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Introduction

This post aims to delve deeply into the mechanics and strategic advantages of implementing CDPs, specifically tailored to our Arbitrum DAO ecosystem growth programs, using our ARB token as the primary collateral. Our discussion will culminate in a dual call-to-action: integrating with a diverse range of DeFi lending platforms to Arbitrum and exploring the creation of an Arbitrum DAO-owned and managed CDP specifically for ecosystem growth.

A Novel Approach to CDP Management using DAO-Owned Liquidations

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ARB CDP Flow

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In contrast to traditional CDP models, where positions are liquidated when collateral falls below a threshold, our approach introduces a DAO-owned liquidation mechanism. This mechanism ensures that additional collateral is injected to maintain a sufficiently collateralized state during market downturns, thereby providing a buffer against volatility. Conversely, when the price of the native token appreciates significantly, the DAO strategically liquidates the ARB collateral, using an optimized execution strategy to moderate market impact.

1. DAO Deposits Collateral:

- The DAO starts by depositing ARB as collateral for funding positions.
- In parallel, the DAO also deposits/holds stable assets (e.g., RWA stablecoins) to ensure absolute solvency in worst-case scenarios.

2. Stablecoin Issuance:

- A stablecoin is issued against the deposited ARB collateral. LTV ranges from ~50%-70% in the current market. The stablecoins are then offered to grantees in lieu of ARB, which is the current convention.

3. Response to Price Increases:

- If the price of ARB increases, it triggers strategic liquidations.
- Following this, the DAO sells the ARB collateral and buys back stablecoins, squaring off the CDP partially or in whole.

4. Response to Price Decreases:

- If the price of ARB decreases, an anti-liquidation bot gets triggered.
- Consequently, the DAO deposits ARB as additional collateral to stabilize the position to keep the CDP solvent.

The above approach ensures that the system remains solvent and can handle significant price fluctuations in the collateral asset. The dual approach to dealing with price volatility—liquidation during price increases and additional collateral during price decreases—helps maintain the stability of the issued stablecoin and the collateral.

Our proposal envisages the implementation of CDPs in a manner where grantees can receive funding through diverse instruments - direct grants, term loans, convertible notes, SAFTs, or SAFE agreements. This flexibility allows for a tailored approach to funding, accommodating the diverse needs of our ecosystem growth programs.

Advantages of this Model

1. Risk Mitigation:

By actively managing collateral levels at the DAO scale, we can significantly reduce the systemic risk associated with market volatility.

1. Flexibility and Autonomy:

This approach provides the DAO with greater control over its financial operations, enabling more strategic capital management. The DAO gains significant flexibility in timing grants and liquidations. We can issue grants without the immediate need to liquidate assets, allowing us to choose the most opportune moments for market action. This flexibility also means we can proactively take positions, aligning with our spending plans for ecosystem growth and potentially improving financial outcomes.

1. Market Stabilization:

A significant advantage of this approach is the ability to have DAO-owned liquidations. This means that Arbitrum DAO can directly control the liquidation process of ARB or other assets used as collateral. By doing so, we can strategically liquidate assets in a way that minimizes market impact and aligns with our broader market strategies. This approach contrasts sharply with relying on third-party liquidators, who may prioritize their interests over those of our DAO.

Case Study: Effective Market Stabilization by Arbitrum DAO

Executive Summary

This case study delves into how the Arbitrum DAO effectively stabilizes the ARB market, particularly focusing on its strategic interventions, assuming a lower limit and higher limit range to be the optimal bracket for the purpose of this study. Utilizing a combination of market absorption capacity, mean trading volume, and DAO interventions, this analysis showcases the innovative approach to managing both bearish and bullish market scenarios.

Market Context and ARB's Position

- Volatility and Liquidity:

ARB experiences mean daily volatility of ~5.5%. Despite this, the market demonstrates robust liquidity, capable of absorbing $13.5 million in ARB sales daily with a -2% price impact.

Arbitrum Treasury and Sustainability Research

The current market can absorb approximately $13.5 million in ARB sales daily with a 2% price impact, considering the combined liquidity from both on-chain and off-chain trusted sources.

- Mean Trading Volume:

ARB's mean trading volume over the past 30 days stands at 423 million, indicating a significant market presence and trading activity.

Arbitrum Treasury and Sustainability Research

In the past 30 days, the average daily trading volume was approximately 428.84 million ARB, equivalent to $670.43 million at the current price.

DAO's Strategic Role

- Operational Capacity:

The DAO treasury positions itself to add collateral to CDPs in downtrends and to liquidate ARB in uptrends, aiming to stabilize the price within a lower and upper limit.

- Decision-Making Process:

Price levels are determined based on thorough market analysis, with the DAO adjusting its strategies in response to market conditions.

Scenario Analysis: Market Stabilization in Action

1. Bearish Market Scenario (Price Falling to Lower Limits):

- Trigger and Initial Reaction:

Triggered by external market factors, the price of ARB starts to fall towards the lower limit.

- DAO Intervention:

To prevent further downtrends as prices approach the lower limit price bracket, the DAO supplements CDP collateral. It strategically utilizes the DAO's treasury and its capacity to provide additional collateral to avoid more sale of ARB and capping the DAO's treasury further, preventing a further price drop due to ecosystem growth expenditure and managing spending limits more dynamically.

- Outcome and Analysis:

This action avoids mass liquidations, thus maintaining market confidence. The intervention is particularly effective in ensuring the LTV for ARB collateral CDPs remains within the 50-70% range.

2. Bullish Market Scenario (Price Approaching Upper Limits):

- Market Uptrend:

As ARB's price nears the upper limit, there's potential for overheating.

- DAO Intervention:

In this phase, the DAO implements controlled liquidations. By selling ARB systematically, it counters the rapid price increase.

- Optimized Dilution:

The managed liquidations could prevent overheating, by providing additional selling pressure in a timely manner. The DAO's daily expenditure of ~360,000 ARB is effectively utilized to regulate overheated market scenarios.

Arbitrum Treasury and Sustainability Research

Around 358,636 ARB per day from when allocations started (August 7th, 2023) to July 31st, 2024.

Expected Outcomes:

- This approach prevents disparity in final grant size due to price fluctuations which can lead to over and under granting by using stablecoins for settlement of grant payments.

Arbitrum Treasury and Sustainability - Working Group

1. The current situation of paying in ARB is disadvantageous to the DAO both ways: if ARB increases we are overpaying, if it decreases the project we funded is affected.

Arbitrum Treasury Management Report by Aera

For instance, this grant intended to send 5500 USD for one of its payments. At the time of proposing this transaction in the multisig, 4,166.67 ARB was worth roughly 5500 USD. However, at the time of the transfer's execution nearly two days later, it was worth 6233.70 USD, a whopping 13% premium that the Arbitrum DAO paid. In this case, the recipient received more ARB than they were entitled to, which is unlikely to cause complaint, but this just as easily could have gone the other way.

- Incorporating DAO-Owned liquidations with CDPs ensures that our average daily expenditure of 360,000 ARB is diluted appropriately. While a large proposal of 70 million ARB the price impact can be catastrophic, however, with the flexibility offered by CDPs, the DAO can leverage the market's daily absorption capacity more effectively. In the current market scenario, the combined daily buy side liquidity is ~$13 million. When done systematically, this can allow the DAO to liquidate 360,000 ARB daily which has negligible price impact. A 70 Mil ARB grant liquidated through CDPs provides the DAO with flexibility to liquidate over 200 trading days while providing capital to grantees today. Based on these numbers and the current market scenario, the DAO could effectively double its spending in dollar terms and still avoid having a significant impact on daily trading volume.

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ARB buy side liquidty problem

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- Improve sell side liquidity on DEXes. By acting as a maker, the DAO can offset shallow liquidity of bids in the order book by providing sell-side liquidity. Currently, most DEXes can only absorb $135,000 worth of buy orders before the price changes by 2% or more. By using the DAO's spending strategically, we can ensure sufficient buy-side liquidity across DEXes.

- Provides the opportunity to develop a versatile closed-loop mechanism that enables DAOs to transition grants into strategic investments, manifesting as either loans or equity stakes. This system offers grantees the flexibility to repay these financial instruments in a variety of forms according to the initial agreement's terms. For loans, repayment can be made using stablecoins, reflecting a straightforward return of the borrowed funds. When the funding is provided as an investment, options for repayment expand to include returning value via a Simple Agreement for Future Tokens (SAFT), direct token allocations, a Simple Agreement for Future Equity (SAFE), or even equity itself, depending on the nature of the initial investment and the agreement between the DAO and the grantee. This approach not only diversifies the DAO's investment portfolio but also provides funded projects with tailored options to fulfill their obligations, thereby strengthening the ecosystem's financial sustainability and fostering a more robust relationship between the DAO and its grantees.

Treasury Impact and Risk Management Strategy

The DAO currently has an annual expenditure of 131,400,000 ARB we explore diverse scenarios to path find an optimal solution to managing the DAOs growth funding strategies using CDPs.

Scenario 1: ARB as the Sole Collateral with an LTV of 50% (up to 300% net collateral)

- Collateral Requirements:
- The DAO will allocate ARB tokens equivalent to 200% of its annual spending, amounting to 262,800,000 ARB, to ensure a robust collateral ratio.
- An Anti-Liquidation Collateral Matching Pool will be established with 131,400,000 ARB, serving as an additional buffer to safeguard against market volatility.
- The DAO will allocate ARB tokens equivalent to 200% of its annual spending, amounting to 262,800,000 ARB, to ensure a robust collateral ratio.
- An Anti-Liquidation Collateral Matching Pool will be established with 131,400,000 ARB, serving as an additional buffer to safeguard against market volatility.
- Total Treasury Impact:
- This strategy results in a total allocation of 394,200,000 ARB from the treasury, significantly enhancing the CDPs financial resilience.
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Scenario 2: Combined Collateral Approach with ARB and RWAs with an LTV of ~70% (up to 210% net collateral)

- Collateral Composition:
- Initial RWA allocation from Step 1 is valued at $48,650,000, based on the current VWAP of $1.39 per ARB, representing 35 million ARB.
- The ARB collateral ratio is adjusted to approximately 140%, totaling 183,960,000 ARB.
- An Anti-Liquidation Collateral Matching Pool with 96,400,000 ARB is set up to provide further market stability.
- Initial RWA allocation from Step 1 is valued at $48,650,000, based on the current VWAP of $1.39 per ARB, representing 35 million ARB.
- The ARB collateral ratio is adjusted to approximately 140%, totaling 183,960,000 ARB.
- An Anti-Liquidation Collateral Matching Pool with 96,400,000 ARB is set up to provide further market stability.
- Total ARB Collateral Allocation:
- Combining the ARB and RWA assets, the total collateral allocation reaches approximately 215%, or 280,360,000 ARB, ensuring a comprehensive risk mitigation framework.
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Preliminary Recommended Debt Ceiling with Real-World Assets (RWAs)

In the context of incorporating Real-World Assets (RWAs) as outlined in Step 1, we propose a cautious yet strategic approach to setting our debt ceiling. This proposal is designed to ensure the Arbitrum DAO's financial stability and solvency while optimizing our collateral framework.

Proposed Debt Ceiling and Justification:

• Debt Ceiling: We recommend establishing a preliminary debt ceiling of $50 million USD. This ceiling is carefully calibrated to reflect the underlying value of RWAs committed in Step 1, providing a balanced framework for managing our CDPs responsibly.

• RWA Holdings: Our RWA holdings, valued at $48,650,000 (based on a Volume Weighted Average Price (VWAP) of $1.39 per ARB), form the cornerstone of this proposal. These assets serve as a robust foundation to guarantee our solvency, ensuring that we have a substantial buffer to cover potential liabilities.

• Daily Liquidation Strategy: To maintain market stability and manage our debt obligations efficiently, we propose an average daily liquidation volume of $500,400 worth of ARB which is less than 4% of daily market absorption capacity of $13.5 million. This strategy is designed to minimize market impact, ensuring that we can meet our financial obligations without disrupting the ARB market.

• Settlement Turnaround Timeline: We anticipate a settlement turnaround timeline of 90 to 100 days for the debt ceiling adjustments. This timeframe allows us to navigate market conditions effectively, providing enough flexibility to adjust our strategies in response to changing market dynamics.

By adopting this approach to setting our debt ceiling, we aim to balance risk management with our growth objectives. This framework not only ensures the CDP's financial health but also ensures solvency of CDPs in the worst-case scenario.

Call to Action

1. Engage CDP Providers:

We collaborate with CDP pools to join the Arbitrum ecosystem, leveraging their liquidity to foster a robust CDP market for ARB as collateral.

1. DAO-Managed CDP:

We propose the exploration of a DAO-owned and managed CDP, which potentially offers greater capital efficiency and tighter control.

Conclusion

The implementation of this CDP mechanism on Arbitrum DAO represents a step towards more resilient and flexible financial operations in the DAO's spending. This approach not only aligns with our group's proposed strategic objectives to facilitate DAO-Owned Liquidations but also offers significant time alpha to allow the DAO to liquidate at higher valuations. We welcome thoughts, feedback, and active participation from the community in bringing this vision to fruition.