

Risk Assessment of Active FiRM Markets (Apr '23)

Summary

Market	Total Asset Score	Collateral Factor	Supply Ceiling	Daily Borrow Limit
wETH	N/A*	80%	\$5M	\$500k
stETH	9.28	80%	\$5M	\$500k
gOHM	8.38	75%	\$5M	\$500k
CRV	8.86	75%	\$5M	\$500k

*benchmark

Background

Since its inception, FiRM has been operating in a "guarded mode," with limited amounts of DOLA available to borrow in the four active markets. This approach allowed for careful monitoring and risk assessments of new potential collateral assets, resulting in the launch of three additional markets with calibrated parameters. Moving beyond this safeguarded period, the Risk Working Group is proposing periodic parameter adjustments to existing markets to create a more attractive platform. Proposed changes might include adjustments in collateral factors, daily borrow limits, liquidation factors, and market supply ceilings, evaluated by the Risk Working Group to attract new users whilst still maintaining stability and security of the platform.

Methodologies

Asset Scoring Model

The Analytics Working Group, in close collaboration with the Risk Working Group, has devised a comprehensive, in-house [asset scoring model](#). This framework evaluates the relative "risk" of any asset, using wETH as a benchmark, by considering six essential factors:

- market capitalization,
- trading volume,
- price volatility,
- token distribution,
- project fundamentals; and
- token utility.

We derive the Total Asset Score (TAS) by using the following formula :

$$TAS = 0.2 * (MCS + PFS + TUS) + 0.15 * (TVS + PVS + TDS) + 0.1 * PFS$$

Where:

- MCS : Market Capitalization Score

$$MCS = \min(10, (Token\ Supply * Token\ Price * 200) / (wETH\ Supply * wETH\ price) * 10)$$

- TVS : Trading Volume Score

$$TVS = \min(10, (30\ Day\ Avg\ Token\ Trading\ Volume / 30\ Day\ Avg\ wETH\ Trading\ Volume) * 10)$$

- PVS : Price Volatility Score

$$PVS = \min(10, 10 - (Token\ Log\ Price\ Volatility / wETH\ Log\ Price\ Volatility) * 9)$$

- TDS : Token Distribution Score

$$TDS = \min((1 - Token\ Gini\ Index) * 10 / (1 - wETH\ Gini\ Index); 10)$$

- PFS : Project Fundamentals Score

Subjective evaluation (1-10) based on team experience, technology, and roadmap

- TUS : Token Utility Score

Subjective evaluation (1-10) based on token use cases and functionality

The weights were determined based on the relative importance of each factor in evaluating token risk. As we build out a registry of TAS for a variety of collateral options and match them with findings from other risk profiling frameworks and methodologies, the RWG will be able to rely more and more on the Asset Scoring Model. As of now, our data indicates any asset with $TAS > 8$ can be deemed an asset carrying a low risk profile. $8 > TAS > 7$ warrants caution, and, if approved, a “guarded” launch on FiRM. $TAS < 7$ should not be considered worthy of a FiRM market.

RWG Risk Assessments

Risk Assessments conducted by the Risk Working Group (RWG) serve to identify, evaluate, and prioritize risks associated with a specific entity, protocol, collateral, or initiative. The purpose of these assessments is to provide a comprehensive and objective analysis of potential risks and their potential impact on Inverse Finance. This information can then be used to inform risk management strategies and decision-making processes, helping to mitigate or minimize the identified risks.

Parameter Recommendations

Parameter recommendations for new markets and changes to existing markets on FiRM are the end result of RWG Risk Assessments and include suggested values for various risk parameters such as the supply ceiling, the collateral factor, daily borrow limit, the liquidation factor, etc. These recommendations serve as a starting point for an informed conversation amongst core contributors and community members alike of Inverse Finance DAO.

By providing clear parameter recommendations, the RWG helps to ensure that new markets added to the FiRM protocol are appropriately risk-managed and able to operate in a safe and sustainable manner. This helps to protect the protocol and its users from potential losses and enables the protocol to continue to provide innovative and valuable fixed-rate lending services to the DeFi community.

wETH Market

Asset Scoring Model

As wETH is the asset used as the benchmark in our Asset Scoring Model, as well as the collateral being studied, the RWG relied on other metrics and tools to provide their recommendation for parameter changes to the market on FiRM. This follows in the write-up below.

Parameter Recommendations

Supply Ceiling:

- **The RWG recommends an increase of the supply ceiling from \$1M to \$5M.** This increase takes into consideration the current risk profile and mainnet liquidity of wETH and will accommodate future demand for the market. wETH has strong market depth (e.g. wETH/USDC uniV2 LP with \$251M liquidity and wETH/USDT uniV2 LP with \$37M liquidity) and any liquidation would flow smoothly with minimal slippage. At the same time, DOLA's overall [liquidity picture](#) warrants an increase in supply ceilings for all FiRM markets of collaterals with deep liquidities. In 2023, DOLA has grown and remained healthy despite recent unfavorable market conditions and the USDC depeg event of March. More importantly, DOLA can be injected into individual markets gradually to match demand, and in accordance with overall DOLA health and what is deemed "safe" at the time. Moving forward, assessments made on supply ceilings for individual markets will weigh more on the collateral and the risk they carry, and less on DOLA and systemic considerations.

Collateral Factor:

- **The RWG recommends the collateral factor for wETH be increased to 80%.** This factor strikes a balance between risk management and meeting the demand for loans. wETH is a pristine collateral option, and while it is still subject to price volatility and market fluctuations, liquidity depth and price impact simulations show it would take a position of noteworthy size on FiRM to move the needle. It's important to note it holds the necessary characteristics to warrant a further collateral factor increase down the line.



Daily Borrow Limit:

- The daily borrow limit for wETH was originally set at \$100,000, then raised to \$250,000 in late March. This limit was intentionally conservative and designed to manage risk while still allowing for market demand to be met. **At this stage, the RWG recommends this amount be increased to \$500k.** While we believe this figure is still conservative (given depth of wETH liquidity), we intend to recommend further increases as market usage grows (assuming DOLA's overall liquidity picture remains healthy). Any future increases will be closely monitored by the RWG to ensure that risk is being appropriately managed.

stETH Market

Asset Scoring Model

The RWG performed a risk assessment on stETH making use of our in-house comprehensive [asset scoring model](#). This framework evaluates the relative “risk” of stETH as an asset, using wETH as a benchmark, by considering six essential factors: market capitalization, trading volume, price volatility, token distribution, project fundamentals, and token utility. A breakdown of the Total Asset Score (TAS) follows:

Component	Link	Score
Market Capitalization	https://dune.com/queries/2356777?token_address_t6c1ea=0xae7ab96520DE3A18E5e11B5EaAb095312D7fE84	10.00
DEX Trading Volume	https://dune.com/queries/2356672/3860322?token_address_t6c1ea=0xae7ab96520DE3A18E5e11B5EaAb095312D7fE84	10.00
Price Volatility	https://dune.com/queries/2356606/3860242?token_address_t6c1ea=0xae7ab96520DE3A18E5e11B5EaAb095312D7fE84	9.88
Token Distribution	https://dune.com/queries/2392823?d=4&q=erc20.+balance&token_address_t6c1ea=0xae7ab96520DE3A18E5e11B5EaAb095312D7fE84	7.06
Project Fundamentals	 Risk Assessment stETH Collateral on FiRM	8.42
Token Utility	 Risk Assessment stETH Collateral on FiRM	9.50
Total Asset Score		
$TAS = 10 * 0.2 + 10 * 0.15 + 9.9 * 0.15 + 7.1 * 0.1 + 8.4 * 0.2 + 9.5 * 0.2$		
$TAS = 9.28 / 10$		

Parameter Recommendations

Supply Ceiling:

- Setting the supply ceiling for stETH requires taking into account the asset's liquidity, slippage figures, and market demand. stETH liquidity is the highest amongst LSD's (stETH/ETH Curve LP is close to 50/50 balance with \$1.28B in liquidity). Consequently, slippage and price impact figures are negligible even at seven-figure levels, and peg is expected to stay very tight (relative to ETH) post-Shanghai upgrade. **As such, we recommend the supply ceiling be increased to \$5,000,000 to better accommodate the incoming demand expected for the wETH market.**

Collateral Factor:

- Setting the collateral factor for stETH requires balancing the risks associated with the asset being used as collateral with the demand for loans. **stETH's liquidity, market maturity (Lido's stETH is a powerhouse in the liquid staking category, with \$11.9 billion TVL and growing), and technical attributes (Shanghai upgrade has been successful), justify raising the collateral factor to 80%.** This would enable us to offer a more competitive market while still ensuring appropriate risk management measures are in place.



Daily Borrow Limit:

- The daily borrow limit for stETH was originally set at \$100,000, then raised to \$250,000 in late March. This limit was intentionally conservative and is designed to manage risk while still allowing for market demand to be met. **At this stage, the RWG recommends this amount be increased to \$500k.** While we believe this figure is still conservative (given depth of stETH liquidity), we intend to recommend further increases as market usage grows (assuming DOLA's overall liquidity picture remains healthy). Any future increases will be closely monitored by the RWG to ensure that risk is being appropriately managed.

gOHM Market

Asset Scoring Model

The RWG performed a risk assessment on gOHM making use of our in-house comprehensive [asset scoring model](#). This framework evaluates the relative “risk” of gOHM as an asset, using wETH as a benchmark, by considering six essential factors: market capitalization, trading volume, price volatility, token distribution, project fundamentals, and token utility. A breakdown of the Total Asset Score (TAS) follows:

Component	Link	Score
Market Capitalization	https://dune.com/queries/2356777?token_address_t6c1ea=0x0ab87046fbb341d058f17cbc4c1133f25a20a52f	4.40
DEX Trading Volume	https://dune.com/queries/2356672/3860322?token_address_t6c1ea=0x0ab87046fbb341d058f17cbc4c1133f25a20a52f	10.00
Price Volatility	https://dune.com/queries/2356606/3860242?token_address_t6c1ea=0x0ab87046fbb341d058f17cbc4c1133f25a20a52f	10.00
Token Distribution	https://dune.com/queries/2392823?d=4&q=erc20.+balance&token_address_t6c1ea=0x0ab87046fbb341d058f17cbc4c1133f25a20a52f	10.00
Project Fundamentals	 Risk Assessment gOHM Collateral on FiRM	7.47
Token Utility	 Risk Assessment gOHM Collateral on FiRM	10
Total cvxCRV Asset Score		
$TAS = 4.4 * 0.2 + 10 * 0.15 + 10 * 0.15 + 10 * 0.1 + 7.5 * 0.2 + 10 * 0.2$		
$TAS = 8.38 / 10$		

Parameter Recommendations

Supply Ceiling:

- The supply ceiling for gOHM should be set based on the liquidity of the asset and overall demand for the market. Presently, liquidity for gOHM on mainnet resides in three Uniswap LPs paired with wETH and USDC with relatively shallow depth (~\$382,000 total in paired liquidity). In the context of liquidation routing, liquidators can make use of the ohm staking contract to unwrap gOHM. Here liquidity is sufficiently available for liquidators as OHM can count on two deep LPs on Balancer; OHM/wETH and OHM/DAI with ~\$33M in cumulative pairing depth. [Simulations](#) show an \$5M OHM dump would result in a 24.6% price impact. At this level, we can still guarantee the security of the protocol. **Given all the above, the RWG recommends a supply ceiling increase to \$5,000,000.** This amount marks a significant increase and will be monitored closely. DOLA injected into the market will ultimately be at the Fed Chair multisig's discretion, and the RWG recommends gradual increases be made to match market demand vs. an all-in-one approach. Any adjustments to DOLA available in the market, expansions or contractions, will be made as necessary taking gOHM (& OHM) liquidity on mainnet, demand for the market and overall DOLA health into consideration.

Collateral Factor:

- **In the case of gOHM, the RWG determined that the current collateral factor is appropriate, competitive, and is recommending no changes be made to it at this time.** This value may be adjusted in the future based on market conditions and changes in the risk profile of CRV.


Daily Borrow Limit:

- The daily borrow limit for gOHM was originally set at \$250,000, following successful launches of the wETH and stETH markets. **Given DOLA's present day liquidity picture, the RWG recommends this amount be increased to \$500k.** We believe this figure more aligned with FiRM's present capacity to lend out DOLA. Any future increases will be closely monitored by the RWG to ensure that risk is being appropriately managed.

CRV Market

Asset Scoring Model

The RWG performed a risk assessment on CRV making use of our in-house comprehensive [asset scoring model](#). This framework evaluates the relative “risk” of CRV as an asset, using wETH as a benchmark, by considering six essential factors: market capitalization, trading volume, price volatility, token distribution, project fundamentals, and token utility. A breakdown of the Total Asset Score (TAS) follows:

Component	Link	Score
Market Capitalization	https://dune.com/queries/2356777?token_address_t6c1ea=0xD533a949740bb3306d119CC777fa900bA034cd52	10,00
DEX Trading Volume	https://dune.com/queries/2356672/3860322?token_address_t6c1ea=0xD533a949740bb3306d119CC777fa900bA034cd52	10.00
Price Volatility	https://dune.com/queries/2356606/3860242?token_address_t6c1ea=0xD533a949740bb3306d119CC777fa900bA034cd52	6.71
Token Distribution	https://dune.com/queries/2392823?d=4&q=erc20.+balance&token_address_t6c1ea=0xD533a949740bb3306d119CC777fa900bA034cd52	6.48
Project Fundamentals	 Risk Assessment CRV Collateral on FiRM	9.21
Token Utility	 Risk Assessment CRV Collateral on FiRM	9.25
Total Asset Score		
$TAS = 10 * 0.2 + 10 * 0.15 + 6.7 * 0.15 + 6.5 * 0.1 + 9.2 * 0.2 + 9.3 * 0.2$		
$TAS = 8.86 / 10$		

Parameter Recommendations

Supply Ceiling:

- **The RWG recommends increasing the supply ceiling for CRV to \$5,000,000.** With crvUSD and other upcoming positive catalysts for Curve, we believe this is an opportune time to accommodate for more borrows in the market. On the liquidity front, CRV can count on a deep CRV/ETH Curvev2 LP with ~\$74M in liquidity, and a second CRV/wETH Univ2LP with \$3.3M in depth. Simulations ran on the Curve LP show a \$5M CRV sell order would result in a 40% impact on price. At this level, we can still guarantee the security of the protocol. As with the other supply ceiling increases, this value will be closely monitored and may be further adjusted in the future based on market demand and liquidity. Cumulatively, the RWG recommended changes to the supply ceiling parameters of existing markets would bring FiRM global supply ceiling to \$20MM. This is a significant increase to where it stands currently at \$4MM. Following the success of our “guarded” launch and two full security audits (Code4rena and Nomoi), the RWG now believes that, within reason, DOLA supplies in the individual markets should be left up to the discretion of the Fed Chair multisig. While the FiRM Fed doesn’t have the ability to react as quickly to market events as the various AMM Feds do, we can assume FiRM Fed DOLAs will always be repaid in the event of a DOLA depeg. Here, users will buy cheap DOLAs to repay their loans making them profitable, and in doing so, the FiRM Fed will play its part in bringing DOLA back to health. In regards to this, RWG’s updated position states that supply ceilings can be increased so long as FiRM Global Supply Ceiling \leq AMM Fed Balance (which currently sits at over \$40MM). And that what is supplied to individual markets is up to the discretion of the Fed Chair multisig.

Collateral Factor:

- **In the case of CRV, the RWG determined that the current collateral factor is appropriate, competitive, and is recommending no changes be made to it at this time.** This value may be adjusted in the future based on market conditions and changes in the risk profile of CRV.

Daily Borrow Limit:

- The daily borrow limit for CRV was originally set at \$250,000, following successful launches of the wETH and stETH markets. **Given DOLA’s present day liquidity picture, the RWG recommends this amount be increased to \$500k.** We believe this figure more aligned with FiRM’s present capacity to lend out DOLA. Any future increases will be closely monitored by the RWG to ensure that risk is being appropriately managed.