OADA UNHCR Risk Assessment Framework

The OADA protocol implements a stablecoin architecture anchored by yield bearing ADA reserves, leveraging a two-tranche system to balance stability and risk:

1. **OADA (Senior Tranche)**
   Maintains near 1:1 parity with ADA, functioning as a low volatility, DeFi native currency for transactions and liquidity provisioning.

2. **sOADA (Junior Tranche)**
   Receives the protocol's net yield, accrued through algorithmic market operators (AMOs), and absorbs any associated volatility or losses, effectively serving as the system's high beta risk buffer.

This tranching mechanism ensures OADA remains a relatively stable medium of exchange, backed by the protocol's continuously managed ADA collateral, while granting sOADA holders the opportunity to capture elevated returns in proportion to their exposure to the underlying yield strategies.

1. Key Definitions

- **Reserve Asset**
  Refers to the protocol's core collateral, composed entirely of raw ADA. Reserves are divided between yield bearing deployments and idle liquidity, the latter maintained to facilitate immediate peg stabilization. This dual allocation strategy underpins the protocol's ability to respond quickly to market shocks and safeguard the OADA peg.

- **OADA**
  A stablecoin designed to track ADA at a 1:1 ratio. Its stability is actively enforced by the DEX AMO, which mints or burns OADA in response to price deviations. By tightly coupling OADA issuance to real time market dynamics, the system ensures a low volatility asset suitable for various DeFi use cases.

- **AMO (Algorithmic Market Operator)**
  An autonomous yield generation framework responsible for strategically deploying the protocol's reserves. AMOs may include stableswap liquidity provision, stake auctions, or other yield harvesting mechanisms. Each AMO operates within parameters set by the Collateral Management AMO to mitigate solvency risk and uphold the protocol's overall risk/reward profile.

- **sOADA**
  A staked form of OADA representing the junior tranche, wherein holders accept first loss exposure to potential drawdowns in exchange for augmented returns. sOADA's notional exchange rate relative to OADA fluctuates to reflect the net performance, profits or losses, of all underlying AMOs. By absorbing volatility, sOADA insulates OADA holders from episodic risk while rewarding stakers with a proportionally higher yield over time.

2. Tranching Mechanism

To ensure low-volatility stability for its senior token, the OADA protocol leverages a two tranche structure that aggregates user collateral while segregating yield variability and risk into a junior tier:

OADA (Senior Tranche)

- **Stable & Liquid**: The DEX AMO closely pegs OADA to 1 ADA by dynamically minting or burning tokens as needed. This mechanism provides a highly liquid stablecoin suitable for everyday DeFi interactions.

- **Redemption Priority**: OADA holders enjoy predictable near 1:1 conversions, even during volatile market conditions, as junior tranche assets absorb the first layer of potential losses.

sOADA (Junior Tranche)

- **Enhanced Yield**: sOADA holders capture the aggregate returns from all AMOs, typically exceeding what simple ADA staking would offer. This structure incentivizes risk tolerant users with greater upside potential.

- **Risk Absorption**: By design, the junior tranche bears initial losses if any AMO underperforms or if market turbulence impacts protocol reserves, thereby insulating OADA from sudden downward price pressure.

This tranching framework pools user capital under a unified protocol umbrella but allocates gains and volatility according to individual risk preferences, creating a robust balance between stability (OADA) and yield generation (sOADA).

3. Reserve Assets

Raw ADA functions as the system's foundational collateral, enabling a straightforward 1:1 peg for OADA without reliance on external price oracles. Instead, the protocol continuously monitors on-chain market signals, particularly from the Splash DEX, to guide real time stablecoin

valuation and execute peg maintaining operations. By rooting OADA's issuance in native ADA reserves, the protocol upholds a transparent mapping between its stablecoin supply and the underlying collateral base, ensuring robust liquidity and price discovery.

4. Minting and Redeeming OADA

Minting

1. **Direct Protocol Interaction**
   Users can deposit raw ADA into the OADA contract at a fixed 1:1 ratio, receiving an equivalent amount of OADA. This straightforward mechanism provides instant stablecoin issuance without the need for external oracles.

2. **Splash DEX Arbitrage**
   When OADA deviates above its peg, the protocol autonomously mints additional OADA at the 1:1 rate and sells it into the **Splash DEX**, capturing an arbitrage profit while pushing OADA's price back toward parity.

Redeeming

- **DEX-Based Conversions**
  Unlike systems with a direct redemption function, OADA is returned to raw ADA solely through the DEX. This decentralized approach fosters continuous price discovery and reduces reliance on a single contract call for liquidity.

- **Peg Defense**
  If OADA trades below 1 ADA, the protocol allocates reserved ADA—or unwinds yield-bearing AMO positions—to buy and burn underpriced OADA, raising its market value toward the peg.

- **Slippage Considerations**
  Large trades may outstrip current liquidity, incurring slippage. Nonetheless, any sustained divergence from the 1:1 target triggers deeper intervention (e.g., redeploying AMO capital), ensuring rapid realignment of OADA's market price.

5. Peg Dynamics and Protocol Defenses

Upward Peg Pressure

Should OADA trade above its 1:1 target, the protocol mints additional supply at the pegged rate and injects it into the Splash DEX, capturing the price premium and driving market value back to

equilibrium. This arbitrage based mechanism ensures that OADA cannot sustainably remain above the peg.

Downward Peg Pressure
When OADA falls below parity, the protocol deploys capital to buy and burn underpriced OADA. Three principal liquidity sources support this process:

1. **DEX Liquidity**
   The allocation of ADA in the stablecoin side of the DEX is tapped first, allowing immediate market based intervention.

2. **Idle Reserves (~10%)**
   A predetermined portion of ADA is held in reserve to offset transient supply shocks without needing to unwind complex yield positions.

3. **AMO Withdrawals**
   If further capital is required, the protocol can partially or fully withdraw profitable AMO investments (e.g., staked funds, liquidity pools) to bolster buyback operations. This flexibility ensures OADA's price is restored to the peg even under sustained sell pressure.

6. AMO Yield Strategies

Algorithmic Market Operators (AMOs) are autonomous subsystems entrusted with deploying the protocol's reserves in various yield bearing strategies, each governed by OADA's overarching risk parameters. Current AMOs include:

1. **DEX AMO**
   - **Dynamic Liquidity Provision**: Supplies the OADA/ADA liquidity pool on the Splash DEX.
   - **Price Stabilization & Arbitrage**: Realizes profits by minting and selling OADA above peg (deflating price) or purchasing it below peg (driving price upward). These buy/sell operations not only bolster revenue but also continuously maintain OADA's market equilibrium.
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2. **Stake Auction AMO**
   - **Delegation Rights Auction**: Offers underlying ADA staking rights to interested stake pool operators for a predetermined epoch, effectively monetizing the block production potential of the staked ADA.
   - **Yield Redistribution**: Proceeds from these auctions accrue to sOADA holders, commensurate with their junior tranche exposure.

As the protocol evolves, additional AMOs (such as collateralized lending products) can be incorporated through ODAO governance approvals. Each expansion undergoes a rigorous risk assessment, ensuring the junior tranche (sOADA) provides adequate capital buffers without compromising peg stability or solvency.

7. sOADA (Junior Tranche)

By staking OADA into sOADA, users transition from the protocol's stable, low volatility senior token to a high beta junior stake. The sOADA exchange rate against OADA continuously reflects the protocol's net gains or losses, effectively passing the yield generated by AMOs to sOADA holders while also allocating them first loss exposure if asset values decline.

Redemption Queue
To safeguard liquidity and solvency, sOADA redemptions generally require a five day lock period. During this interval, the protocol can unwind or de-risk relevant AMO positions in an orderly fashion rather than resorting to panic selling. This measured redemption process ensures that large sOADA outflows do not force rapid liquidation of collateral at unfavorable prices, thereby maintaining overall protocol stability.

Risk Buffer
Because sOADA holders assume first loss risk, sOADA functions as a risk absorption layer for OADA's peg. While the junior tranche offers higher yields, driven by the collective performance of the AMOs, it also bears the brunt of any shortfall if an AMO underperforms or if the market experiences severe volatility. This design allows OADA to maintain its near 1:1 parity with ADA, even under turbulent conditions, while rewarding risk tolerant participants who opt into sOADA.

8. Asset Allocation Policy

OADA deploys its reserves into three primary categories, balancing immediate peg defense with opportunistic yield generation while ensuring the protocol remains solvent under varying market conditions:

1. **Splash DEX**
    - **Core Liquidity Provision**: Sustains a robust OADA/ADA pool on the Splash DEX, supporting stablecoin convertibility and constant price discovery.
    - **Active Peg Enforcement**: Integrates with protocol level market making logic, allowing for immediate buy/sell interventions that underpin the 1:1 price target.

2. **Idle Reserves (~10%)**

- **Rapid Peg Response**: Maintains a direct allocation of ADA to facilitate swift buybacks (when OADA trades below peg) or dynamic liquidity injections (when demand surges).
- **Minimal Withdrawal Risk**: By reserving a portion of raw ADA, the protocol avoids forcing withdrawals of more complex AMO positions in short term stress events.

3. **Yield Bearing AMOs**
    - **Enhanced Return Profiles**: Engages in strategies like stake auctions, lending pools, or liquidity mining, where sOADA holders capture yield in proportion to their higher risk tolerance.

    - **First Loss Coverage**: Since sOADA capital absorbs potential AMO underperformance, OADA remains buffered from immediate downturns in these allocations.

Whenever the circulating supply of sOADA falls below a governance defined threshold, essential to covering the protocol's "risk capital" requirements, OADA automatically scales back allocations to higher risk AMOs. This governance managed rebalancing ensures that each AMO is sufficiently underwritten by junior tranche capacity, maintaining a prudent alignment between potential yield and solvency.

9. Risk-Off Scenarios

In periods of systemic turbulence or when participants rapidly convert sOADA back to OADA, the protocol faces two primary stress conditions:

1. **OADA Sell Pressure**
    - **Temporary Peg Undershoot**: A high volume of OADA sell orders may push its market price below 1:1 with ADA.
    - **Protocol Response**: To counteract this dip, the system deploys idle reserves or reallocates AMO assets to purchase and burn undervalued OADA, thus restoring price equilibrium.
    - **Slippage Dynamics**: Large sell orders may outstrip current DEX liquidity, resulting in localized slippage. However, the protocol's active peg defense mechanisms ensure that sustained deviations are rapidly corrected.

2. **sOADA Redemption Surge**
    - **Lock Period Buffer**: sOADA holders seeking to exit the junior tranche incur a multi-day redemption delay. This interim allows the protocol to systematically unwind positions in AMOs rather than withdrawing them abruptly.
    - **Controlled Deleveraging**: By spacing out redemptions over time, OADA avoids sudden asset fire sales that could jeopardize solvency or amplify price volatility.

In both scenarios, short term dislocations can arise for large scale transactions, but the protocol's design ensures continued solvency and the eventual return of ADA reserves to users. Meanwhile, sOADA holders accept an elevated risk profile, absorbing potential volatility, to fortify OADA's near 1:1 stability during market stress.

10. Conclusion

OADA delivers a yield-enhanced stablecoin ecosystem securely anchored by ADA reserves and underpinned by a two-tranche risk model:

- **Active Peg Enforcement**
  The protocol continuously modulates OADA's circulating supply through automated mint/burn operations and dynamic DEX liquidity management, efficiently curtailing deviations from the 1:1 parity with ADA.

- **Loss Buffering via sOADA**
  By consolidating yield and risk within the junior tranche, OADA itself maintains minimal volatility. Any adverse AMO outcomes are first absorbed by sOADA, enabling OADA to remain a near 1:1 stable asset even during periods of market stress.

- **Orderly Unwind Mechanics**
  Although larger or accelerated redemptions can momentarily heighten slippage, the protocol's staged redemption queues and capital rebalancing measures aim to avert systemic liquidity shortfalls or forced asset liquidations.

Overall, OADA leverages algorithmic market operators (AMOs) and a multi-tiered capital framework to deliver stable, yield bearing exposure to ADA. By accommodating both risk averse participants (through OADA) and yield focused stakers (through sOADA), it addresses diverse risk profiles while preserving on-chain transparency and offering resilient peg defenses under a wide spectrum of market conditions.

Identified User Risk Assumptions

1. **Incentive for Limited DEX Liquidity**
   Although robust liquidity in the OADA/ADA pool mitigates slippage for large transactions, the protocol may strategically allocate a greater share of reserves to higher yield strategies rather than the DEX itself. Reducing on-chain liquidity can amplify price impact risk for large trades, effectively transferring some market friction back to users. The ODAO must balance these competing objectives, maximizing yield versus maintaining efficient liquidity, when adjusting DEX allocations.

2. **Concentrated sOADA Exposure**
   By design, sOADA holders capture the surplus yield from all AMOs but shoulder the brunt of potential underperformance or volatility. While this levered exposure can substantially outperform standard ADA staking under favorable market conditions, it also magnifies losses if market stresses force an abrupt unwinding of AMO positions. This trade-off underscores the junior tranche's inherently riskier profile relative to OADA's near-1:1 stability.

3. **Splash Smart Contract Risk**
   An unavoidable and inherent characteristic of composability in DeFi is the potential exposure to security vulnerabilities in protocols downstream from the OADA application. The OADA AMO leverages the Splash stableswap DEX as its main component, therefore any exploits found in their smart contracts could possibly negatively impact the OADA system. Splash is built and maintained by Spectrum Labs, who have been active contributors in the Cardago and Ergo ecosystems for several years with Spectrum (a precursor DEX to Splash) and ErgoDEX. The team does not currently have any publicly available information about themselves.

   As truly decentralized protocols that interact permissionlessly through smart contracts on Cardano, Optim and Splash do not have any formal business relationship as it is not required for the protocols to compose with each other. Splash was audited by Anastasia Labs, the same security firm contracted by Optim, and the audit report will be provided below.

   https://app.splash.trade/

   https://docs.splash.trade/concepts/audits

4. **UNHCR Yield Donation Vault OADA Risk Inheritance**
   The UNHCR Yield Donation Vault is its own composition of scripts that enable a layer of functionality on top of the OADA system to facilitate the donation and support for charitable organizations through smart contracts on Cardano. This system component has its own inherent smart contract risks like any other, but will undergo thorough security review through a contracted audit and will fall under the OADA continuous bug bounty program already in effect.

These dynamics reflect the inherent tension in leveraged stablecoin models: the senior tranche (OADA) benefits from enhanced stability and liquidity, whereas the junior tranche (sOADA) accepts greater variability in return for disproportionate upside.