BLAST and BYBIT-TAIKO show 397.84% and 298.95%, respectively. These figures confirm that some pairs present lucrative opportunities when adequate liquidity, timing, and fee structures align. By contrast, BINANCE-LINEA and BYBIT-CORE exhibit negative APRs, signifying that not all observed gaps translate into profitable trades. Contributing factors include high fees, slippage, latency, or sudden price reversals.

Trade frequency provides another perspective on market efficiency and volatility, which implies the newest or out-of-interest chains have more opportunities. BYBIT-BLAST and BYBIT-ZIRCUIT exhibit the highest monthly trade counts, potentially reflecting deeper liquidity and more persistent price discrepancies. Nevertheless, a high volume of trading activity can gradually compress these discrepancies, ultimately extracting profitability. From a risk-adjusted standpoint, the annualized Sharpe Ratio offers valuable insight: BYBIT-MANTLE's Sharpe Ratio of 8.02 indicates a particularly favorable balance between returns and volatility.

During research, we also suggest opportunities for further profit enhancement in DEX-CEX arbitrage. When prices on DEXs and CEXs take considerable time to converge, the available supply of the target asset pair may be rapidly depleted. A more balanced asset inventory, coupled with the use of lending protocols to supply collateral and borrow the counterpart asset, could enable the arbitrage bot to capture greater returns with yield.

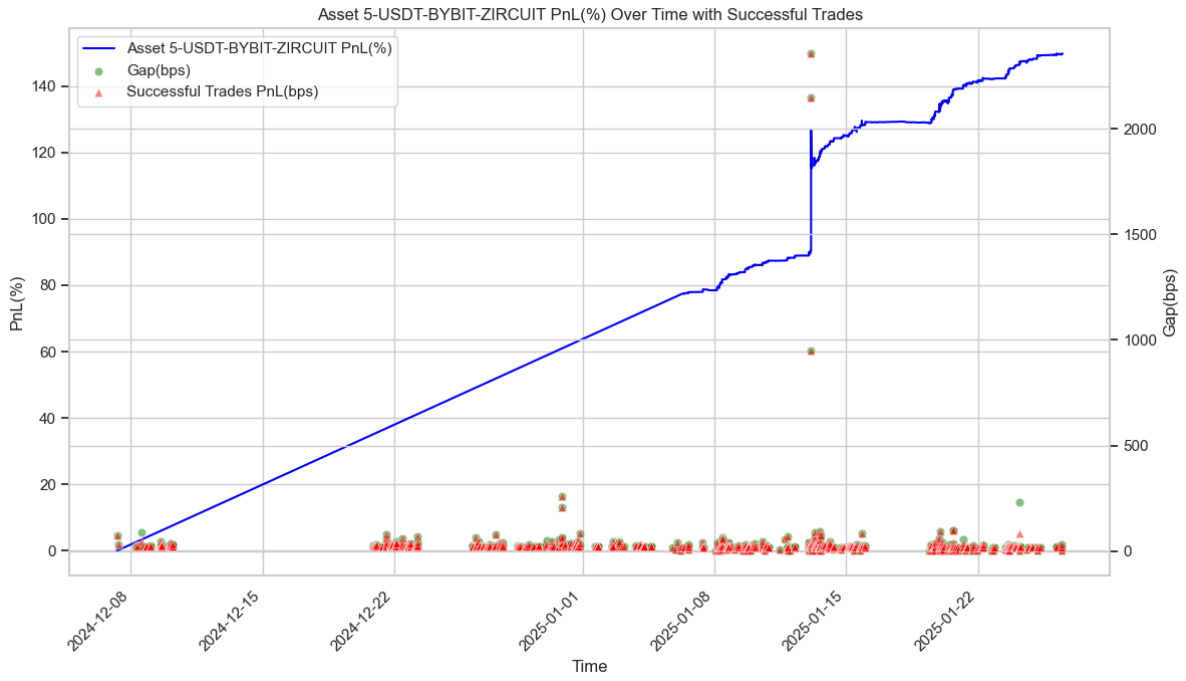


Figure 5: Asset 5-USDT CEX-DEX Arbitrage PnL on Bybit and Zircuit

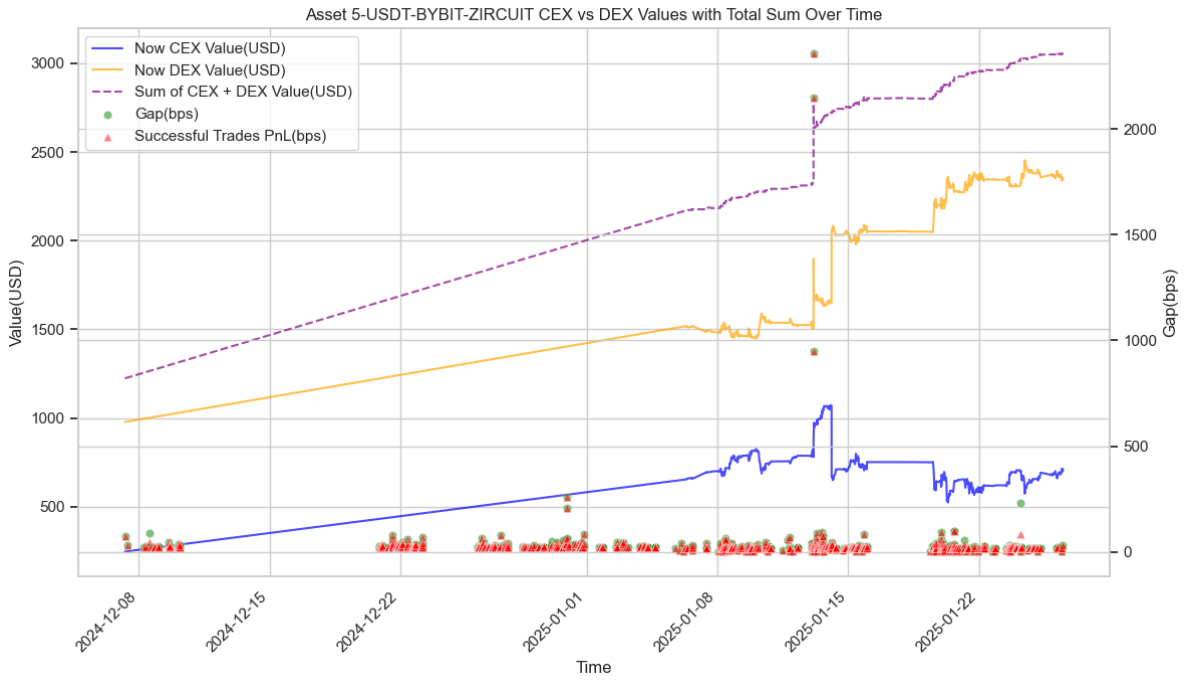


Figure 6: Asset 5-USDT CEX-DEX Arbitrage Value on Bybit and Zircuit

5 Future Work

- Enlarge the AUM of the bot.
- Introduce lending protocols to supply collateral and borrow the counter-part asset to enhance the capital efficiency.
- Investigate advanced arbitrage strategies, especially those involving perpetual futures.

- Examine the impact of funding rates and leverage on net profitability.
- Expand the scope to additional blockchains, Perp DEXs, and other CEXs to diversify available trading pairs.
- Develop enhanced risk-management tools, including real-time volatility analysis and optimized capital allocation.
- Integrate AI-driven forecasting to identify potential arbitrage windows and improve trade execution timing.

6 Conclusion

Overall, the results highlight the feasibility of Ce-DeFi as a mechanism for sustaining arbitrage yields. By leveraging the deep liquidity, speed, and user-centric interfaces of CEXs, together with the transparency and composability of DEX protocols, platforms such as Ethena.Fi and Hyperliquid are poised to advance yield optimization and market efficiency.

Eisen is well-positioned to capitalize on these Ce-DeFi synergies and deliver industry-leading arbitrage solutions. Equipped with sophisticated models for real-time market data analysis, rapid on-chain execution, and advanced risk management features, Eisen stands out as a next-generation Ce-DeFi platform. As market volatility, regulatory parameters, and user expectations evolve, Eisen's integrated, adaptive framework is set to remain at the forefront of innovation—establishing new standards in trust, performance, and scalability for Ce-DeFi arbitrage.

7 Appendix

7.1 CEX Fee Structure

VIP Level	30-Day Spot Trading Volume (USD)	30-Day Futures Trading Volume (USD)	BNB Balance (or Equivalent)	Spot(BNB 25% off)		Futures(BNB 10% off)
				USDT Maker / Taker	USDC Maker / Taker	(USDT-M) Maker / Taker
Regular User	$< 1{,}000{,}000$	$< 15{,}000{,}000$	≥ 0	0.1% / 0.1%	Standard / 0.095%	0.02% / 0.05%
VIP 1	$\geq 1{,}000{,}000$	$\geq 15{,}000{,}000$	≥ 25	0.09% / 0.1%	Standard / 0.095%	0.016% / 0.04%
VIP 2	$\geq 5{,}000{,}000$	$\geq 50{,}000{,}000$	≥ 100	0.08% / 0.1%	Standard / 0.095%	0.014% / 0.035%
VIP 3	$\geq 20{,}000{,}000$	$\geq 100{,}000{,}000$	≥ 250	0.04% / 0.06%	Standard / 0.055%	0.012% / 0.032%
VIP 4	$\geq 75{,}000{,}000$	$\geq 600{,}000{,}000$	≥ 500	0.04% / 0.052%	Standard / 0.047%	0.01% / 0.03%
VIP 5	$\geq 150{,}000{,}000$	$\geq 1{,}000{,}000{,}000$	$\geq 1{,}000$	0.025% / 0.031%	Standard / 0.026%	0.008% / 0.027%
VIP 6	$\geq 400{,}000{,}000$	$\geq 2{,}500{,}000{,}000$	$\geq 1{,}750$	0.02% / 0.029%	Standard / 0.024%	0.006% / 0.025%
VIP 7	$\geq 800{,}000{,}000$	$\geq 5{,}000{,}000{,}000$	$\geq 3{,}000$	0.019% / 0.028%	Standard / 0.023%	0.004% / 0.022%
VIP 8	$\geq 2{,}000{,}000{,}000$	$\geq 12{,}500{,}000{,}000$	$\geq 4{,}500$	0.016% / 0.025%	Standard / 0.020%	0.002% / 0.02%
VIP 9	$\geq 4{,}000{,}000{,}000$	$\geq 25{,}000{,}000{,}000$	$\geq 5{,}500$	0.011% / 0.023%	Standard / 0.018%	0% / 0.017%

Table 6: Binance Fee Structure

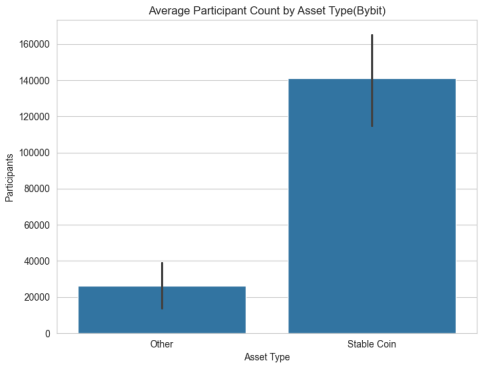
VIP Level	30-Day Spot Trading Volume (USD)	30-Day Futures Trading Volume (USD)	Spot	Futures & Perpetuals
			Maker / Taker	Maker / Taker
Non-VIP	< 1,000,000	< 10,000,000	0.1% / 0.1%	0.02% / 0.055%
VIP 1	≥ 1,000,000	≥ 10,000,000	0.0675% / 0.08%	0.018% / 0.04%
VIP 2	≥ 5,000,000	≥ 25,000,000	0.065% / 0.0775%	0.016% / 0.0375%
VIP 3	≥ 10,000,000	≥ 50,000,000	0.0625% / 0.075%	0.014% / 0.035%
VIP 4	≥ 25,000,000	≥ 100,000,000	0.05% / 0.06%	0.012% / 0.032%
VIP 5	≥ 50,000,000	≥ 250,000,000	0.04% / 0.05%	0.01% / 0.032%
Supreme VIP	≥ 100,000,000	≥ 500,000,000	0.03% / 0.045%	0.00% / 0.03%
Pro 1	≥ 25,000,000	≥ 100,000,000	0.04% / 0.06%	0.01% / 0.032%
Pro 2	≥ 50,000,000	≥ 250,000,000	0.03% / 0.05%	0.005% / 0.032%
Pro 3	≥ 100,000,000	≥ 750,000,000	0.02% / 0.04%	0.00% / All+Top 72 USDT Perp: 0.0275% Other USDT Perp: 0.032%
Pro 4	≥ 200,000,000	≥ 1,500,000,000	0.015% / 0.03%	0.00% / All+Top 72 USDT Perp: 0.024% Other USDT Perp: 0.028%
Pro 5	≥ 500,000,000	≥ 3,000,000,000	0.01% / 0.02%	0.00% / All+Top 72 USDT Perp: 0.021% Other USDT Perp: 0.028%
Pro 6	≥ 1,000,000,000	≥ 5,000,000,000	0.005% / 0.015%	0.00% / All+Top 72 USDT Perp: 0.018% Other USDT Perp: 0.028%

Table 7: Bybit Fee Structure

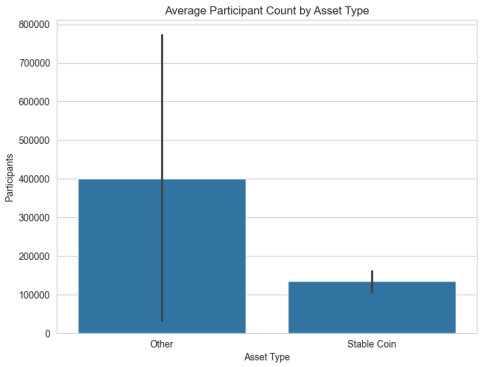
VIP Level	30-Day Spot Trading Volume (USDT)	30-Day Future Trading Volume (USDT)	30-Day Average BGB Balance	Spot(BGB 20% off)	Futures
				Maker / Taker	USDT-M Maker / Taker
VIP 0	> 0	> 0	> 0	0.1% / 0.1%	0.02% / 0.04%
VIP 1	≥ 500,000	≥ 5,000,000	≥ 3,625	0.08% / 0.08%	0.019% / 0.04%
VIP 2	≥ 2,000,000	≥ 10,000,000	≥ 6,043	0.065% / 0.07%	0.016% / 0.04%
VIP 3	≥ 8,000,000	≥ 20,000,000	≥ 30,216	0.05% / 0.06%	0.014% / 0.0375%
VIP 4	≥ 30,000,000	≥ 50,000,000	≥ 90,648	0.04% / 0.05%	0.012% / 0.035%
VIP 5	≥ 50,000,000	≥ 100,000,000	≥ 241,728	0.03% / 0.04%	0.01% / 0.032%
VIP 6	≥ 75,000,000	≥ 200,000,000	≥ 241,728	0.025% / 0.035%	0.008% / 0.032%
VIP 7	≥ 100,000,000	≥ 1,000,000,000	≥ 241,728	0.02% / 0.032%	0.0072% / 0.028%

Table 8: Bitget Fee Structure

7.2 Participants Tendency

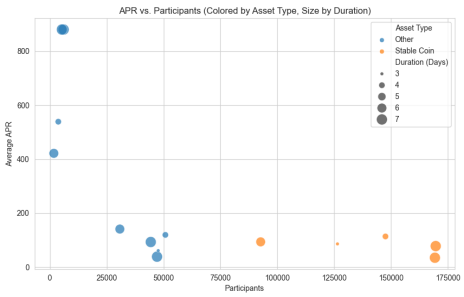


(a) Bybit Only

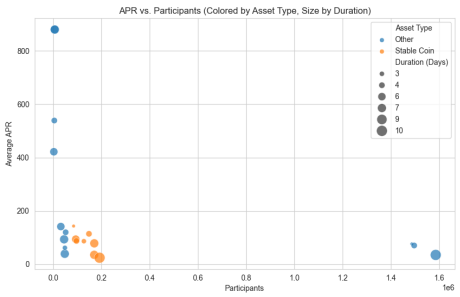


(b) Bybit and Binance

Figure 7: Average Participant Count by Asset Type



(a) Bybit Only

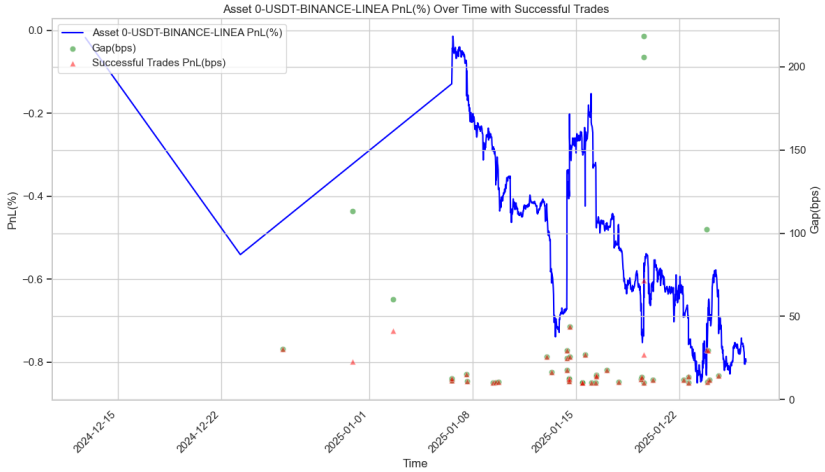


(b) Bybit and Binance

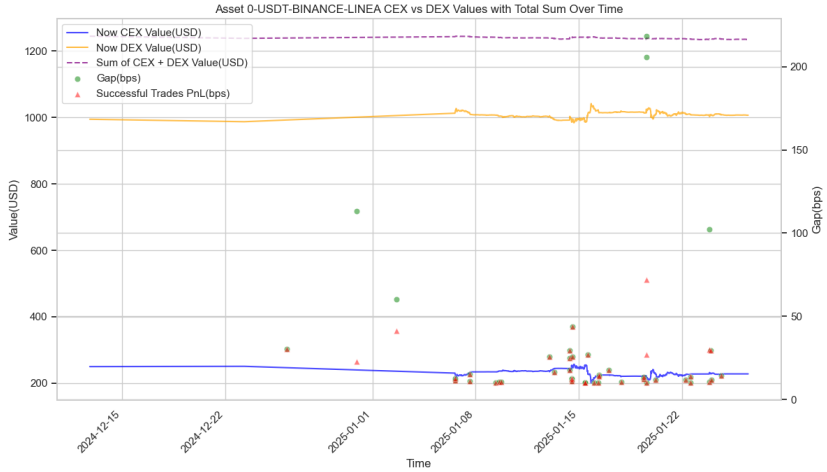
Figure 8: APR vs Participants colored by Asset Type, Size by Duration

Table 9: LaunchPool Data Across Exchanges

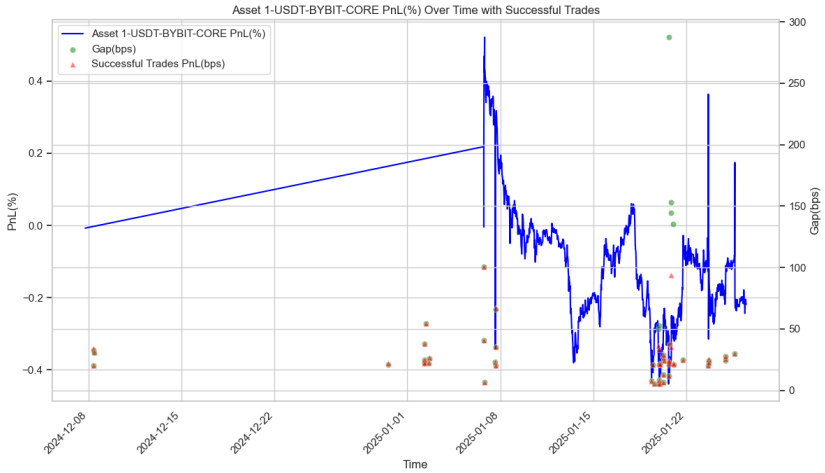
Exchange	Token	Pool	APR(%)	VIP APR(%)	Avg. APR(%)	Participants	Duration (Days)	Total Staking Value (USD)	Asset Type
bybit	SERAPH	SERAPH	800.0	960.0	880.0	6121	7	7.51M	*Other*
bybit	SERAPH	MNT	35.2	42.23	38.7	47161	7	75.38M	*Other*
bybit	SERAPH	USDT	31.7	38.05	34.9	169316	7	158.31M	*Stable Coin*
bybit	FLOCK	FLOCK	800.0	960.0	880.0	5331	7	3.92M	*Other*
bybit	FLOCK	MNT	84.6	101.56	93.1	44409	7	46.15M	*Other*
bybit	FLOCK	USDT	70.9	85.09	78.0	169664	7	116.54M	*Stable Coin*
bybit	XION	XION	489.7	587.62	538.7	3757	4	9.84M	*Other*
bybit	XION	MNT	108.6	130.32	119.5	50833	4	90.69M	*Other*
bybit	XION	USDT	103.4	124.08	113.7	147578	4	187.77M	*Stable Coin*
bybit	F	MNT	55.6	66.71	61.2	47692	3	81.75M	*Other*
bybit	F	USDT	78.2	93.86	86.0	126476	3	161.80M	*Stable Coin*
bybit	MORPHO	MORPHO	383.2	459.84	421.5	1803	6	9.09M	*Other*
bybit	MORPHO	MNT	128.2	153.8	141.0	30820	6	47.94M	*Other*
bybit	MORPHO	USDT	85.2	102.22	93.7	92718	6	107.29M	*Stable Coin*
bitget	SONIC	BGB	171.1		171.1		3	505.71M	*Other*
bitget	XION	BGB	65.8		65.8		5	601.65M	*Other*
bitget	XION	XION	118.3		118.3		5	10.63M	*Other*
bitget	XION	INJ	46.0		46.0		5	28.00M	*Other*
bitget	ZRC	BGB	43.8		43.8		5	539.50M	*Other*
bitget	ZRC	USDT(N)	64.4		64.4		5	4.86M	*Stable Coin*
bitget	PEAQ	BGB	169.9		169.9		7	569.49M	*Other*
bitget	PEAQ	USDT(N)	213.2		213.2		7	15.52M	*Stable Coin*
bitget	SWELL	BGB	129.0		129.0		7	469.71M	*Other*
bitget	SWELL	USDT(N)	143.6		143.6		7	11.35M	*Stable Coin*
binance	BIO	BNB	34.5		34.5	1586827	10	11.52B	*Other*
binance	BIO	FDUSD	24.0		24.0	191591	10	1.58B	*Stable Coin*
binance	VANA	FDUSD	142.8		142.8	83877	2	1.24B	*Stable Coin*
binance	VANA	BNB	75.9		75.9	1487910	2	11.34B	*Other*
binance	USUAL	FDUSD	87.0		87.0	95583	4	1.65B	*Stable Coin*
binance	USUAL	BNB	69.9		69.9	1497469	4	11.85B	*Other*



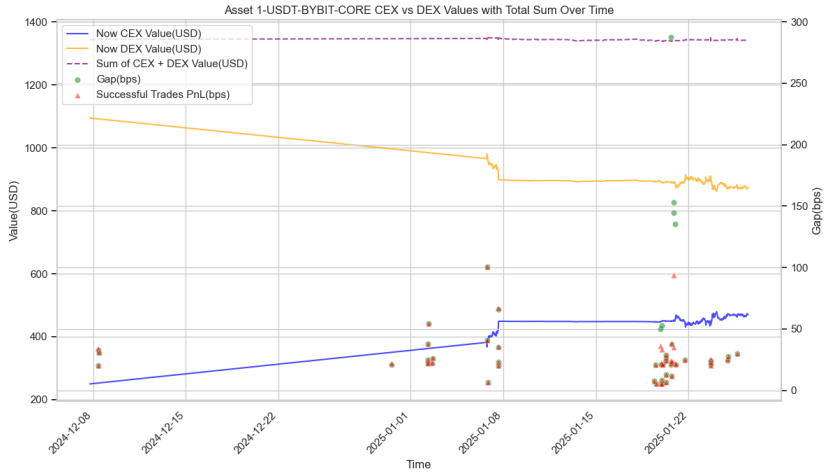
(a) Asset 0-USDT pair CEX-DEX arbitrage PnL on Binance and Linea



(b) Asset 0-USDT pair CEX-DEX arbitrage balance values

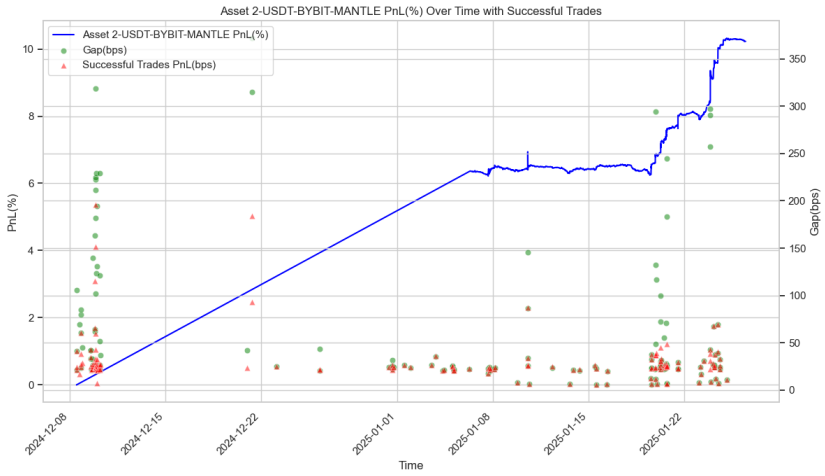


(c) Asset 1-USDT pair CEX-DEX arbitrage PnL on Bybit and Core

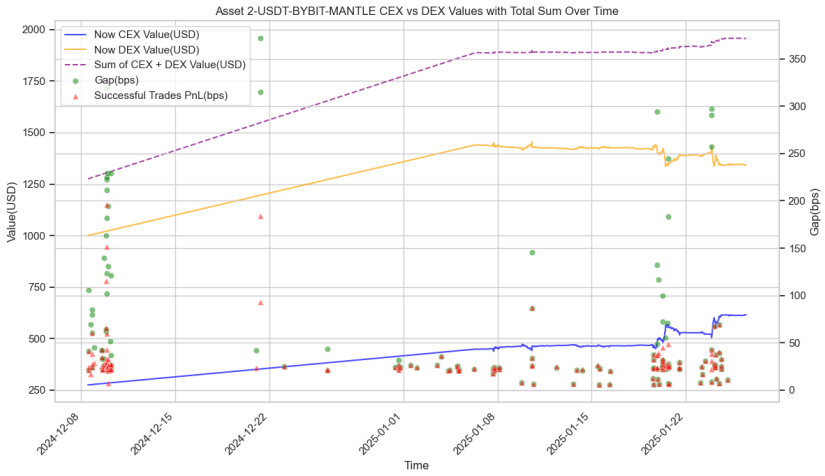


(d) Asset 1-USDT pair CEX-DEX arbitrage balance values

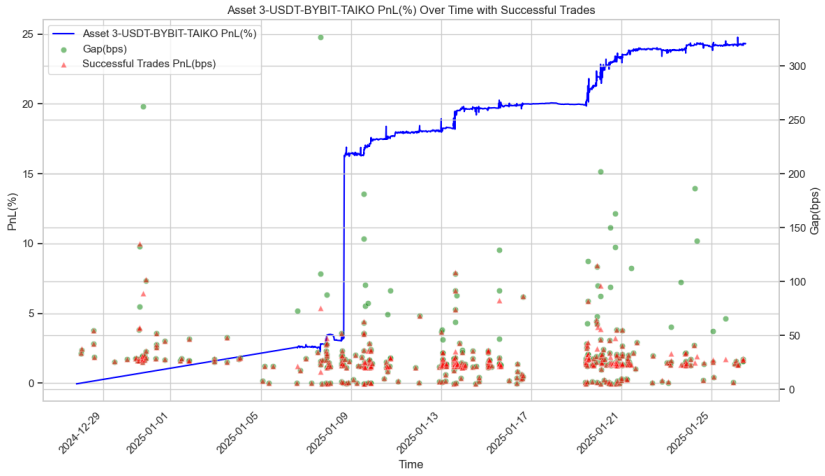
Figure 9: PnL, Total balance values, and trade results from CEX-DEX arbitrage



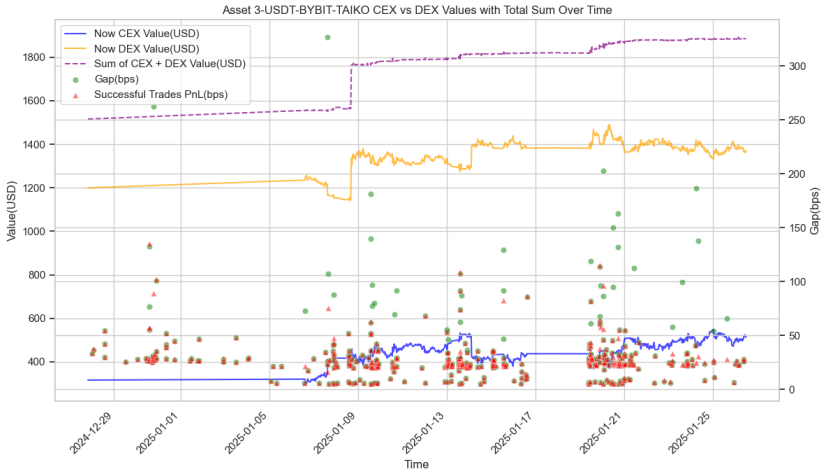
(a) Asset 2-USDT pair CEX-DEX arbitrage PnL on Bybit and Mantle



(b) Asset 2-USDT pair CEX-DEX arbitrage balance values

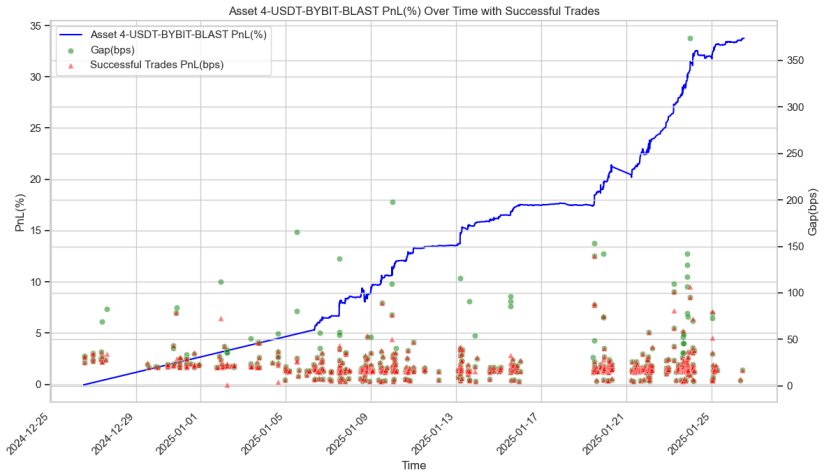


(c) Asset 3-USDT pair CEX-DEX arbitrage PnL on Bybit and Taiko

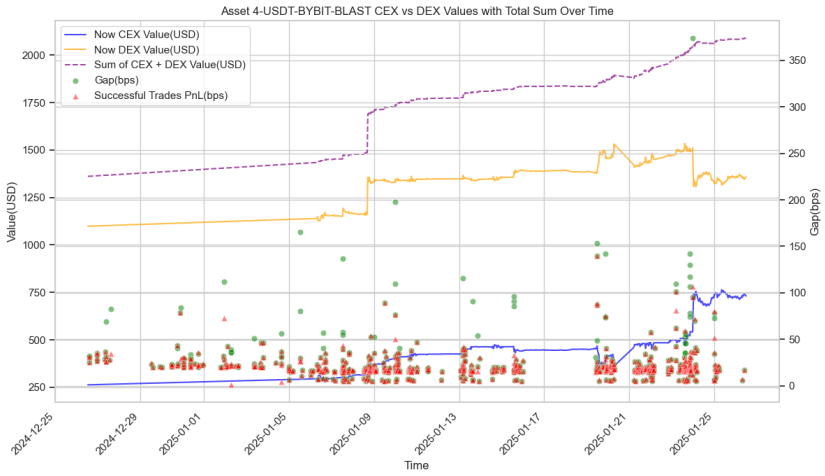


(d) Asset 3-USDT pair CEX-DEX arbitrage balance values

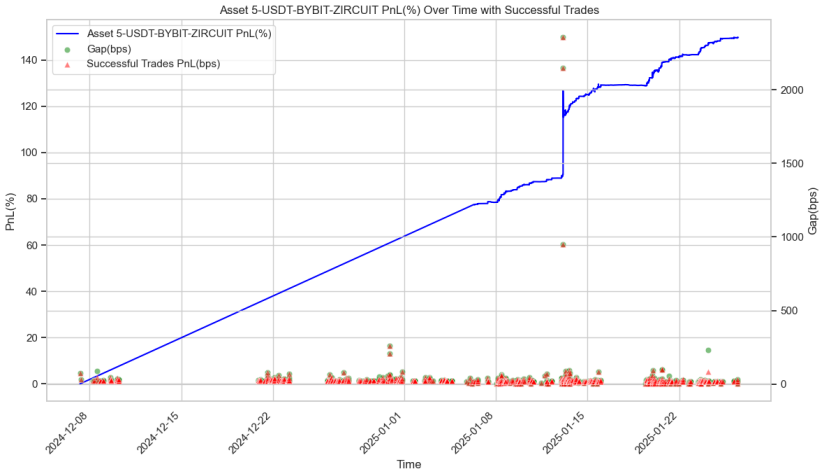
Figure 10: PnL, Total balance values, and trade results from CEX-DEX arbitrage



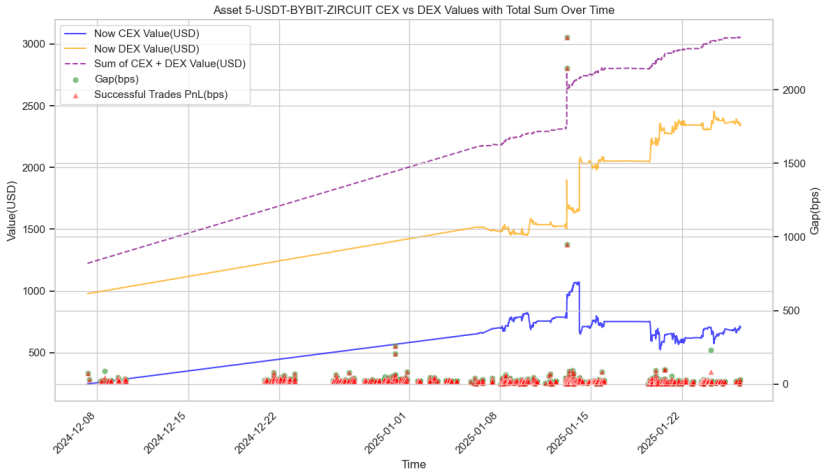
(a) Asset 4-USDT pair CEX-DEX arbitrage PnL on Bybit and Blast



(b) Asset 4-USDT pair CEX-DEX arbitrage balance values

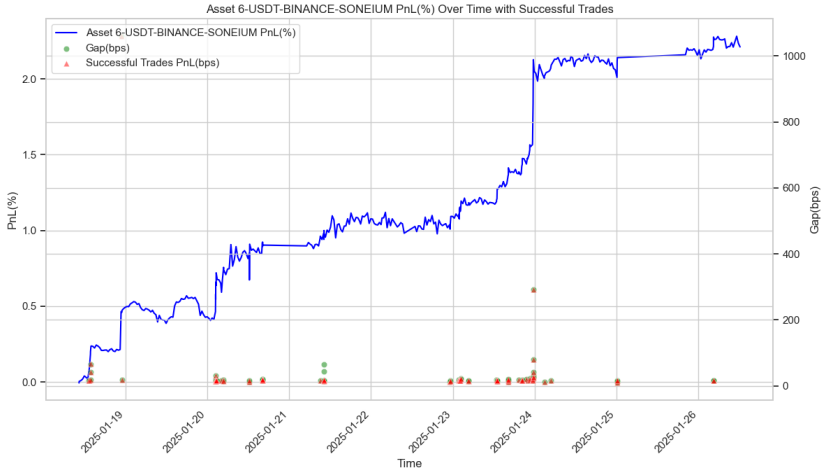


(c) Asset 5-USDT pair CEX-DEX arbitrage PnL on Bybit and Zircuit

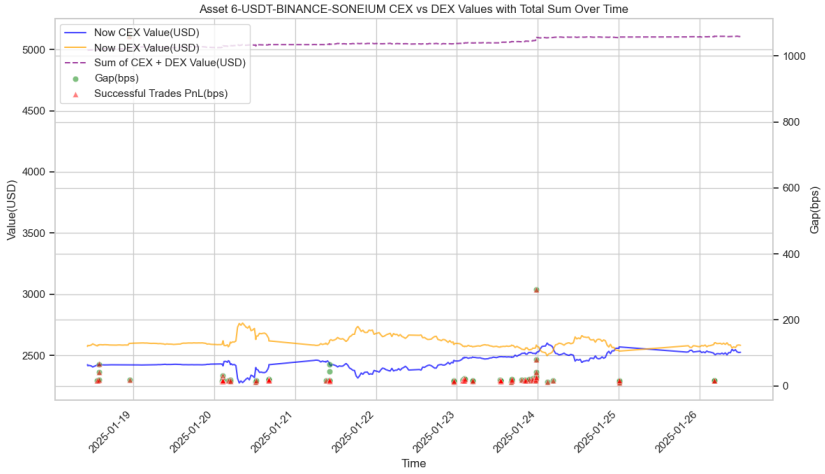


(d) Asset 5-USDT pair CEX-DEX arbitrage balance values

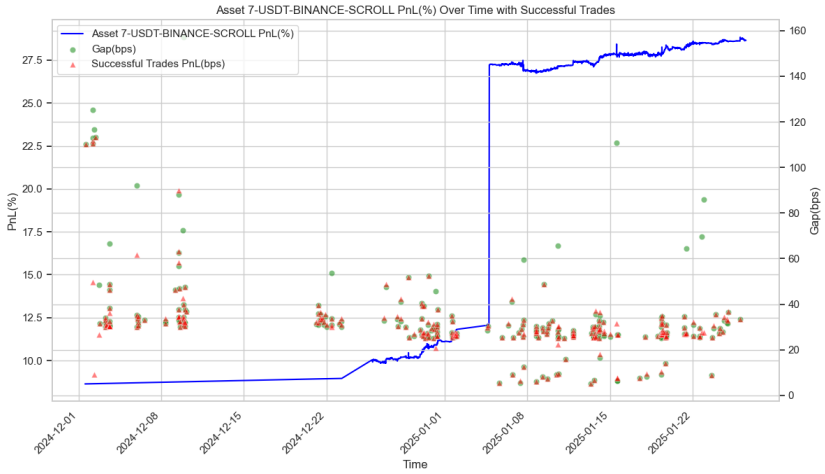
Figure 11: PnL, Total balance values, and trade results from CEX-DEX arbitrage



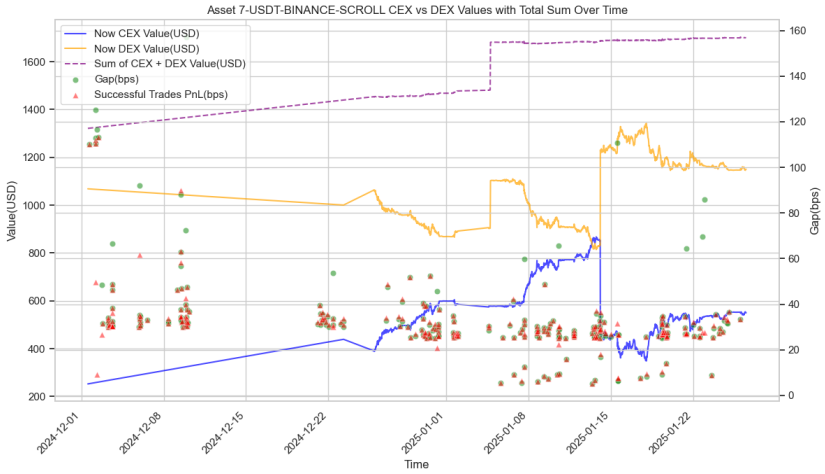
(a) Asset 6-USDT pair CEX-DEX arbitrage PnL on Binance and Soneium



(b) Asset 6-USDT pair CEX-DEX arbitrage balance values



(c) Asset 7-USDT pair CEX-DEX arbitrage PnL on Binance and Scroll



(d) Asset 7-USDT pair CEX-DEX arbitrage balance values

Figure 12: PnL, Total balance values, and trade results from CEX-DEX arbitrage