Assessing Risk of Fuse Pool 24 (Harvest FARMstead)

Useful Links

- Rari Gov
- Rari Docs
- Rari Security
- Fuse Pool 24
- Pool Details and Metrics
- Rari Safety Score Calculation

Context

As of March 29th 2022, DOLA is an illiquid asset on Fuse Pool 24. DOLA is presently listed in the following pools (see table below):

Fuse Pool	Name	Asset Liquidity	Supplied	Borrowed
6	Tetranode's Pool	$6.9M	$8M	$1.1M
22	Badger Pool	$1.96M	$2M	$40k
127	0xB1's Kitchen Sink	$502k	$502k	$0

DOLA Fed has a decision to make. Does it add liquidity to this pool?

As a reminder, admins control most all aspects of a Rari Fuse Pool. Some considerations,

- Admins keep all the Platform Fees generated
- If Admins deem the pool too risky, they could reduce the max LTV of DOLA (we have little to no say)
- Admins decide which assets to onboard, even if it a perceived threat/competition to us
- If not well maintained, pools run the risk of becoming insolvent. Insolvency can occur in a multitude of ways some of which are tied to mismanagement of onboarding assets, capital being pulled/overall lacking, loss of interest, to name a few.

Rug & Exploit Risk

Multi-Sig or 48 hour Time lock?: Yes
Admin: 0xbC3C4486B9b6cCd4e07422D626e4052B0A8055Ac
Upgradeable contracts: Yes
Price oracle: MasterPriceOracleV3
Liquidation Incentive: 12% (Above Rari Recommendation of 8%)

Close Factor: 50% (= Rari Recommendation)

Rari Safety Score

Rari Safety Score: 55.07% (Grade: C)

Pool 24 Details

of Assets: 17 (9 stablecoins)
Total USD Supplied: $4.55M
Total USD Borrowed: $935k
Utilization Rate: 20.5%
Fees: $5.7k
Top Utilized Assets: USDC (72.8%), FEI (37.8%), FRAX (15.2%), Remaining Assets ~ 0%
Liquidations: 9

Table below summarizes current supply and utilization % for each asset:

Asset	Supply ($)	Utilization (%)
ETH	1,394,308	0
FARM	648,278	0
iFARM	580,284	0
USDC	1,039,554	72
FEI	450,587	38
RGT	88,487	0
FRAX	20,131	15
IDLE	5,019	0
UNI-v2	4,249	0
wstETH	119	0

Note: DOLA, ALK, UST, DAI, RAI, BUSD, USDT all have $0 supplied to the pool.

From first glance, this is a pool where ETH, FARM and iFARM are supplied, and stables USDC, and FEI are borrowed. Thus, DOLA is a market fit for this Fuse Pool.

Risks or other Concerns:

The risk team has identified concerns about some assets in the pool which may present outsized systemic risk to the pool and DOLA, specifically. These assets are $FARM, iFARM, and $IDLE Note: $ALK CF is set to 0%, meaning as it stands it poses no threat to the pool.

Non-Conventional Collateral

This table lists the collateral that falls outside more conventional collateral like ETH or stablecoins:

Symbol	Market Cap	Collateral Factor	Reserve Factor	Total Supplied	Total Borrowed	Safety Score (Inverse KPI)
FARM	$59,219,023	60%	20%	$649,212	$2,080	0.68
iFARM	N/A	60%	20%	$581,145	$0	0.26
RGT	$178,355,354	60%	0%	$86,721	$0	0.78
IDLE	$3,126,927	50%	10%	$5,091	$0	0.40

FARM - FARM is Harvest Finance’s governance token which allows token holders to influence Harvest’s treasury and the future direction of the protocol. FARM token holders are entitled to the 30% protocol fees.

iFARM - iFARM is the interest-bearing version of Harvest’s FARM rewards token; similar to xSUSHI or bBADGER, it is a receipt for depositing FARM into the Harvest Profit sharing pool, where it receives a steady flow of the protocol's farming profits and it is redeemable for the underlying FARM at an increasing rate.

RGT - The Rari Governance Token is the native token behind Rari Capital. Rari Capital is a non-custodial DeFi robo-advisor that autonomously earns users yield.

IDLE - Idle is a decentralized yield platform on the Ethereum platform that uses automated rebalancing among DeFi protocols in order to optimize return to for its users. Users are allowed the option to choose between high risk, high return (max yield) or adjust to a lower risk using the RiskAdjusted allocation strategy.

Assessment:

Rari Capital

Rari Capital can be deemed a safe protocol for Inverse to to work with/build on.

- RARI has been audited by three top tier Auditors: Quantstamp, Omniscia,and OpenZeppelin. These auditors have secured billions in funds and have a months-long backlog, meaning they are sought out in the industry. They each charge well over $100,000 for their services.
- RARI has an active Bug Bounty Program with Immunify, an industry leader for Bug Bounties. They have posted a $250,000 reward for critical severity issues, one of the highest rates you'll find in the market.

Fuse Pool 24

Rug & Exploit Risk:

Stats Comparable to most Fuse Pool. Pool admins have set liquidation incentive at 12%, higher than the recommended amount (8%). Close Factor is set to 50%. Overall no cause for concern.

Pool Statistics:

Comparable to Badger Fuse Pool 22. Stats are healthy. Utilization rate is low but not a cause for concern (over 20%). Very few liquidations. Overall no cause for concern.

Oracles of Collateral Assets:

Most all assets listed use Chainlink, with some utilizing Uniswap Twap (including IDLE and ALK). UNI-v2 uses LPToken Price Oracle. Notably, FARM uses Chainlink, which is reassuring. ALK can't be borrowed against (CF = 0%). So long as this remains the case, ALK is not a threat to the pool.

Liquidity Stats:

Unconventional Assets	# Markets on Ethereum	# CEX	Deepest Liquidity ($)	Total Liquidity on Ethereum	Liquidity/Market Cap Ratio
FARM	6	15+	$300k	$500k	<0.01
RGT	2	9	$20M	$20M	0.11
IDLE	4	0	$210k	$1.6M	0.33

IDLE, as it stands, poses a TWAP oracle exploit threat to the pool. This is due to high CF (50%, high for a low cap) tied with the fact that IDLE has relatively low liquidity. While there are 3 trading pairs on DEX's for IDLE, the deepest liquidity is only $1.2M (on Bancor).

Time Weighted Average Price (TWAP) is a lagging indicator that becomes out of sync with the market-wide price during times of moderate to high volatility, leading to inaccurate data being consumed by smart contracts that put protocols at risk of under-collateralization. The naive way to use an AMM liquidity pool as a price oracle is by simply dividing the number of tokens currently residing within each side of the pool to get an exchange rate. While this does provide the current spot price of the liquidity pool, it's extremely vulnerable to manipulation. Smart contracts using AMM spot prices as oracles can be easily exploited through sandwich attacks — an attack vector where a malicious entity makes a large trade within an AMM liquidity pool to shift the price in their favor, then uses that distorted pricing to unfairly siphon value from smart contracts using that AMM liquidity pool as a spot price oracle. It is therefore highly recommended, even by Uniswap, to avoid using AMM spot prices as oracles because they can (and will) be manipulated, resulting in user losses.

Put simply, an attacker could slowly buy large volumes of IDLE and add to the lending market and then carry out the exploit at any point. To address this concern, just as was the case for $VRN in the 0xB1 Fuse Pool, Inverse should hold off on adding too much $DOLA liquidity until a request that Harvest Finance set a supply limit to the IDLE pool and lower CF is met. While IDLE's liquidity on Bancor may be sufficient to dissuade a malicious actor to perform such an attack (as it would require more capital to corrupt IDLE's price feed than what they stand to gain from draining Fuse Pool 24), if the supply of the pool were to increase dramatically (i.e. if DOLA were to add too much liquidity), this would change.

FARM liquidity may seem to be an issue as well as it is very low on Ethereum DEXs. But FARM has deep liquidity on CEXs (mainly Binance and Coinbase we're trading volume is in the $MMs daily). FARM's price would be difficult to manipulate as supply from CEXs would move to DEXs if there is an arb opportunity. The time window would be small, yet the risk is still present.

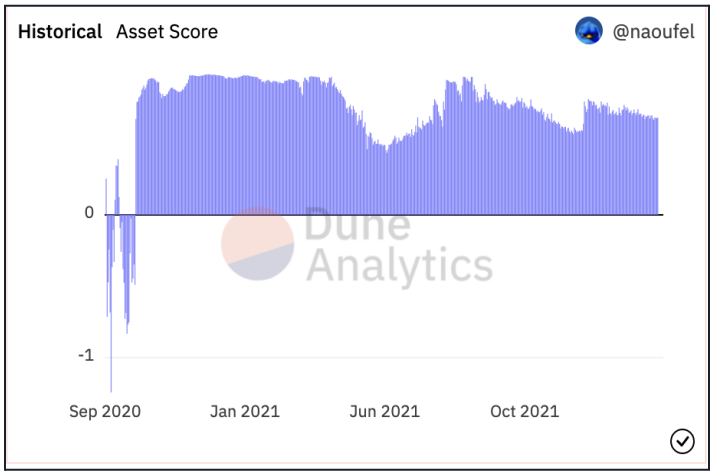
Inverse should always recommend supply caps on lower liquidity TWAPS if not currently present. For assets with very low liquidity (less than $1M), we recommend supply be capped at the depth of the underlying asset in the DEX with the most liquidity.

Collateral Stats:

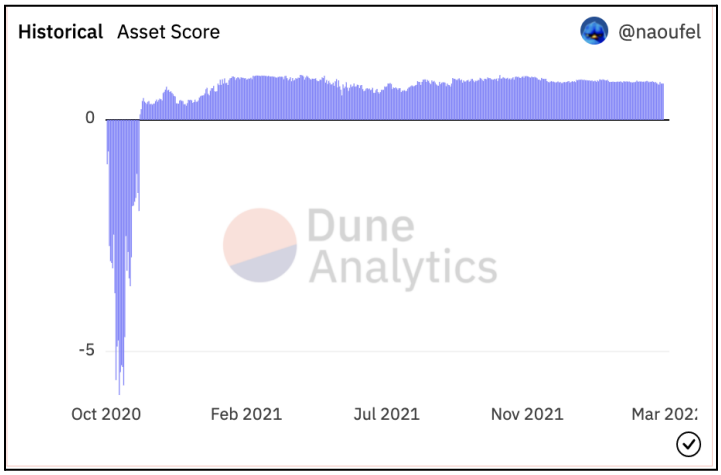
- FARM - CF is slightly high at 60% (better at 50%), but reserves are high at 20%. Liquidation risk is present but historically this pool has only seen 9, while the token price of FARM is down 75% from yearly highs. One can expect this trend of minimal liquidations to continue.
- iFARM - Same comments as above.
- RGT - No cause for concern.
- IDLE - CF is high (better at 30-40%). A high CF on an asset with low liquidity is a cause for concern (see above).

Safety Scores:

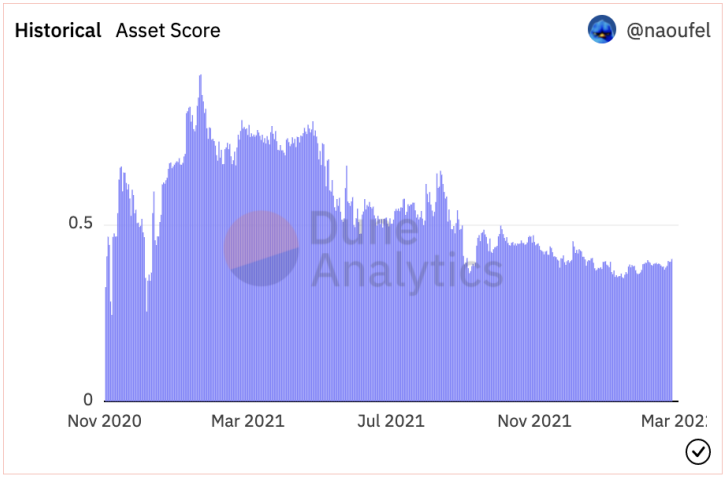
SS are high for RGT and FARM. FARM SS and historic performance makes 60% CF more justifiable. iFARM SS is low but that is tied to liquidity issues (justifiable given it's an interest bearing token) and low swap and transfer figures (part of the SS calculation). See charts below: (Note outliers present. Need this fixed)



$FARM Safety Score



$RGT Safety Score



$IDLE Safety Score

Recommendation:

Compared to Fuse Pool 127 (0xB1's Kitchen Sink), risk is lower here but still present. Future success of this pool will be dictated by Harvest Finance. One can expect current flow to continue (supply FARM, iFARM, and ETH to borrow stables). Given FARM fair Safety Score, usage of Chainlink oracle, and acceptable CF (60%), Risk Team approves DOLA Fed injecting DOLA capital to pool.

Inverse should request that Harvest Finance lower the CF for $IDLE, and that they set a supply limit low enough to significantly lower the risk of an exploit (see details in Oracle section). In the interim, Risk Team recommends an injection of 250k $DOLA. Expectation is that borrowing DOLA will be slow.